

Group - III
Paper - XX

Strategic Performance Management and Business Valuation



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

(Statutory body under an Act of Parliament)

www.icmai.in

SYLLABUS - 2016

WORK BOOK

STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

FINAL

GROUP – IV

PAPER – 20



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Preface

Professional education systems around the world are experiencing great change brought about by the global demand. Towards this end, we feel, it is our duty to make our students fully aware about their curriculum and to make them more efficient.

Although it might be easy to think of the habits as a set of behaviours that we want students to have so that we can get on with the curriculum that we need to cover. It becomes apparent that we need to provide specific opportunities for students to practice the habits. Habits are formed only through continuous practice. And to practice the habits, our curriculum, instruction, and assessments must provide generative, rich, and provocative opportunities for using them.

The main purpose of this volume is to disseminate knowledge and motivate our students to perform better, as we are overwhelmed by their response after publication of the first edition. Thus, we are delighted to inform our students about the **e-distribution of the second edition of our 'Work book'**.

This book has been written to meet the needs of students as it offers the practising format that will appeal to the students to read smoothly. Each chapter includes unique features to aid in developing a deeper understanding of the chapter contents for the readers. The unique features provide a consistent reading path throughout the book, making readers more efficient to reach their goal.

Discussing each chapter with illustrations integrate the key components of the subjects. In the second edition, we expanded the coverage in some areas and condensed others.

It is our hope and expectation that this second edition of work book will provide further an effective learning experience to the students like the first edition.

The Directorate of Studies,

The Institute of Cost Accountants of India



Work Book

STRATEGIC PERFORMANCE MANAGEMENT AND BUSINESS VALUATION

FINAL GROUP – IV PAPER – 20

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SUGGESTED MARKS DISTRIBUTION FROM EXAMINATION POINT OF VIEW

Only for Practice Purpose

Total 100 Marks	3 Hours	MCQ = 20 Marks
		Others = 80 Marks

Objective Question

20 Marks (2 Marks each questions)	MCQ	1 mark for correct answer
		1 mark for justification

Short Notes / Case Study

Minimum Marks for each Questions	3 Marks
Maximum Marks for each Questions	10 Marks

Practical Problem

Minimum Marks for each Questions	4 Marks
Maximum Marks for each Questions	16 Marks

SECTION – A : STRATEGIC PERFORMANCE MANAGEMENT

Study Note – 1

CONCEPTUAL FRAMEWORK OF PERFORMANCE MANAGEMENT

Learning Objective: To understand Performance Management, which is considered as an opportunity for managers and their subordinates to be engaged in a partnership of purpose, direction and effort as they strive to fulfil both personal and organisational objectives.

1. Explain the concept of “Performance Management”.

Answer:

“Performance management” is a continuous process of identifying, measuring and developing the performance of the human resources in organisations by linking each individual's performance and objectives to the organization's overall mission and goals. The definition has two key elements:

(a) Continuous process: Performance management is ongoing. It involves a never-ending process of setting goals and objectives, observing performance, and giving and receiving ongoing coaching and feedback.

(b) Link to mission and goals: Performance management requires managers to ensure that employees' activities and outputs are congruent with the organisation's goals and, consequently, help the organisation gain a competitive business advantage.

It is the process of identifying, measuring, managing and developing the performance of the human resources in an organisation. Performance management focuses mainly on the achievement of results. It differentiates the aspects, such as being engaged and producing results- which means, being busy should not necessarily be indicating that the results are being produced.

2. Distinguish between “Performance Management” and “Performance Appraisal”.

Answer:

The points of differences between “Performance Management” and “Performance Appraisal” are listed below:

S.N.	Performance Management	Performance Appraisal
1.	It is a comprehensive approach.	It is a narrow and limited approach.
2.	It is a flexible process.	It is a monolithic system.
3.	It is usually not directly linked to pay.	It is often linked to pay.
4.	Here, documentation is kept to a minimum.	It involves complex paperwork.
5.	It is owned by line managers.	It is owned by the HR department.
6.	It focuses on values, behaviours and objectives.	It focuses on quantified objectives.
7.	Here, the use of rating is less common.	Here, the rating is frequently used.
8.	It focuses on the present and the future.	Its focus is on the past.
9.	It is a strategic tool.	It is an operational tool.
10.	The approach is holistic.	The approach is individualistic.
11.	It is a process.	It is a system.

3. List the components of Performance Management.

Answer:

The key components of "Performance Management" are stated below:

- (i) Performance Planning:** Performance planning is the first crucial component of any performance management process. It forms the basis of performance appraisals. Performance planning is jointly done by the appraiser and the reviewer at the beginning of a performance session. During this period, the employees decide upon the targets and the key performance areas which can be performed over a year within the performance budget, which is finalized after a mutual agreement between the reporting officer and the employee. Organizations using Balance Score Card (BSC), drill Key Performance Indicators (KPIs) down the hierarchy so that each employee is responsible for definite results (called Key Result Areas or KRAs).
- (ii) Performance Appraisal and Reviewing:** The appraisals are normally performed twice in a year in an organization in the form of mid reviews and annual reviews which is held at the end of the financial year. In this process, the appraisee first offers the self-filled up ratings in the self-appraisal form and also describes his/her achievements over a period of time in quantifiable terms. After the self-appraisal, the final ratings are provided by the appraiser for the quantifiable and measurable achievements of the employee being appraised. The entire process of review seeks active participation of both the employee and the appraiser for analyzing the causes of loopholes in the performance and how it can be overcome.
- (iii) Feedback on the Performance followed by personal counselling and performance facilitation:** Feedback and counselling are given a lot of importance in the performance management process. This is the stage in which the employee acquires awareness from the appraiser about the areas of improvements and also information on whether the employee is contributing to the expected levels of performance or not. The employee receives open and very transparent feedback and along with this, the training and development needs of the employee is also identified. The appraiser adopts all the possible steps to ensure that the employee meets the expected outcomes for an organization through effective personal counselling and guidance, mentoring and representing the employee in training programs which develop the competencies and improve the overall productivity.
- (iv) Rewarding good performance:** This is a very vital component as it will determine the work motivation of an employee. During this stage, an employee is publicly recognized for good performance and is rewarded. This stage is very sensitive for an employee as this may have a direct influence on the self-esteem and achievement orientation. Any contributions duly recognized by an organization helps an employee in coping up with the failures successfully and satisfies the need for affection.
- (v) Performance Improvement Plans:** In this stage, a fresh set of goals are established for an employee and a new deadline is provided for accomplishing those objectives. The employee is clearly communicated about the areas in which the employee is expected to improve and a stipulated deadline is also assigned within which the employee must show this improvement. This plan is jointly developed by the appraisee and the appraiser and is mutually approved.
- (vi) Potential Appraisal:** Potential appraisal forms a basis for both lateral and vertical movement of employees. By implementing competency mapping and various assessment techniques, the potential appraisal is performed. The potential appraisal provides crucial inputs for succession planning and job rotation.

4. Explain the concept of “Productivity”.

Answer:

At a basic level, productivity examines the relationship between input and output in a given production process. Thus, productivity is expressed in output versus input formula for measuring production activities. It does not merely define the volume of output, but output obtained in relation to the resources employed. In this context, the productivity of the firm can be defined as a ratio as shown in the following equation:

$$\text{Productivity} = \text{Output(s)} / \text{Input(s)}$$

Productivity can be increased/improved in the following ways:

- (i) By producing more outputs with the same amount of inputs (increasing numerator of the equation keeping the denominator constant)
- (ii) By using fewer inputs for the same amount of outputs (decreasing denominator of the equation keeping the numerator constant)

The highest productivity (efficient point) is achieved when maximum output is obtained for a particular input level. Increasing efficiency definitely raises productivity. Consequently, if the productivity growth of an organization is higher than that of its competitors, or other firms, that firm performs better and is considered to be more efficient.

Productivity is an objective concept. Accordingly, it should be measured against a universal standard.

5. Explain the concept of “Efficiency”.

Answer:

Efficiency reflects the ability of a firm to obtain maximum output from a given set of inputs. If a firm is obtaining maximum output from a set of inputs, it is said to be an efficient firm. It is a measurable concept. It minimises the waste of resources like physical materials, energy and time while accomplishing the required output. Efficiency consists of two main components; technical efficiency and allocative efficiency. Generally, the term efficiency refers to technical efficiency. Technical efficiency occurs if a firm obtains maximum output from a set of inputs. Allocative efficiency occurs when a firm chooses the optimal combination of inputs, given the level of prices and production technology. When a firm fails to choose the optimal combination of inputs at a given level of prices, it is said to be allocatively inefficient, though, it may be technically efficient. Technical efficiency and allocative efficiency combine to provide overall efficiency. When a firm achieves maximum output from a particular input level, with utilization of inputs at least cost, it is considered to be an overall efficient firm.

When considering efficiency analysis in financial institutions, Berger and Humphrey stress that it is important to determine their efficiency because they are in a competitive environment and their strength is vital for solvency. Further, efficiency analysis not only has important ramifications for institutions themselves, as evident in their competitiveness and solvency, it is also important for other interested parties, such as regulatory authorities and the general public.

6. How can productivity and efficiency be measured?

Answer:

Basically, for a single firm that produces one output using a single input, the ratio of output to input is a measure of the productivity level. In this case, productivity is relatively easy to measure. However, in the case of many outputs and many inputs in a production process, the measurement of an output-input

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ratio is difficult. Hence, many different approaches have been applied by many researchers to the measurement of productivity and efficiency changes in various types of institutions, and levels of DMUs (Decision Making Units) as well. Further, different approaches to productivity measurement give different numeric answers. Therefore, it is essential to select appropriate measurements for productivity and efficiency to avoid measurement bias in the results.

The above summarizes the various approaches to the measurement of productivity and efficiency identified from the literature. In general, productivity and efficiency can be measured on a 'Partial' factor or 'Total' factor basis. Partial Factor Productivity (PFP) refers to the change in output owing to the change in the quantity of one input, whereas Total Factor Productivity (TFP) refers to the change in output owing to changes in the quantity of more than one input. Examples of PFP are material yield, output per man-hours, etc. A comprehensive example of TFP is Return On Investment (ROI) or overall profitability index which can be broken up into several parts through product profitability and capital turnover rate.

In general, in an industrial context, goods and services are produced by a combination of many factors or inputs. The output of goods and services cannot be used as a measure of the productivity of any one of the inputs. The output is only a measure of the joint power of inputs to achieve results. This is the main disadvantage of measuring productivity and efficiency using the PFP approach. To overcome this shortcoming of PFP, TFP has been developed. TFP measures overall productivity and efficiency by considering all inputs and all outputs in the production process. With full technical efficiency, producing maximum potential output from the allocated inputs.

7. Explain the concept of "Performance".

Answer:

The term "Performance" is a broad and inclusive concept. The word 'Performance' is derived from the word 'parfourmen', which means 'to do', 'to carry out' or 'to render'. In border sense, it refers to the degree to which achievement is being or has been accomplished. In the business sector, performance is about improving all the factors that increase the profit—factors that reduce expenditure, increase income, and result in more output per unit input. In the public sector, performance is about how one maximises the quality, scope and timeliness (waiting times) of one's service delivery while minimising the inputs that are required. Ultimately, performance is about maximising the amount of output energy from a system. Hence, performance will be the product of efficiency, utilisation and productivity.

8. What do you mean by "Financial Performance Analysis"?

Answer:

"Financial Performance Analysis" is the process of identifying the financial strengths and weaknesses of the firm by properly establishing the relationship between the items of balance sheet and profit and loss account. It also helps in short-term and long-term forecasting and growth can be identified with the help of financial performance analysis. The analysis of financial statement is a process of evaluating the relationship between the component parts of the financial statement to obtain a better understanding of the firm's position and performance. This analysis can be undertaken by the management of the firm or by parties outside the firm, namely, owners, creditors, investors. In short, the firm itself, as well as various interested groups such as managers, shareholders, creditors, tax authorities, and others seek answers to the following important questions:

- (i) What is the financial position of the firm at a given point of time?
- (ii) How is the Financial Performance of the firm over a given period of time?

These questions can be answered with the help of the financial analysis of a firm. The financial analysis involves the use of financial statements. A financial statement is an organized collection of data according to logical and consistent accounting procedures. Its purpose is to convey an understanding of some financial aspects of a business firm. It may show a position at a moment of time as in the case of a Balance Sheet or may reveal a series of activities over a given period of time, as in the case of an Income Statement. Thus, the term 'financial statements' generally refers to three basic statements: Balance Sheet, Income Statement & Cash-Flow Statement.

9. List the areas / perspectives of "Financial Performance Analysis".

Answer:

Financial analysts often assess the firm's production and productivity performance, profitability performance, liquidity performance, working capital performance, fixed assets performance, fund flow performance and social performance. Financial health is measured from the following areas/perspectives:

- (i) Working capital Analysis
- (ii) Financial structure Analysis
- (iii) Activity Analysis
- (iv) Profitability Analysis

10. Explain the significance of "Financial Performance Analysis".

Answer:

The interest of various related groups is affected by the financial performance of a firm. Therefore, these groups analyze the financial performance of the firm. The type of analysis varies according to the specific interest of the party involved.

Trade creditors and suppliers: Trade creditors are interested in the liquidity of the firm (appraisal of the firm's liquidity). The suppliers and other creditors are interested to know about the solvency of the business i.e. the ability of the company to meet the debts as and when they fall due.

Bondholders and lenders: They are interested in the cash-flow ability of the firm (appraisal of firm's capital structure, the major sources and uses of funds, profitability over time, and projection of future profitability). Lenders to the business like debenture holders, suppliers of loans and lease are interested to know the short-term as well as long-term solvency position of the organisation.

Investors: They are interested in the present and expected future earnings as well as the stability of these earnings (appraisal of firm's profitability and financial condition)

Management: They are interested in internal control, better financial condition and better performance (appraisal of the firm's present financial condition, evaluation of opportunities in relation to this current position, return on investment provided by various assets of the company, etc).

11. Discuss different types of "Financial Performance Analysis".

Answer:

Financial performance analysis can be classified into different categories on the basis of material used and modes operandi as under:

A. Material used: On the basis of material used financial performance can be analyzed in following two ways:

- (i) **External analysis:** This analysis is undertaken by the outsiders of the business namely investors, potential investors, credit agencies, government agencies, and the general public who have no access to the internal records of the company. They mainly use published financial statements for the analysis and as it serves limited purposes. Nevertheless, the current changes in the government regulations requiring business firms to make available more detailed information to the public through audited published accounts have significantly improved the position of the external analysis.
- (ii) **Internal analysis:** This analysis is undertaken by the persons namely executives and employees of the organisation or by the officers appointed by government or court who have access to the books of account and other information related to the business.

B. Modus operandi: On the basis of modus operandi financial performance can be analysed in the following two ways:

- (i) **Horizontal Analysis:** In this type of analysis, financial statements for a number of years are reviewed and analysed. The current year's figures are compared with the standard or base year and changes are shown usually in the form of a percentage. A base year is a year chosen as the beginning point. This analysis helps the management to have an insight into levels and areas of strength and weaknesses. This analysis is also called "Dynamic Analysis" as it based on data from various years rather than on data of any one year. The horizontal analysis makes it possible to focus attention on items that have changed drastically during the period under review.
- (ii) **Vertical Analysis:** In this type of analysis, a study is made of the quantitative relationship of the various items of financial statements on a particular date. This analysis is useful in comparing the performance of several companies in the same group, or divisions or departments in the same company. Common-size financial statements and financial ratios are the two techniques employed in the vertical analysis. This analysis is not much helpful in the proper analysis of the firm's financial position because it depends on the data for one period. This analysis is also called "Static Analysis" as it based on data from one date or for one accounting period. However, it may be used along with horizontal analysis to make it more useful and meaningful.

12. Explain three accounting techniques of "Financial Performance Analysis".

Answer:

Various accounting techniques such as Comparative Financial Analysis, Common-size Financial Analysis, Trend Analysis, Fund Flow Analysis, Cash Flow Analysis, CVP Analysis, Ratio Analysis, Value Added Analysis etc. may be used for the purpose of financial analysis. Three such techniques are discussed hereunder:

- (i) **Ratio Analysis:** In order to evaluate financial condition and performance of a firm, the financial analyst needs certain tools to be applied on various financial aspects. One of the widely used and powerful tools is ratio or index. Ratios express the numerical relationship between two or more things. This relationship can be expressed as percentages (25% of revenue), fraction (one-fourth of revenue), or proportion of numbers (1:4). Accounting ratios are used to describe significant relationships, which exist between figures shown on a balance sheet, in a profit and loss account, in a budgetary control system or in any other part of the accounting organization. Ratio analysis plays an important role in determining the financial strengths and weaknesses of a company relative to that of other companies in the same industry. The analysis also reveals whether the company's financial position has been improving or deteriorating over time. Ratios can be classified into four broad groups on the basis of items used: (a) Liquidity Ratio, (b) Capital Structure/Leverage Ratios, (c) Profitability Ratios, and (d) Activity Ratios.

- (ii) **Common-Size Financial Analysis:** Common-size statement is also known as component percentage statement or vertical statement. In this technique net revenue, total assets or total liabilities is taken as 100 per cent and the percentage of individual items are calculated likewise. It highlights the relative change in each group of expenses, assets and liabilities. The ratios in common size statements tend to have less variation than the absolute values themselves, and trends in the ratios can reveal important changes in the business. Historical comparisons can be made in a time-series analysis to identify such trends. Common size statements also can be used to compare the firm to other firms.

Common size financial statements can be used to compare multiple companies at the same point in time. A common-size analysis is especially useful when comparing companies of different sizes. It often is insightful to compare a firm to the best performing firm in its industry (benchmarking). A firm also can be compared to its industry as a whole. To compare to the industry, the ratios are calculated for each firm in the industry and an average for the industry is calculated. Comparative statements then may be constructed with the company of interest in one column and the industry averages in another. The result is a quick overview of where the firm stands in the industry with respect to key items on the financial statements.

- (iii) **Trend Analysis:** Trend analysis indicates changes in an item or a group of items over a period of time and helps to draw the conclusion regarding the changes in data. In this technique, a base year is chosen and the amount of item for that year is taken as one hundred for that year. On the basis of that, the index numbers for other years are calculated. It shows the direction in which concern is going. It is an important tool of horizontal analysis.

13. What is “Supply Chain Management”? List its objectives.

Answer:

Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities. Essentially, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, Supply chain Management integrates supply and demand management within and across companies. The Supply Chain Management Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program.

In a typical supply chain, raw materials are procured and items are produced at one or more factories, shipped to warehouses for intermediate storage, and then shipped to retailers or customers. Consequently, to reduce cost and improve service levels, effective supply chain strategies must take into account the interactions at the various levels in the supply chain. The supply chain, which is also referred to as the Logistic Network, consists of suppliers, manufacturing centres, warehouses, distribution centres, and retail outlets, as well as raw material, work –in- process inventory, and finished product that flow between the facilities.

Supply chain management is a set of approaches utilized to efficiently integrate suppliers, manufacturers, warehouses and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system-wide costs while satisfying service level requirements.

Objective of Supply Chain Management

- (i) Supply chain Management takes into consideration every facility that has an impact on cost and plays a role in making the product conform to customer requirements: from supplier and manufacturing facilities through warehouses and distribution centres to retailers and stores.
- (ii) The supply chain management is to be efficient and cost-effective across the entire system; total system-wide costs from transportation and distribution to inventories of raw materials, work-in-process and finished goods are to be minimised.
- (iii) Finally, supply chain management revolves around the efficient integration of suppliers, manufacturers, warehouses and stores; it encompasses the firm's activities at many levels, from the strategic level through the tactical to the operational level.

14. List the components of Supply Chain Management.

Answer:

There are five basic components of Supply Chain Management. These are explained below:

- (i) **Plan:** This is the strategic portion of SCM. You need a strategy for managing all the resources that go toward the meeting customer demand for your product and services.
- (ii) **Source:** Choose the suppliers that will deliver the goods and services you need to create your product. Develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships.
- (iii) **Make:** This is the manufacturing step. Schedule the activities necessary for production, testing, packaging and preparation for delivery.
- (iv) **Deliver:** This is the part that many insiders refer to as logistics. Coordinate the receipt of orders from customers, develop a network of warehouses, pick carriers to get products to customers and set up an invoicing system to receive payments.
- (v) **Return:** The problem part of the supply chain. Create a network for receiving defective and excess products back from customers and supporting customers who have problems with delivered products.

15. List the benefits of Supply Chain Management (SCM).

Answer:

The benefits of SCM are listed below:

- (i) It facilitates inventory reduction.
- (ii) It helps in improving productivity.
- (iii) It ensures high customer satisfaction.
- (iv) It leads to revenue and profit enhancement.
- (v) It ensures on-time delivery.
- (vi) It helps in logistic cost reduction.
- (vii) It facilitates better order management.
- (viii) It ensures better cash management.
- (ix) It leads to personnel reduction.
- (x) It aids in reducing procurement cost.

16. Define Customer Relationship Management (CRM).

Answer:

At its more formal definition, CRM is a business strategy comprised of a process, organisational and technical change whereby a company seeks to better manage its enterprise around its customer behaviours. It entails acquiring and deploying knowledge about customers and using this information across the various customers' touch points to increase revenue and achieve cost reduction through operational efficiencies.

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CRM is an integrated approach to identifying, acquiring and retaining customers. By enabling organizations to manage and coordinate customer interactions across multiple channels, departments, lines of business and geographies, CRM helps organizations maximize the value of every customer interaction and drive superior corporate performance.

The adoption of CRM is being fuelled by a recognition that long-term relationships with customers are one of the most important assets of an organisation.

CRM is often thought of as a business strategy that enables businesses to:

- Understand the customer
- Retain customers through better customer experience
- Attract new customer
- Win new clients and contracts
- Increase profitably
- Decrease customer management costs

17. Explain the parts of Customer Relationship Management (CRM).

Answer:

CRM is of three types:

- Analytical CRM:** The purpose of analytical CRM is customer data analysis, its evaluation, modelling and prediction of customer behaviour. In real life situation, the analytical CRM can, for example, gather all the data about customers inquiring a specific product by using data mining (tool for data gathering), what services they purchased right away and what services they purchased eventually. It can find patterns in their behaviour and propose next steps during upselling or cross-selling. It can evaluate the efficiency of a marketing campaign, propose prices or even develop and propose new products. This way analytical CRM serves as some sort of help during decision making, e.g. manuals for employees working in services concerned with how to react to certain customer's behaviour.
- Operative CRM:** Operative CRM mainly supports the actual contact with customers conducted by front office workers and general automation of business processes including sales of products, services and marketing. All communication with the customer is tracked and stored in the database and if necessary it is effectively provided to users (workers). The advantage of this approach is the possibility to communicate with various employees using various channels. It can also minimise the time that the worker has to spend typing the information and administrating (the data is shared). This allows the company to increase the efficiency of their employees work and they are then able to serve more customers.
- Collaborative CRM:** Collaborative CRM enables all companies along the distribution channel, as well as all departments in a company, to work together and share information about customers, even speaks about partner relationship management (PRM). But sometimes we might see a rivalry between departments that undermines efforts of CRM to share relevant data throughout the whole company (e.g. information from helpline can help the marketing department choose a point on which it will focus during the next campaign). The goal of collaborative CRM then is maximum sharing of relevant information acquired by all departments with the focus on increasing the quality of services provided to customers. The ultimate outcome of this process should be an increase in customer's utility and his loyalty.

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18. List the objectives of CRM applications.

Answer:

The objectives of using CRM Applications, defined in the following line:

- (i) To support the customer services
- (ii) To increase the effectiveness of direct sales force.
- (iii) To support of business to business activities.
- (iv) To support of business to consumer activities.
- (v) To manage the call center.
- (vi) To operate the In- bound call centre.
- (vii) To operate the Out-bound call centre.
- (viii) To operate the Full automated (i.e. no CRM involvement, "lights out")

19. List the advantages / benefits of Customer Relationship Management (CRM).

Answer:

According to Matušinská the basic advantages and benefits of CRM are these:

- a satisfied customer does not consider leaving
- product development can be defined according to current customer needs
- a rapid increase in quality of products and services
- the ability to sell more products
- optimization of communication costs
- proper selection of marketing tools (communication)
- trouble-free run of business processes
- greater number of individual contacts with customers
- more time for customer
- differentiation from competition
- real-time access to information
- fast and reliable predictions
- communication between marketing, sales and services
- increase in effectiveness of teamwork
- increase in staff motivation

20. Fill in the blanks:

- (i) The _____ System is directed by managers and supervisors but requires active participation by employees.
- (ii) Efficiency consists of two main component _____ efficiency and _____ efficiency.
- (iii) The ratio of output to _____ is a measure of the productivity level.
- (iv) The _____ ratios are used to compare financial statements of different-size companies or of the same company over different periods.
- (v) _____ refers to the change in output owing to the change in the quantity of one input.
- (vi) While _____ is defined in terms of a comparison of two components (inputs and outputs), the highest _____ level from each input level is recognised as the efficient situation.
- (vii) In 'Performance Management', documentation is kept to a -----.
- (viii) If the productivity growth of an organization is higher than that of its competitors, or other firms, that firm performs better and is considered to be more -----.
- (ix) ----- efficiency occurs when a firm chooses the optimal combination of inputs, given the level of prices and the production technology.
- (x) Example of ----- Factor Productivity is Return On Investment (ROI).
- (xi) Performance will be the product of efficiency, utilisation and -----.

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- (xii) In ----- analysis, the current year's figures are compared with the standard or base year and changes are shown usually in the form of percentage.
- (xiii) -----CRM mainly supports the actual contact with customers conducted by front office workers and general automation of business processes.
- (xiv) The purpose of ----- CRM is customer data analysis, its evaluation, modelling and prediction of customer behaviour.
- (xv) -----analysis indicates changes in an item or a group of items over a period of time and helps to draw the conclusion regarding the changes in data.
- (xvi) In ----- analysis, financial statements for a number of years are reviewed and analysed.
- (xvii) -----analysis is also called "Static Analysis" as it based on data from one date or for one accounting period.
- (xviii) The word ----- is derived from the word 'parfourmen', which means 'to do', 'to carry out' or 'to render'.
- (xix) ----- Factor Productivity refers to the change in output owing to changes in the quantity of more than one input.
- (xx) ----- does not merely define the volume of output, but output obtained in relation to the resources employed.

Answer:

Sl. No.	Particulars	Sl. No.	Particulars
i	Performance Management System	xi	productivity
ii	technical, allocative	xii	horizontal
iii	input	xiii	Operative
iv	Common size	xiv	analytical
v	Partial Factor Productivity	xv	Trend
vi	efficiency, productivity	xvi	Horizontal
vii	minimum	xvii	Vertical
viii	efficient	xviii	performance
ix	Allocative	xix	Total
x	Total	xx	Productivity

21. Choose the correct answer:

- (i) Performance will be product of:
 (a) efficiency and utilisation;
 (b) utilisation and productivity;
 (c) efficiency and productivity;
 (d) efficiency, utilisation and productivity.
- (ii) The purpose of supply chain management is
 (a) provide customer satisfaction;
 (b) improve quality of a product;
 (c) integrating supply and demand management;
 (d) increase production.
- (iii) The supply chain concept originated in what discipline?
 (a) marketing;
 (b) operations;
 (c) logistics;
 (d) production.

- (iv) The major decision areas in supply chain management are
 (a) location, production, distribution, inventory;
 (b) planning, production, distribution, inventory;
 (c) location, production, scheduling, inventory;
 (d) location, production, distribution, marketing.
- (v) Which of the following is not one of the Customer Relationship Management (CRM) business drivers?
 (a) Inventory control
 (b) Increase revenues
 (c) Define information needs and flows
 (d) Automation/productivity/efficiency
- (vi) Customer Relationship Management is about:
 (a) Acquiring the right customer
 (b) Instituting the best processes
 (c) Motivating employees
 (d) All of the above
- (vii) Process of managing information about customers to maximize loyalty is said to be
 (a) company relationship management
 (b) supplier management
 (c) retailers management
 (d) customer relationship management
- (viii) A supply chain is made up of a series of processes that involve an input, a _____, and an output.
 (a) shipment
 (b) supplier
 (c) customer
 (d) transformation
- (ix) Which of the following is not an accounting technique to analyse financial performance?
 (a) Trend analysis
 (b) Common-size financial analysis
 (c) Ratio analysis
 (d) Time series analysis.
- (x) Supply Chain Management encompasses the planning and management of all activities involved in —
 (a) sourcing and procurement,
 (b) conversion
 (c) logistics management
 (d) All of the above.
- (xi) Which of the following is not a component of supply chain management?
 (a) Plan;
 (b) Deliver;
 (c) Organising;
 (d) Return.

Answer:

Question No.	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi
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Answer	d	c	a	a	c	d	d	d	d	d	c
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22. State whether the following statements are True or False:

- (i) Performance Appraisal is a comprehensive approach.
- (ii) The highest productivity (efficient point) is achieved when maximum output is obtained for a particular input level.
- (iii) Generally, the term efficiency refers to technical efficiency.
- (iv) Partial Factor Productivity (PFP) refers to the change in output owing to the change in the quantity of one input.
- (v) Bond holders are interested in the liquidity of the firm.
- (vi) 'Horizontal Analysis' is also called Static Analysis.
- (vii) Supply Chain Management encompasses the planning and management of all activities involved in sourcing, procurement, conversion and logistics management activities.
- (viii) CRM is an integrated approach to identifying, acquiring and retaining customers.
- (ix) The purpose of operative CRM is customer data analysis, its evaluation, modeling and prediction of customer behaviour.
- (x) Analytical CRM mainly supports the actual contact with customers conducted by front office workers and general automation of business processes including sales of products, services and marketing.
- (xi) Performance Appraisal is a monolithic system.
- (xii) The approach of performance management is holistic.
- (xiii) Productivity is a subjective concept.
- (xiv) External analysis is undertaken by the persons namely executives and employees of the organisation.
- (xv) Common-size financial statements and financial ratios are the two techniques employed in the vertical analysis.
- (xvi) The 'plan' component of Supply Chain Management is the manufacturing step.

Answer:

Question No.	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	xiv	xv	xvi
Answer	F	T	T	T	F	F	T	T	F	F	T	T	F	F	T	F

23. Match the following:

(i) Performance Management	A. product of efficiency, utilisation and productivity.
(ii) Performance Appraisal	B. the ability of a firm to obtain maximum output from a given set of inputs.
(iii) Efficiency	C. focuses on quantified objectives.
(iv) Performance	D. owned by line managers.

Answer:

Question No.	i	ii	iii	iv
Answer	D	C	B	A

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24. Match the following:

(i) Working capital Analysis	A. the logistic network.
(ii) Bond holders	B. interested in the cash-flow ability of the firm.
(iii) Vertical Analysis	C. an area of Financial Performance Analysis.
(iv) The supply chain	D. useful in comparing the performance of several companies in the same group.

Answer:

Question No.	i	ii	iii	iv
Answer	C	B	D	A

25. Match the following:

(i) Plan	A. is the manufacturing step.
(ii) Make	B. is the part that many insiders refer to as logistics.
(iii) Return	C. is the strategic portion of Supply Chain Management.
(iv) Deliver	D. is the problem part of the Supply Chain Management.

Answer:

Question No.	i	ii	iii	iv
Answer	C	A	D	B

Study Note – 2

PERFORMANCE EVALUATION & IMPROVEMENT TOOLS

Learning Objective: To understand Performance evaluations as key tool in a company's system of monitoring, training and developing an employee. Improving a performance appraisal is a concern for managers as well as employees.

1. What is Balanced Score Card? List its advantages and disadvantages.

Answer:

The concept of Balanced Score Card (BSC) was introduced by Robert S. Kaplan and David P. Norton in 1992. Balanced Score Card (BSC) is a set of financial and non-financial measures relating to company's critical success factors. As a management tool, it helps companies in assessing overall performance and in improving operational processes. Further, it enables management to develop better plans for improvements. It offers managers a balanced view of their organization. The BSC does not focus solely on achieving financial objectives. It is an approach, which provides information to management to assist in strategic policy formulation and achievement. It allows managers to look at the business from four different perspectives by seeking to provide answers to the following four basic questions:

- (1) How do customers see us? (Customer perspective)
- (2) What must we excel at? (Internal business perspective)
- (3) Can we continue to improve and create value? (Learning and growth perspective)
- (4) How do we look to shareholders? (Financial perspective)

Advantages / Benefits

An organization can derive the following benefits from the implementation of BSC:

- (i) It brings organisation's strategy and vision to the centre of management focus so that management is not in a position to deviate from these.
- (ii) It can successfully communicate corporate strategy to the functional heads and organization's subunits.
- (iii) It can assist stakeholders in evaluating the firm.
- (iv) It helps in conducting periodic performance reviews to improve strategy.
- (v) It helps in clarifying and updating budgets.
- (vi) It helps in integrating various corporate programmes.
- (vii) It avoids management reliance on short-term financial measures.
- (viii) It breaks down strategic measures towards lower levels, so that unit managers, operators and employees can see what is required at their level to achieve excellent overall performance.
- (ix) It integrates financial and non-financial performance measures into a single system – a unique thing which traditional controlling techniques never consider.

Disadvantages / Limitations

BSC is subject to following limitations:

- (i) It involves considerable shifts in corporate culture.
- (ii) There is no clear relation between BSC and shareholder value.
- (iii) The measures may give contradictory signals and confuse management.
- (iv) It does not lead to a single aggregate summary of control.

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- (v) There are important perspectives other than the four perspectives of BSC such as managerial development perspectives, social responsibility perspective etc. Ignoring these perspectives converts BSC into an unbalanced one.
- (vi) There are neither any set of standard goals nor any set of standard performance measures for the four perspectives of the BSC.
- (vii) It is silent on suggesting ways for betterment or improvement of performance.

2. Explain the four perspectives of Balanced Score Card.

Answer:

Four perspectives of BSC are- (a) Financial, (b) Customers, (c) Internal Business Process, and (d) Learning and Growth.

(a) Financial: This perspective is concerned with the profit of the enterprises. Under this perspective, the focus will be on financial measures like operating profit, ROI, residual income, economic value added concept, revenue growth, cost reduction, asset utilization etc. These financial measures will provide feedback on whether improved operational performance is being translated into improved financial performance. It indicates whether a company's strategy and operations add value for shareholders.

(b) Customer: The customer perspective considers the business through the eyes of customers. It indicates whether and to what extent the company is meeting the expectations of customers. This perspective captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction. Needs and desires of customers have to be attended properly because customers pay for the organization's cost and provided for its profits. This perspective typically includes several core or genetic measures like market share, customer retention, new customer acquisition, customer satisfaction and customer profitability.

(c) Internal Business Processes: This perspective focuses on the internal business results that lead to financial success and satisfied customer. To meet organizational objectives and customers' expectations, organizations must identify the key business processes at which they must excel. Key processes are monitored to ensure that outcomes will be satisfactory. The principal internal business processes include the following:

- (i) Innovation processes for exploring the needs of the customers.
- (ii) Operation processes with a view to providing efficient, consistent and timely delivery of product/service.
- (iii) Post service sales processes.

(d) Learning and Growth: This perspective looks at the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting accomplishment of organizational goals. In order to meet changing requirements and customer expectations, employees may be asked to shoulder new responsibilities, and may require skills, capabilities, technologies, and organizational designs that were not available before. This perspective identifies the infrastructure that the business must build to create long-term growth and improvement. There will be focus on factors like employee capability, employee productivity, employee satisfaction, employee retention.

3. State the steps in developing Balanced Score Card (BSC). Mention the information required for Performance Measurement under BSC.

Answer:

Steps in developing Balanced Score Card (BSC):

The steps in the process of developing a BSC are:

- Identify the key outcomes to the success of the organization.
- Identify the process that leads to these outcomes.
- Develop key performance indicators for these processes.
- Develop reliable data capture and measurement systems.
- Develop a mechanism for reporting these to the relevant managers and staff.
- Enact improvement programs to ensure that performance improves.

Information required for Performance Measurement under Balanced Score Card (BSC):

The main types of information required by the managers to implement the balanced scorecard approach to performance measurement are:

- (a) **Customer Perspective:** How do customers see us? - Price, quality, delivery, customer support etc.
- (b) **Internal Perspective:** Where we must excel at? - Efficiency of manufacturing process, sales penetration, new production introduction, skilled manpower etc.
- (c) **Learning and Growth Perspective:** Can we continue to improve and create value? -Technology leadership, cost leadership, market leadership, research and development, cost reduction, etc.
- (d) **Financial Perspective:** How do we look to the shareholders? - Sales, cost of sales, return on capital employed, profitability, prosperity etc.

4. What is "Du-Pont-Analysis"?

Answer:

"Du-Pont Analysis" is a method of performance measurement that was started by the DuPont Corporation in the 1920s. According to Du-Pont Analysis, Return on Equity (ROE) is affected by three things: operating efficiency (measured by profit margin); asset use efficiency (measured by total asset turnover); and financial leverage (measured by the equity multiplier). As such, Du-Pont Analysis can be represented in mathematical form by the following calculation:

$$\begin{aligned}\text{ROE} &= \text{Profit Margin} \times \text{Asset Turnover Ratio} \times \text{Equity Multiplier.} \\ &= (\text{Net profit} / \text{Sales}) \times (\text{Sales} / \text{Total Assets}) \times (\text{Total Assets} / \text{Total Equity})\end{aligned}$$

Based on these three performances measures the model concludes that a company can raise its ROE by maintaining a high-profit margin, increasing asset turnover, or leveraging assets more effectively. It highlights the company's strengths and pinpoints the area where there is a scope for improvement.

5. What do you mean by 'Benchmarking'? Explain different types of 'Benchmarking'.

Answer:

Traditionally control involves comparison of the actual results with an established standard or target. The practice of setting targets using external information is known as 'Benchmarking'. Through benchmarking performance is sought to be assessed. It is a continuous process of enlisting the best practices in the world for the process, goals and objectives leading to world-class levels of achievement. It focuses on improvement in key areas and sets targets which are challenging but evidently achievable. Benchmarking implies that there is one best way of doing business and orients the firm accordingly.

Types of Benchmarking

The different types of Benchmarking are:

- i. **Product Benchmarking (Reverse Engineering):** It is an age-old practice of product-oriented reverse engineering. Every organization buys its rival's products and tears down to find out how the features and performances etc., compare with its products. This could be the starting point for improvement.
- ii. **Competitive Benchmarking:** This has moved beyond product-oriented comparisons to include comparisons of the process with those of competitors. In this type, the process studied may include marketing, finance, HR, R&D etc.
- iii. **Process Benchmarking:** It is the activity of measuring discrete performance and functionality against organization through performance in excellent analogous business process. For example, for supply chain management, the best practice would be that of Mumbai Dabbawallas.
- iv. **Internal Benchmarking:** It is an application of process benchmarking, within an organization by comparing the performance of similar business units or business process.
- v. **Strategic Benchmarking:** It differs from operational benchmarking in its scope. It helps to develop a vision of the changed organizations. It will develop core competencies that will help sustain competitive advantage.
- vi. **Global Benchmarking:** It is an extension of Strategic Benchmarking to include benchmarking partners on a global scale. For example, Ford Co. of USA benchmarked its A/c payable functions with that of Mazda in Japan and found to its astonishment that the entire function was managed by 5 persons as against 500 in Ford.

6. List the pre-requisites of Bench Marking.

Answer:

Pre-requisites of Bench Marking are stated below:

- a) **Commitment:** Managers at senior level should support benchmarking fully and must be committed to continuous improvements.
- b) **Clarity of Objectives:** The objectives should be clearly defined at the preliminary stage. Benchmarking teams have a clear picture of their Firm's performance before approaching others for comparisons.
- c) **Appropriate Scope:** The scope of the work should be proper in the light of the objectives, resources, time available and the experience level of those involved.
- d) **Resources:** Adequate resources must be available to finish the projects within the required time scale.
- e) **Skills:** Benchmarking teams should have suitable skills and competencies.
- f) **Communication:** All the stakeholders are to be kept informed of the reasons for benchmarking.

7. List the difficulties in implementation of Bench Marking.

Answer:

The difficulties in implementation of Benchmarking are explained below:

- a) **Time-consuming:** Benchmarking is a time-consuming process and at times difficult. It requires substantial staff time and Company resources. The possibility of companies wasting time in benchmarking non-critical functions can't be ruled out.
- b) **Lack of management Support:** Direct involvement of all managers is absolutely essential for successful Benchmarking implementation. The drive to be best in the industry or world cannot be delegated.
- c) **Resistance from employees:** There may be resistance from the employees.
- d) **Paper Goals:** Companies can become pre-occupied with the measures. The goal becomes not to improve the process, but to match the best practices at any cost.
- e) **Copy-paste attitude:** The key element in benchmarking is the adaptation of a best practice to tailor it to a company's needs and culture. Without that step, it is often observed that a company merely adopts another company's process which leads to a failure of benchmarking goals.

8. What do you mean by "Six Sigma"?

Answer:

Six Sigma is a disciplined, statistical-based, data-driven approach and continuous improvement methodology for eliminating defects in a product, process or service.

Sigma represents the population standard deviation, which is a measure of the variation in a data set collected about the process. If a defect is defined by specification limits separating good from bad outcomes of a process, then a six sigma process has a process mean (average) that is six standard deviations from the nearest specification limit. This provides enough buffer between the process natural variation and the specification limits.

Six Sigma can also be thought of as a measure of process performance, with Six Sigma being the goal, based on the defects per million. Once the current performance of the process is measured, the goal is to continually improve the sigma level striving towards 6 sigma. Even if the improvements do not reach 6 sigma, the improvements made from 3 sigma to 4 sigma to 5 sigma will still reduce costs and increase customer satisfaction (<http://leansixsigmadefinition.com/glossary/six-sigma/>).

Six Sigma is a quality-control program developed in 1986 by Motorola that emphasizes cycle-time improvement and the reduction of manufacturing defects to a level of no more than 3.4 per million. It is a statistical benchmark. Any business process that produces less than 3.4 defects per 1 million chances is considered efficient; defects are considered anything that's produced outside of consumer satisfaction. True believers and practitioners in the Six Sigma method follow an approach called DMAIC: define, measure, analyze, improve and control (<https://www.investopedia.com/terms/s/six-sigma.asp>).

9. Explain the concept of "Statistical Quality Control (SQC)".

Answer:

Statistical Quality Control (SQC) is the term used to describe the set of statistical tools used by quality professionals. SQC is used to analyze the quality problems and solve them. Statistical quality control refers to the use of statistical methods in the monitoring and maintaining of the quality of products and services. All the tools of SQC are helpful in evaluating the quality of services. SQC uses different tools to analyse the quality problem.

1) Descriptive Statistics**2) Statistical Process Control (SPC)****3) Acceptance Sampling**

Descriptive Statistics involves describing quality characteristics and relationships. Included are statistics such as the mean, standard deviation, the range, and a measure of the distribution of data. SPC involves inspecting a random sample of the output from a process and deciding whether the process is producing products with characteristics that fall within a predetermined range. SPC answers the question of whether the process is functioning properly or not. Acceptance Sampling is the process of randomly inspecting a sample of goods and deciding whether to accept the entire lot based on the results. Acceptance sampling determines whether a batch of goods should be accepted or rejected (<https://www.wiley.com/college/sc/reid/chap6.pdf>).

10. List the advantages of “Statistical Quality Control (SQC)”.**Answer:**

The advantages of SQC are stated below:

- (i) It results in improvement in quality.
- (ii) It leads to a reduction of scrap and reworks.
- (iii) It facilitates efficient use of men and machines.
- (iv) It ensures economy in use of materials.
- (v) It helps in removing production bottlenecks.
- (vi) It aids in reducing inspection costs.
- (vii) It is possible to have a scientific evaluation of quality and production.
- (viii) It brings about quality consciousness at all levels.
- (ix) It results in a reduction in customer complaints.

11. Explain the causes of variation in quality.**Answer:**

Variation in quality characteristic is inevitable. As such, measurements taken on some components are bound to vary from piece to piece even though the process may be well under control. This variation is attributable to two types of causes: (a) Natural or Chance Causes and (b) Assignable Causes. Variations due to natural or chance causes are inherent in a process. It is due to multitude of causes which are difficult to identify and uneconomical to eliminate. Common causes of variation are based on random causes that we cannot identify. Further, variations due to chance causes follow statistical laws. In other words, it follows a distribution pattern. Natural variation reduction requires a fundamental change in the process. Assignable causes of variation are generally due to few individual causes which can be identified and eliminated. Some typical chance causes of variation are a small variation in raw material, a small vibration of a machine etc. On the other hand, some typical assignable causes of variations are a batch of defective raw material, faulty set-up, new operator etc. (<http://what-when-how.com/metrology/variations-in-quality-metrology/>)

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12. Distinguish between “Chance Causes” and “Assignable Causes” of variation in quality.

Answer:

The points of differences between “Chance Causes” and “Assignable Causes” of variation in quality are presented below:

	Chance Causes	Assignable Causes
1	These follow statistical laws of variation.	These do not follow any statistical law.
2	Chance Causes consist of many individual causes.	Assignable Causes consist of a few individual causes.
3	Chance variation cannot economically be eliminated from a process.	The presence of assignable variation can be detected and action to eliminate the causes is usually economically justified.
4	It can result in only a very minute amount of variation.	It can result in a large amount of variation.

13. What do you mean by “Statistical Process Control (SPC)”?

Answer:

SPC is a method of measuring and controlling quality by monitoring the manufacturing process. Quality data are collected in the form of product or process measurements or readings from various machines. The data thus collected are then used to evaluate, monitor and control a process. SPC is an effective method to drive continuous improvement. William A. Shewart, a man at Bell Laboratories, developed the control chart and the concept of SPC in 1924. The SPC process gained wide usage during World War II by the military in the munitions and weapons facilities. The use of SPC techniques in America faded following the war. It was then picked up by the Japanese manufacturing companies where it is still used today. In the 1970s, SPC started to gain acceptance again due to American industry feeling pressure from high quality products being imported from Japan. Today, SPC is a widely used quality tool throughout many industries. The SPC process is implemented to move a company from detection-based to prevention-based quality controls (<https://quality-one.com/spc/>).

14. Explain the term “Control Chart” in relation to Statistical Process Control (SPC).

Answer:

The control chart is a graph used to study how a process changes over time. Data are plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit (UCL) and a lower line for the lower control limit (LCL). These lines are determined from historical data. By comparing current data to these lines, one can draw conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation) (<http://asq.org/learn-about-quality/data-collection-analysis-tools/overview/control-chart.html>).

- **Control chart for Attributes**

P Charts - measures proportion defective.

C Charts - measures the number of defects/unit.

- **Control chart for Variables**

X bar and R charts are used together - control a process by ensuring that the sample average and range remain within limits for both.

15. Briefly explain the concept of “Plan-Do-Check-Action (PDCA)”.

Answer:

It was developed by W. Shewhart in the 1930s. It is a classic quality management model promoted and practised in Japan by Dr. W. Edwards Deming. It is the scientific summarization to the continuous improvement.

Shewhart Cycle or PDCA or Deming Cycle or Deming wheel or PDSA (Plan-Do-Study-Act) is explained as follows:

PLAN: Establish the objectives and processes necessary to deliver results in accordance with the specifications.

DO: Implement the processes.

CHECK: Monitor and evaluate the processes and results as agent objectives and specifications and report the outcome. Review the test, analyse the results and identify what you have learned.

ACT: Apply actions to the outcome for necessary improvement. That means reviewing all steps (Plan, Do, Check, Act) and modifying the process to improve it before its next implementation.

16. What do you mean by “Management Information System”? State its componenets.

Answer:

Management Information System (MIS) is a systematic process of providing pertinent information in exact time in the correct format to all levels of users in the organization for effective decision making. MIS is also defined to be a system of collection, processing, retrieving and transmission of data to meet the information requirement of different levels of managers in an organization. MIS can be defined as a network of information that supports management decision making. The role of MIS is to recognise information as a resource and then use it for the effective and timely achievement of organisational objectives.

Components of MIS

The main components of a typical management information system are (<https://www.guru99.com/mis-definition.html>):

- (i) **People:** people who use the information system
- (ii) **Data:** the data that the information system records
- (iii) **Business Procedures:** Procedures put in place on how to record, store and analyze data
- (iv) **Hardware:** These include servers, workstations, networking equipment, printers, etc.
- (v) **Software:** These are programs used to handle the data. These include programs such as spreadsheet programs, database software, etc.

17. List the objectives of MIS.

Answer:

The objectives of MIS are stated below:

- (i) To provide timely and accurate information to all managers for control of business activities
- (ii) To put smphasis on the critical operating factors of the business for proper decision making
- (iii) To build up an orderly and regular communication process within the organization
- (iv) To utilize the available tools and techniques for programmed decision making
- (v) To offer best possible services to customers
- (vi) To gain competitive advantage

18. What do you mean by “Online Analytical Processing Tools (OLAP)”?

Answer:

On-Line Analytical Processing (OLAP) is a category of software technology that enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user.

19. What do you mean by “MOLAP”?

Answer:

MOLAP is a “multi-dimensional online analytical processing”. ‘MOLAP’ is the ‘classic’ form of OLAP and is sometimes referred to as just OLAP. MOLAP stores this data in an optimized multi-dimensional array storage, rather than in a relational database. Therefore it requires the pre-computation and storage of information in the cube – the operation known as processing. MOLAP tools generally utilize a pre-calculated data set referred to as a data cube. The data cube contains all the possible answers to a given range of questions. MOLAP tools have a very fast response time and the ability to quickly write back data into the dataset.

20. What is “ROLAP”?

Answer:

ROLAP works directly with relational databases. The base data and the dimension tables are stored as relational tables and new tables are created to hold the aggregated information. Depends on a specialized schema design. This methodology relies on manipulating the data stored in the relational database to give the appearance of traditional OLAP's slicing and dicing functionality. In essence, each action of slicing and dicing is equivalent to adding a “WHERE” clause in the SQL statement. ROLAP tools do not use pre-calculated data cubes but instead pose the query to the standard relational database and its tables in order to bring back the data required to answer the question. ROLAP tools feature the ability to ask any question because the methodology does not limit to the contents of a cube. ROLAP also has the ability to drill down to the lowest level of detail in the database.

21. What is Materials Requirement Planning?

Answer:

‘Materials Requirement Planning’ is a technique which aims to ensure that material resources (raw materials, bought-in components and in-house sub-assemblies) are made available just before they are needed by the next stage of production or despatch. It is basically an inventory control system which facilitates maintenance of up-to-date records of the status of a large number of items in inventory. MRP takes care of the timely phasing of requirements, planned order releases, generation of component level requirements and rescheduling capability. The core data requirements for operating an MRP system are: (a) Master production schedule, (b) Bill of material file, (c) Inventory file, (d) Routings file, and (e) Master parts file.

22. List the objectives and features of Materials Requirement Planning.

Answer:

Objectives

The basic objective of MRP are as follows:

- (i) To determine the quality and timing of finished goods demanded
- (ii) To determine time phased requirements of the demand for materials, components and sub-assemblies over a specified planning time horizon
- (iii) To compute the inventories, work-in-progress batch sizes and manufacturing and packing lead times
- (iv) To control inventory by ordering components and materials in relation to orders received rather than ordering them from stock level point of view

Features of MRP

The notable features of MRP system include:

- (i) Material requirements for each assembly and sub-assembly are determined on the basis of 'master production schedule'. It is termed as 'backward technique'.
- (ii) Updating of material requirements is done regularly to take stock of the changes in production schedule on account of receipt of new orders, cancellation of orders, machine breakdown, unanticipated scrap, vendor delivery problems etc.
- (iii) The order points for each assembly and sub-assembly are determined in advance on the basis of delivery date and lead time. The materials are made available when needed and not prior to their use. This aspect of MRP helps in reducing investments.
- (iv) Very little safety stocks are maintained under MRP system. Under EOQ model, the safety stocks are maintained to protect the manufacturing operations against future uncertainties.
- (v) Constant check is being exercised to ensure that the items have been ordered and received in time. The delay is expedited by resorting to emergency measures. Forward planning to forecast the future demand is also made.

23. List the data requirements for Materials Requirement Planning.

Answer:

Materials Requirement Planning originated in the early 1960s as a computerised approach for coordinating the planning, acquisition and production of materials. Important requirements for the operation of an MRP system are as follows:

- (i) **Master Production Schedule-** It specifies the quantity of each finished unit of products to be produced along with the time at which each unit will be required.
- (ii) **Bill of Material File-** This file specifies the sub-assemblies, components and materials requirement for each item of finished goods.
- (iii) **Inventory File-** It maintains details of items in hand for each sub-assemblies, components and materials required.
- (iv) **Routing File-** This file specifies the sequence of operations required to manufacture components, subassemblies and finished goods.
- (v) **Master Parts File-** It contains information about the production time of sub-assemblies and components produced internally and lead time for externally procured items.

24. List the prerequisites for successful operation of Materials Requirement Planning.

Answer:

The prerequisites for the successful operation of Materials Requirement Planning are as follows:

- (i) The latest production and purchasing schedules prepared should be strictly adhered to day to day change from predetermined schedules will cause chaos.
- (ii) Raw materials, sub-assemblies and components required for production should be pre-determined in quantifiable terms. Standard should be set for the consumption quantity, quality, mix and yield of raw materials for every unit of finished product.
- (iii) Work-force must be appraised of the system and the need for absolute adherence to the schedules prepared.
- (iv) Necessary internal control system should be developed to ensure total adherence to the schedule.
- (v) Accuracy of the data supplied is vital to the MRP system.

25. List the benefits of Materials Requirement Planning.

Answer:

The benefits of a successful MRP system include:

- (i) It results in significant decrease in inventory levels and a corresponding decrease in inventory carrying costs.
- (ii) There will be a fewer stock shortage. As such, production interruptions will be reduced.
- (iii) It leads to increased effectiveness of production supervisors. As a result, production chaos is minimised.
- (iv) It ensures better customer service.
- (v) It ensures greater responsiveness to change. MRP gives manufacturing a better feel for the effects of economic swings and changes in woodcut demand can be translated into schedule changes quickly.
- (vi) It facilitates closer coordination of the marketing, engineering, and finance activities with the manufacturing activities.

26. What do you mean by “Manufacturing Resource Planning”?

Answer:

Manufacturing Resource Planning utilises software applications for coordinating manufacturing processes, from product planning, parts purchasing, inventory control to product distribution. It is a method for the effective planning of all the resources of a manufacturing company. It also addresses operational planning in units and its financial planning. It is made up of a variety of functions, each linked together: business planning, sales and operations planning, demand management, production planning, master scheduling, material requirement planning, capacity requirement planning, and the execution support systems for capacity and material. The output from these systems is integrated with financial reports such as the business plan, purchase commitment report, shipping budget, inventory projections etc.

27. List the essential elements of Manufacturing Resource Planning.

Answer:

The essential elements of Manufacturing Resource Planning system are as follows:

- (i) **Demand Forecast** - which takes into account firm orders and sales forecasts.
- (ii) **Production Planning** - which converts the demand forecast into a broad statement of output requirements and the necessary production program.
- (iii) **Resource Planning** - which determines the manufacturing resources (materials and bought-in components etc.) required to meet the production program.

- (iv) **Rough-cut Capacity Planning** - which is used to test the feasibility of meeting the production program, taking into account the capacity available.
- (v) **Master Production Schedule** - which is prepared on the basis of the information obtained from the demand forecasting, production planning, resource planning and rough-cut capacity planning processes.
- (vi) **Bills of Material** - it is storage of basic data for defining products, i.e., lists of the components and material required to produce the end-product or assembly.
- (vii) **Materials Requirement Planning** - which determines component and material requirements on the basis of information from the master production schedules and the purchasing and inventory control function,
- (viii) **Detailed Material and Capacity Plans** - which set out the detailed schedules for providing material and capacity as derived from the material requirement plans and detailed capacity planning - only if capacity is available is the plan allowed to proceed.
- (ix) **Shop and Purchase Order Release** - which activate production and purchasing.
- (x) **Shop-floor Control** - which monitors production against the plan and feeds back which enables the master production schedule and capacity and material plans to be updated.
- (xi) **Purchase and Inventory Control** - which monitors purchasing against the material plans and feeds back to the master production schedules and material plans to enable updating to take place as required, Inventory control are also maintained on the basis of shop-floor usage.

28. What is “Enterprise Resource Planning (ERP)”?

Answer:

Enterprise Resource Planning (ERP) means the techniques and concepts for integrated management of the business as a whole from the viewpoint of the effective use of management resources to improve the efficiency of enterprise management. ERP provides integrated business software modules to support functional units of an enterprise. It has a process-oriented approach in the sense that it focuses on core processes like order fulfillment, materials procurement, balance sheet preparation etc. and attempts to integrate various functions of an enterprise involved the execution of these processes. The strength of ERP lies in its ability to go beyond the fulfillment of needs of specific departments or functions and address the needs of an enterprise as a whole. With ERP systems, much information is gathered at the source and placed directly into the computer. As a result, information is available online to others and in real-time. ERP system put all the information into the same underlying database, eliminating many information asymmetries, redundancies and duplication. ERP also facilitates communication and collaboration with outside organizations like suppliers, customers, logistics agents, insurance companies, market enquiries, service outlets, warehouses, retail and wholesale outlets etc.

29. List the features / characteristics of Enterprise Resource Planning (ERP).

Answer:

Some of the major features of an ERP are:

- (i) **Flexibility:** An ERP system is flexible enough to respond fast to the changing needs of the organization.
- (ii) **Comprehensive:** It supports various organizational functions and is suitable for wide range of business organizations. It facilitates integrated information systems covering all functional areas like manufacturing, procurement, sales, distribution, payables, receivables, human resources, inventory, finance etc.
- (iii) **Best business practice:** It has inbuilt best business practices applicable worldwide and imposes its own strategies and logics over existing culture and processes of the organization.

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- (iv) **Beyond the company:** It is not confined to the organizational boundaries. Rather, it is extended to the external business entities connected to the organization with online connectivity.
- (v) **Modular and Open:** ERP system has the open architecture i.e. any modules can be interfaced or detached without affecting the use of rest of the modules.
- (vi) **Problem-solving:** It eliminates business problems like material shortages, productivity, customer service, cash management, quality and prompt delivery.
- (vii) **Reduction in information gap:** It bridges the information gap across organization.
- (viii) **Corporate image building:** □ It enhances customer services through increased efficiency in core activities thus augmenting the corporate image.
- (ix) **Latest technology:** It allows introduction of latest technologies like Electronic funds transfer, Electronic data Interchange, Internet, Intranet, E-commerce etc.
- (x) **Business tools:** It provides intelligent business tools like Decision support system, Executive information system, data mining etc.
- (xi) **Multi-facet:** It provides multi-platform, multi-facility, multi-mode of manufacturing, multi-currency and multi-lingual facilities.

30. List the tangible and intangible benefits of Enterprise Resource Planning (ERP).

Answer:

Benefits from ERP is of two kinds, tangible and intangible. Tangible benefits are those benefits which can be quantified in monetary terms and intangible benefits cannot be quantified in monetary terms but they do have a very positive and significant business impact.

Tangible Benefits

- (i) Lowering the cost of products and services purchased
- (ii) Significant paper and postage cost reductions
- (iii) Improve the productivity of process and personnel
- (iv) Inventory reduction
- (v) Lead time reduction
- (vi) Reduced stock obsolescence
- (vii) Faster product/service lookup and ordering saving time and money
- (viii) Automated ordering and payment, lowering payment processing and paper costs

Intangible Benefits

- (i) Can reach more vendors, producing more competitive bids
- (ii) Accurate and faster access to data for timely decisions
- (iii) Saves enormous time and effort in data entry
- (iv) More controls thereby lowering the risk of misutilization of resources
- (v) Facilitates strategic planning
- (vi) Uniform reporting according to global standards
- (vii) Improved customer response
- (viii) Increases organizational transparency and responsibility

31. List the reasons for failure of ERP.

Answer:

An organization cannot reap desired benefits from ERP system under the following circumstances:

- (i) Lack of effective project management
- (ii) Inability to resolve issues and make decisions in timely manner
- (iii) Resources not available when needed
- (iv) Perceived or real lack of executive support

- (v) Software fails to meet business needs
- (vi) Under estimated levels of Change Management
- (vii) Improper communication
- (viii) Insufficient end user training
- (ix) Failure in gap analysis
- (x) Failure to identify future business needs
- (xi) Technological obsolescence

32. What do you mean by “Total Productivity Management”?

Answer:

TPM originated as an extension of Total Quality Management (TQM) principles to operations whereby each machine operator is sufficiently trained and motivated to operate and maintain the machine in question. Operators working in groups report to groups' supervisors or engineer-in-charge. Being trained in maintenance, an operator can himself diagnose many problems and solve these with maintenance kits at his disposal. Complex problems are intimated to maintenance team for the solution. TPM approach establishes some kind of bondage between machine and its operator who is made to feel like owning the machine. It drives an operator to ensure machine availability, efficiency and reliability. The approach reduces wastes of different forms like idleness due to breakdown, stock-out of some of the regular spares, additional manpower otherwise required for storing some of the regular spares and for regular machine inspection & general maintenance. Thus, TPM favours 'lean' manufacturing. 'Lean' manufacturing or 'lean' enterprise refer to right manpower size in manufacturing or enterprise.

33. What is “Total Productive Maintenance (TPM)”?

Answer:

It was originated in Japan in 1971 as a method for improved machine availability through better utilization of maintenance and production resources. Whereas in most production settings the operator is not viewed as a member of the maintenance team, in TPM the machine operator is trained to perform many of the day-to-day tasks of simple maintenance and fault-finding. Teams are created that include a technical expert (often an engineer or maintenance technician) as well as operators. One way to think of TPM is “deterioration prevention”: deterioration is what happens naturally to anything that is not “taken care of”. For this reason, many people refer to TPM as “total productive manufacturing” or “total process management”. TPM is a proactive approach that essentially aims to identify issues as soon as possible and plan to prevent any issues before the occurrence. One motto is “zero error, zero work-related accident, and zero loss. TPM is a management process developed for improving productivity by making processes more reliable and less wasteful. TPM is an extension of TQM (Total Quality Management). The objective of TPM is to maintain the plant or equipment in good condition without interfering with the daily process. To achieve this objective, preventive and predictive maintenance is required. By following the philosophy of TPM we can minimize the unexpected failure of the equipment. To implement TPM the production unit and maintenance unit should work jointly.

34. What is “Total Quality Management”? List the three principles of TQM.

Answer:

It is an active approach encompassing a company-wide operating philosophy and system for continuous improvement of quality. It demands cooperation from everyone in the company, from the top management down to workers. The emphasis of TQM is to design and build quality in the product, rather than allow defectives and then inspect and rectify them. The focus is on the causes rather than the symptoms of poor quality.

The principles of TQM are as follows:

- a) Customer Focus
- b) Managerial Leadership
- c) Belief in continuous improvement

35. Mention the three core concepts of TQM.

Answer:

The three core concepts of TQM are -

- a) Quality Control (QC):** It is concerned with the past and deals with data obtained from the previous production, which allow an action to be taken to stop the production of defective units.
- b) Quality Assurance (QA):** It deals with the present and focuses to create and operate appropriate systems to prevent defects from occurring.
- c) Quality Management (QM):** It concerned with the future and manages people in a process of continuous improvement to the products and services offered by the firm.

36. List the stages/steps to be taken in the implementation of TQM.

Answer:

Stage 1: Identification of customers / customer groups: Through a team approach (a technique called Multi -Voting), the firm should identify major customer groups. This helps in generating priorities in the identification of customers and critical issues in the provision of decision - support information.

Stage 2: Identifying customer expectations: Once the major customer groups are identified, their expectations are listed. The question to be answered is - What does the customer expect from the Firm?

Stage 3: Identifying customer decision-making requirements and product utilities: By identifying the need to stay close to the customers and follow their suggestions, a decision - support system can be developed, incorporating both financial and non-financial information, which seeks to satisfy user requirements. Hence, the Firm finds out the answer to - What are the customer's decision-making requirements and product utilities? The answer is sought by listing out managerial perceptions and not by actual interaction with the customers.

Stage 4: Identifying perceived problems in decision-making process and product utilities: Using participative processes such as brainstorming and multi-voting, the firm seeks to list out its perception of problem areas and shortcomings in meeting customer requirements. This will list out areas of weakness where the greatest impact could be achieved through the implementation of improvements. The firm identifies the answer to the question - What problem areas do we perceive in the decision-making process?

Stage 5: Comparison with other Firms and benchmarking: Detailed and systematic internal deliberations allow the Firm to develop a clear idea of their own strengths and weaknesses and of the areas of most significant deficiency. Benchmarking exercise allows the Firm to see how other Companies are coping with similar problems and opportunities.

Stage 6: Customer Feedback: Stages 1 to 5 provide an information base developed without reference to the customer. This is rectified at Stage 6 with a survey of representative customers, which embraces their views on perceived problem areas. Interaction with the customers and obtaining their views helps the Firm in correcting its own perceptions and refining its process.

Stage 7 & 8: Identification of improvement opportunities and implementation of Quality Improvement Process: The outcomes of the customer survey, benchmarking and internal analysis, provides the inputs for stages 7 and 8. i.e., the identification of improvement opportunities and the implementation of a formal improvement process. This is done through a six-step process called PRAISE, for short.

37. What is "Quality Circle"? List its attributes.

Answer:

Quality Circle is a small group of 6 to 12 employees doing similar work who voluntarily meet together on a regular basis to identify improvements in their respective work areas using proven techniques for analysing and solving work related problems coming in the way of achieving and sustaining excellence leading to mutual upliftment of employees as well as the organisation. It is "a way of capturing the creative and innovative power that lies within the work force".

The concept of Quality Circle is primarily based on recognition of the value of the worker as a human being, as someone who willingly activates on his job, his wisdom, intelligence, experience, attitude and feelings. It is based upon the human resource management considered as one of the key factors in the improvement of product quality & productivity. Quality Circle concept has three major attributes:

- a. Quality Circle is a form of participation management.
- b. Quality Circle is a human resource development technique.
- c. Quality Circle is a problem-solving technique.

38. List the objectives of Quality Circle.

Answer:

The objectives of Quality Circles are multi-faced.

a) Change in Attitude:

From "I don't care" to "I do care"

Continuous improvement in the quality of work life through humanisation of work.

b) Self Development:

Bring out 'Hidden Potential' of people get to learn additional skills.

c) Development of Team Spirit:

Individual Vs Team - "I could not do but we did it" Eliminate interdepartmental conflicts.

d) Improved Organisational Culture:

- ✓ Positive working environment.
- ✓ Total involvement of people at all levels.
- ✓ Higher motivational level.
- ✓ Participate Management process.

39. List the Quality improvement steps conceptualized by Philip Crosby.

Answer:

The following are the ten steps of Quality improvement, as per Philip Crosby:

- a) Management is committed to quality and this is clear to all.
- b) Create quality improvement teams, with representatives from all departments.
- c) Measure processes to determine current & potential quality issues.
- d) Calculate the cost of poor quality.
- e) Raise quality awareness of all employees.
- f) Take action to correct quality issues.
- g) Monitor progress of quality improvement-Establish a zero-defect committee.

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- h) Train supervisors in Quality improvement.
- i) Encourage employees to create their own quality improvement goals.
- j) Recognize participants' efforts.

40. Choose the correct answer:

- (i) Consultants who contributed to the concept of TQM (Total Quality Management):
 - (a) W. Edwards Deming;
 - (b) Joseph Juran;
 - (c) A. V. Feigenbaum;
 - (d) All of the above
- (ii) Which of the following does not form part of Benchmarking process?
 - (a) Redesign
 - (b) Planning
 - (c) Analysis
 - (d) Integration
- (iii) Which one of the following is not a measure related to Balanced Score Card?
 - (a) Financial
 - (b) Customer satisfaction
 - (c) Internal processes
 - (d) Gap analysis
- (iv) Benchmarking Focuses on:
 - (a) Production
 - (b) Best practices
 - (c) Best performance
 - (d) Supply chain management
- (v) Benchmarking is:
 - (a) The analytical tool to identify high cost activities based on the 'Pareto Analysis'
 - (b) The search for industries best practices that lead to superior performance
 - (c) The simulation of cost reduction schemes that help to build commitment and improvement of actions
 - (d) The process of marketing and redesigning the way a typical company works
- (vi) Total Quality Management emphasises:
 - (a) the responsibility of the Quality Control staff to identify and solve all quality-related problems
 - (b) a commitment to quality that goes beyond internal company issues to suppliers and customers
 - (c) a system where strong managers are the only decision makers
 - (d) a process where mostly statisticians get involved
- (vii) A successful TQM program incorporates all of the following except :
 - (a) continuous improvement
 - (b) employment involvement
 - (c) benchmarking
 - (d) centralized decision making authority
- (viii) The six sigma DMAIC process consist of:
 - (a) define, measure, analyze, improve, control
 - (b) define, manage, analyze, improve, control
 - (c) define, measure, analyze, improve, co-ordination
 - (d) deliver, measure, analyze, improve, control

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- (ix) The components of Stewart Cycle or PDCA are:
 (a) Plan-Do-Check-Act
 (b) Plan-Define-Check-Act
 (c) Plan-Do-Control-Act
 (d) Program-Do-Check-Act
- (x) The type of benchmarking, which is concerned with the development of core competencies that will help sustained competitive advantage, is called:
 (a) Global Benchmarking
 (b) Strategic Benchmarking
 (c) Internal Benchmarking
 (d) Competitive Benchmarking

Answer:

Question No.	i	ii	iii	iv	v	vi	vii	viii	ix	x
Answer	d	a	d	b	b	b	d	a	a	b

41. State whether the following statements are True or False:

- (i) The BSC (Balanced Scorecard) puts more stress on financial parameters than on non-financial parameters since its objective is the growth of the organization.
- (ii) Balance Score Card is a performance measurement tool for controlling individual productivity.
- (iii) Quality Circle is a small group of 6 to 12 employees doing similar work who voluntarily meet together on a regular basis to identify improvements in their respective work.
- (iv) Quality Assurance deals with the present and focuses to create and operate appropriate systems to prevent defects from occurring.
- (v) 'Lean' manufacturing or 'lean' enterprise refer to right manpower size in manufacturing or enterprise.
- (vi) What must we excel at? The question relates to the customer perspective of the BSC.
- (vii) Internal Business Processes of the BSC looks at the ability of employees, the quality of information systems, and the effects of organizational alignment in supporting accomplishment of organizational goals.
- (viii) The practice of setting targets using external information is known as 'Benchmarking'.
- (ix) Assignable Causes of variation are based on random causes that we cannot identify.
- (x) Chance Causes of variation in quality follow statistical laws of variation.
- (xi) X bar and R charts are used together for attributes.
- (xii) Customer perspective of the Balanced Score Card is concerned with the profit of the enterprises.
- (xiii) Learning and Growth perspective of the Balanced Score Card focuses on the internal business results that lead to financial success and satisfied customer.
- (xiv) Through benchmarking performance is sought to be assessed.
- (xv) Process Benchmarking is also known as Reverse Engineering.
- (xvi) Statistical quality control refers to the use of statistical methods in the monitoring and maintaining of the quality of products and services.
- (xvii) Acceptance Sampling involves describing quality characteristics and relationships.
- (xviii) Variations due to natural or chance causes are inherent in a process.
- (xix) C-Charts measure the number of defects/unit.
- (xx) The role of MIS is to recognise information as a resource and then use it for the effective and timely achievement of organisational objectives.
- (xxi) The strength of ERP lies in its ability to go beyond the fulfillment of needs of specific departments or functions and address the needs of an enterprise as a whole.

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Answer:

Question No.	i	ii	iii	iv	v	vi	vii	viii	ix	x	xi
Answer	F	F	T	T	T	F	F	T	F	T	F
Question No.	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx	xxi	
Answer	F	F	T	F	T	F	T	T	T	T	

42. Fill in the blanks:

- (i) MOLAP is a _____ online analytical processing.
- (ii) The Balanced Scorecard is a management system, not a _____ system.
- (iii) _____ is thus used for scheduling, inventory management and capacity management.
- (iv) P Charts measures _____ defective in Statistical Process Control (SPC) Methods.
- (v) -----benefits cannot be quantified in monetary terms but they do have a very positive and significant business impact.
- (vi) An ERP system is ----- enough to respond fast to the changing needs of the organization.
- (vii) -----of the data supplied is vital to the Materials Requirement Planning system.
- (viii) P charts and C charts are control charts for -----.
- (ix) ----- causes of variation are generally due to few individual causes which can be identified and eliminated.
- (x) ----- perspective of BSC captures the ability of the organization to provide quality goods and services, the effectiveness of their delivery, and overall customer service and satisfaction.
- (xi) Balanced Score Card (BSC) is a set of -----and non-financial measures relating to company's critical success factors.
- (xii) ----- Benchmarking is also known as reverse engineering.
- (xiii) ----- Benchmarking is an extension of Strategic Benchmarking to include benchmarking partners on a global scale.
- (xiv) Sigma represents the ----- standard deviation, which is a measure of the variation in a data set collected about the process.
- (xv) Six Sigma is a ----- benchmark.
- (xvi) ----- Statistics involves describing quality characteristics and relationships.
- (xvii) Variations due to chance causes follow ----- laws.
- (xviii) ---- Chart measures proportion defective.
- (xix) MIS can be defined as a network of ----- that supports management decision making.
- (xx) ----- works directly with relational databases.

Answer:

Sl. No.	Particulars	Sl. No.	Particulars
i	multi-dimensional	xi	financial
ii	measurement	xii	Product
iii	Materials Requirement Planning	xiii	Global
iv	proportion	xiv	population
v	Intangible	xv	statistical
vi	flexible	xvi	Descriptive
vii	Accuracy	xvii	statistical
viii	attributes	xviii	P
ix	Assignable	xix	information
x	Customer	xx	ROLAP

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43. Match the following:

(i) PDCA	A. Kaplan & Norton
(ii) Balanced Scorecard	B. ROLAP
(iii) Total Productivity Management	C. Plan, Do, Check, Act
(iv) Strategic-level information systems	D. help senior management
(v) Online analytical processing	E. zero product defects

Answer:

Question No.	i	ii	iii	iv	v
Answer	C	A	E	D	B

44. Match the following:

(i) How do we look to shareholders?	A. Customer Perspective
(ii) Where we must excel at?	B. Financial perspective
(iii) How do customers see us?	C. Learning and Growth Perspective
(iv) Can we continue to improve and create value?	D. Internal Perspective

Answer:

Question No.	i	ii	iii	iv
Answer	B	D	A	C

45. Match the following:

(i) Quality Circle	A. provides integrated business software modules to support functional units of an enterprise.
(ii) Total Productivity Management	B. a method for the effective planning of all the resources of a manufacturing company.
(iii) Enterprise Resource Planning	C. a small group of 6 to 12 employees doing similar work who voluntarily meet together on a regular basis
(iv) Manufacturing Resource Planning	D. originated as an extension of Total Quality Management

Answer:

Question No.	i	ii	iii	iv
Answer	C	D	A	B

46. Match the following:

(i) Benchmarking	A. answers the question of whether the process is functioning properly or not.
(ii) Six Sigma	B. the use of statistical methods in the monitoring and maintaining of the quality of products and services.
(iii) Statistical Quality Control	C. continuous improvement methodologies for eliminating defects in a product, process or service.
(iv) Statistical Process Control	D. practice of setting targets using external information.

Answer:

Question No.	i	ii	iii	iv
Answer	D	C	B	A

Study Note – 3

ECONOMIC EFFICIENCY OF THE FIRM - PERFORMANCE ANALYSIS

Learning Objective: To understand the efficiency through which production is carried on, useful instrument to link firms' economic performance and the existence of credit constraints.

1. Choose the correct alternative
 - (i) Which of the following statements is true?
 - a. Elasticity of demand is constant throughout the demand curve.
 - b. Elasticity of demand increases as one goes down the demand curve.
 - c. Elasticity of demand decreases as one goes down the demand curve.
 - d. The slope of the demand curve equals its elasticity.
 - (ii) If the total expenditure of the consumer increases as a result of an increase in the price of the commodity, the elasticity of demand for the commodity is
 - a. Infinity
 - b. Greater than one
 - c. Less than one
 - d. Equal to one
 - (iii) If the supply of a commodity is perfectly elastic, an increase in demand will result in
 - a. Decrease in both price and quantity at equilibrium
 - b. Increase in both price and quantity at equilibrium
 - c. Increase in equilibrium quantity, equilibrium price remaining constant
 - d. Increase in equilibrium price, equilibrium quantity remaining constant
 - (iv) If proportion of income spent on a good is significant, price elasticity of demand for the good tends to be
 - a. Perfectly elastic
 - b. Elastic
 - c. Inelastic
 - d. Perfectly inelastic.
 - (v) Which of the following is/are true?
 - a. Income elasticity is the ratio of percentage change in the price of a good to the percentage change in the income.
 - b. Goods are independent if a price change for one has no effect on the demand for the other.
 - c. The reciprocal of income elasticity is the percentage change in the income to the percentage change in the quantity demanded of a good.
 - d. Both (b) and (c) above.
 - (vi) A demand curve shows
 - a. The quantity demanded of a good at various levels of income of the consumer
 - b. The quantity demanded of a good at various levels of price of the good
 - c. The amount of money spent by a consumer on the good at various levels of price
 - d. The quantity supplied of a good at various levels of price of the good

- (vii) Which of the following is not true?
- The law of demand says, *ceteris paribus*, the lower the price of a good, the greater the quantity demanded.
 - The law of supply says, *ceteris paribus*, the higher the price of a good, the greater the quantity supplied.
 - The supply curve for a highly perishable good is horizontal.
 - The demand curve for a life saving drug is almost vertical,
- (viii) For complementary products, the cross elasticity of demand will be
- Zero
 - Infinity
 - Positive, but less than infinity
 - Negative
- (ix) When the income elasticity of demand for a good is negative, the good is
- Normal good
 - Luxury good
 - Inferior good
 - Giffen good
- (x) The price elasticity of demand for a product is infinity. If the firm increases price of the product by 10%, total revenue of the firm will
- Increase to infinity
 - Fall to zero
 - Decrease by more than 10%
 - Decrease by less than 10%.
- (xi) When consumption of a product remains unaffected by the change in price of the product, demand for the product is
- Perfectly inelastic
 - Kinked
 - Perfectly elastic
 - Unitary elastic
- (xii) Total revenue will increase -
- When demand is elastic and price rises,
 - When demand is elastic and price decreases,
 - When demand is inelastic and price decreases.
 - When demand is perfectly elastic and price decreases,
- (xiii) In perfect competition, a firm maximizing its profits will set its output at that level where
- Average variable cost = price
 - Marginal cost = price
 - Fixed cost = price
 - Average fixed cost = price
- (xiv) Average fixed cost
- Always declines as the output increases
 - Is U-shaped, if there are increasing returns to scale
 - Is U-shaped, if there are decreasing returns to scale
 - Is intersected by marginal cost at its minimum point

- (xv) In the short run which of the following is not true of a profit-maximizing firm operating under perfect competition?
- P - MC
 - MR - MC
 - AR = MR = MC
 - P=AR = AC
- (xvi) Which of the following curves is called envelope curve?
- Long run total cost curve.
 - Long run average total cost curve,
 - Long run marginal cost curve.
 - Long run average variable cost curve,
- (xvii) The supply curve under perfect competition in the short run resembles
- Average cost curve above break-even point.
 - Marginal cost curve above shut down point.
 - Marginal utility curve.
 - Average utility curve.
- (xviii) Which of the following is not a feature of perfect competition?
- Large number of sellers and buyers.
 - No one is large enough to influence the market price.
 - A horizontal demand curve.
 - Low price.
- (xix) The horizontal demand curve for a firm is one of the characteristic features of
- Oligopoly
 - Monopoly
 - Monopolistic competition
 - Perfect competition
- (xx) In India which of the following best describes a perfectly competitive market?
- Wheat cultivation
 - Indian railways
 - Soft drinks industry
 - Toilet soap industry
- (xxi) In a monopoly, price is
- Lesser than the marginal revenue
 - Greater than the average revenue %;
 - Greater than the marginal revenue
 - Equal to the total revenue
- (xxii) The demand for which of the following goods best illustrates derived demand?
- Rice
 - Motor car
 - Machinery
 - Book
- (xxiii) A perfectly competitive firm earns abnormal profits when its
- Average revenue curve is tangent to average cost curve
 - Demand curve lies above the average cost curve
 - Marginal revenue curve lies above the average cost curve
 - Both (b) and (c) above.

- (xxiv) Which of the following is true with reference to marginal revenue (MR) in a monopoly?
- When MR is negative, AR will be negative.
 - When MR is negative, price will be negative.
 - When demand slopes downward price will be less than MR.
 - MR curve lies below the AR curve.
- (xxv) The equilibrium condition for a monopoly firm is
- Total cost should be minimum
 - Total revenue should be maximum
 - Marginal revenue = Marginal cost
 - Quantity should be maximum
- (xxvi) Which of the following is false in a monopolistic competition?
- Many buyers and sellers,
 - Identical products.
 - Easy entry and exit.
 - Price of the competitor is the benchmark price.
- (xxvii) Which of the following is not a feature of monopolistic competition?
- Large number of sellers
 - No single seller has control over the market
 - Horizontal demand curve for the firm
 - Differentiated products
- (xxviii) When the demand for most products varies directly with the change in consumer income, such products are known as
- Normal goods
 - Prestigious goods
 - Complementary goods
 - Inferior goods
- (xxix) In case of monopolistic competition, the long run equilibrium price will be equal to
- Marginal revenue
 - Average cost
 - Marginal cost
 - Minimum average cost
- (xxx) The cross price elasticity of demand for the products X and Y is 10, It implies that X and Y are
- Substitutes
 - Complements
 - Independent
 - Inferior goods
- (xxxi) Which of the following does not cause a shift in the demand curve?
- Change in the price of the good.
 - Change in the income of the buyers.
 - Change in the price of the related goods.
 - Change in the consumer taste and preferences
- (xxxii) In a long run period
- All costs are fixed costs
 - All costs are variable costs
 - Fixed costs tend to be greater than variable costs
 - Fixed costs tend to be less than variable costs
 - None of the above.

- (xxxiii) Which of the following best describes monopoly? ,
- An indisputable market leader in an industry,
 - Only a single buyer in the market.
 - A single seller with large control over the price in the industry. ,
 - Only a single seller with complete control over the industry.
- (xxxiv) For a perfectly competitive firm the shut down point in the short run is where the price of the product falls below the
- Total cost
 - Fixed cost
 - Average variable cost
 - Semi-fixed cost
- (xxxv) Which of the following is not a legal barrier to entry?
- Patents.
 - Economies of scale,
 - Franchise,
 - Copy rights.
- (xxxvi) In case of inferior goods, if income increases the demand of the good will
- Increase
 - Decrease
 - Remain unaffected
 - None of the above
- (xxxvii) If cross price elasticity is positive the goods are
- Substitute
 - Complementary
 - Normal
 - Inferior
- (xxxviii) If cross price elasticity is -1.5 between tea and sugar, if price of sugar increases by 10%, the demand of tea will
- Will reduce by 15%
 - Will increase by 15%
 - Will reduce by 1.5%
 - Will increase by 1.5%
- (xxxix) Which of the following is not true for a perfectly competitive firm?
- The firm can earn super normal profit in the short run.
 - The firm can suffer from a loss in the short run.
 - The firm can earn only normal profit in the short run.
 - The firm can earn only normal profit in the long run.
- (xl) Which of the following is essential for the equilibrium of a perfectly competitive industry?
- All firms get only normal profit
 - At equilibrium MC , MR , AC and AR are equal.
 - Only possible in short run
 - No. of firms is limited

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- (xli) Which of the following is not a kind of price discrimination?
- Personal discrimination
 - Local discrimination
 - Trade discrimination
 - Feature discrimination
- (xlii) Which of the following is/are the conditions for price discrimination?
- More than one market
 - Different price elasticity
 - Both (a) and (b)
 - None of (a) and (b)
- (xliii) Which of the following is false for perfect competition?
- In perfect competition there is no price discrimination.
 - Under perfect competition price is determined at the level where demand and supply are equal.
 - In perfect competition there is no free entry & exit.
 - In perfect competition $AR=MR$
- (xliv) Which of the following is not a feature of oligopoly?
- Interdependence
 - Indeterminate demand curve
 - Existence of selling cost
 - Price flexibility
- (xlv) Which of the following is not a model associated with Duopoly?
- Cournot's solution
 - Edgeworth model
 - Chamberlin's model
 - Dual model

Solution:

(i)	c	(xiii)	b	(xxv)	c	(xxxvii)	a		
(ii)	c	(xiv)	a	(xxvi)	b	(xxxix)	c		
(iii)	c	(xv)	d	(xxvii)	c	(xl)	c		
(iv)	b	(xvi)	b	(xxviii)	a	(xli)	d		
(v)	d	(xvii)	b	(xxix)	b	(xlii)	c		
(vi)	b	(xviii)	d	(xxx)	a	(xlili)	c		
(vii)	c	(xix)	d	(xxxii)	a	(xliv)	d		
(viii)	d	(xx)	a	(xxxiii)	b	(xlv)	d		
(ix)	c	(xxi)	c	(xxxiv)	d				
(x)	b	(xxii)	c	(xxxv)	c				
(xi)	a	(xxiii)	d	(xxxvi)	b				
(xii)	b	(xxiv)	d						

2. Demand curve faced by a monopolist is $P = 250 - Q$. Cost function of the monopolist is $C = 100 + 50Q$. What is the maximum possible profit earned by the firm?

Solution:

Demand function $P = 250 - Q$

$TR = PQ$

$= 250Q - Q^2$

$$MR = \frac{dTR}{dQ} = 250 - 2Q$$

Cost function

$$TC = 100 + 50Q$$

$$MC = \frac{dTC}{dQ} = 50$$

To maximize profit $MR = MC$

$$\text{i. e. } 250 - 2Q = 50$$

$$Q = 100$$

$$P = 250 - 100 = 150$$

Profit of the non-discriminating monopolist

$$= TR - TC$$

$$= (100 \times 150) - (100 + 50 \times 100)$$

$$= ₹ 9,900.$$

3. **Bajaj Ltd., a monopolist, can effectively segment the market into two sub-markets with the demand functions: $P_1 = 300 - 2Q_1$ and $P_2 = 200 - 2Q_2$. If price discrimination is allowed, what is the maximum possible profit that can be earned by the monopolist?**

Solution:

With price discrimination,

$$P_1 = 300 - 2Q_1$$

$$TR_1 = 300Q_1 - 2Q_1^2$$

$$MR_1 = 300 - 4Q_1$$

$$P_2 = 200 - 2Q_2$$

$$TR_2 = 200Q_2 - 2Q_2^2$$

$$MR_2 = 200 - 4Q_2$$

To maximize profits, the discriminating monopolist should equate $MR_1 = MC$ and $MR_2 = MC$

$$\text{So, } 300 - 4Q_1 = 50$$

$$Q_1 = 62.5$$

$$\text{Similarly, } 200 - 4Q_2 = 50$$

$$\text{So, } Q_2 = 37.5$$

Prices in the sub-markets are

$$P_1 = 300 - (2 \times 62.5)$$

$$= 175$$

$$P_2 = 200 - (2 \times 37.5)$$

$$= 125$$

$$Q_1 = 62.5; P_1 = 175$$

$$Q_2 = 37.5; P_2 = 125$$

Profit of the discriminating monopolist

$$= (TR_1 + TR_2) - TC$$

$$= (62.5 \times 175 + 37.5 \times 125) - 5000 = ₹ 10,625.$$

4. **The average variable cost function of a manufacturing unit is $AVC = 200 - 9Q + 0.25Q^2$. Fixed costs are ₹150. What is the minimum possible marginal cost?**

Solution:

$$\begin{aligned}AVC &= 200 - 9Q + 0.25Q^2 \\VC &= Q \times AVC = 200Q - 9Q^2 + 0.25Q^3; \text{ Fixed cost} = 150 \\TC &= FC + VC = 150 + 200Q - 9Q^2 + 0.25Q^3 \\MC &= \frac{dTC}{dQ} = 200 - 18Q + 0.75Q^2\end{aligned}$$

Minimum possible MC is where $\frac{dMC}{dQ} = 0$

$$\frac{dMC}{dQ} = -18 + 1.5Q = 0$$

So, $Q = 12$

$$MC = 200 - (18 \times 12) + (0.75 \times 12^2) = ₹92.$$

5. **Racing Cycles Ltd. operates under conditions of perfect competition. The Total Cost (TC) function of the firm is estimated as follows:**

$$TC = 200 + 150Q - 20Q^2 + Q^3$$

Where, Q is quantity. What is the price below which the firm will be forced to shut down its operations?

Solution:

The firm will be forced to shut down its operations if the price is less than the minimum average variable cost.

From the total cost function

$$TC = 200 + 150Q - 20Q^2 + Q^3$$

Marginal cost is the first derivative of the total cost function

$$MC = \frac{dTC}{dQ} = 150 - 40Q + 3Q^2$$

From the total cost function, total variable cost function can be derived as

$$TVC = 150Q - 20Q^2 + Q^3$$

$$\begin{aligned}\text{Average variable cost} &= \frac{TVC}{Q} = \frac{1}{Q} (150Q - 20Q^2 + Q^3) \\&= 150 - 20Q + Q^2\end{aligned}$$

Since the average variable cost will be minimum at its intersection with marginal cost, the minimum average variable cost is where, $AVC = MC$

$$\text{So, } 150 - 20Q + Q^2 = 150 - 40Q + 3Q^2$$

$$\text{Or, } 150 - 20Q + Q^2 - 150 + 40Q - 3Q^2 = 0$$

$$\text{Or, } 20Q - 2Q^2 = 0$$

$$\text{Or, } 2Q(10 - Q) = 0$$

Which has the roots $Q = 0$ and 10 .

Disregarding the root associated with a zero output, the average variable cost is the minimum at an input of 10 units.

$$AVC = 150 - 20(10) + 10^2 = 150 - 200 + 100 = ₹50$$

Thus, it is not viable for the firm to produce output at any price less than ₹50.

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6. The cost and profit functions of a firm are

$$TC = 200 + 10Q$$

$$\text{Profit} = -10Q^2 + 20Q - 200$$

If the firm aims, at maximizing total revenue, the output should be

Solution:

$$\begin{aligned}\text{Revenue} &= \text{Profits} + \text{Total Cost} \\ &= -10Q^2 + 20Q - 200 + 200 + 10Q = -10Q^2 + 210Q\end{aligned}$$

Revenue will be maximum when $\frac{dTR}{dQ} = 0$

$$\text{Here, } \frac{dTR}{dQ} = -20Q + 210 = 0$$

So, $Q = 10.5$ units.

7. The total sales revenue function of a firm is $R = 1000Q - 2Q^2$, and its total cost function is $C = Q^3 - 59Q^2 + 1315Q + 2000$. Determine the profit maximizing output of the firm.

Solution:

Now, the profit-maximising level of output can be determined in the following way:

$$\text{The profit } (\pi) \text{ function of the firm will be: } \pi = R - C = (1000Q - 2Q^2) - (Q^3 - 59Q^2 + 1315Q + 2000)$$

The *first-order condition* for profit maximisation requires

$$\text{Here, } \frac{d\pi}{dQ} = 1000 - 4Q - 3Q^2 + 118Q - 1315 = 0$$

$$\text{or } -3Q^2 + 114Q - 315 = 0$$

$$\text{or } 3Q^2 - 114Q + 315 = 0$$

$$\text{or, } Q^2 - 38Q + 105 = 0$$

$$\text{or } Q^2 - 35Q - 3Q + 105 = 0$$

$$\text{or } Q(Q-35) - 3(Q-35) = 0$$

$$\text{or } (Q-35)(Q-3) = 0$$

Thus, the profit-maximising level of output may be either $Q = 35$ or $Q = 3$. To show the equilibrium level of output, the *second order condition* for maximisation has to be tested, i.e.

$$\frac{d^2\pi}{dQ^2} < 0$$

$$\text{If } Q = 3, \frac{d^2\pi}{dQ^2} = -4 - (6 \times 3) + 118 > 0$$

$$\text{If } Q = 35, \frac{d^2\pi}{dQ^2} = -4 - (6 \times 35) + 118 < 0$$

Hence, the profit-maximising level of output is 35 units.

8. Find the Elasticity of Demand for the following:

$$P = 12 / (x + 3)^2$$

Solution:

$$(i) P = 12/(x + 3)^2 = 12(x + 3)^{-2}$$

Differentiating w.r.to x

$$dp/dx = 12(-2)(x + 3)^{-3} = -24(x + 3)^{-3}$$

$$p/x = 12/x(x + 3)^2$$

Elasticity of demand $|E_p| = |dx/dp \times p/x|$

$$dx/dp = 1/-24(x + 3)^{-3} = (x + 3)^3/24$$

$$|dx/dp \times p/x| = (x + 3)^3/24 \times 12x(x + 3)^2$$

$$= (x + 3)/2x$$

9. The total revenue function of a firm is given by $R = 100Q - 2Q^2$. Calculate average revenue of the firm for $Q = 20$. If the price elasticity of demand at any point on the (linear) demand curve is 2, then show the marginal revenue of the firm. Further calculate average revenue for $Q = 30$. Now considering that elasticity as 0.5, what would be the value of marginal revenue?

Solution:

Here, the total revenue function of the firm is given by $R = 100Q - 2Q^2$

$$\text{So, Average revenue (AR)} = \frac{R}{Q} = (100Q - 2Q^2)/Q = 100 - 2Q.$$

$$\text{When } Q = 20, \text{ then } AR = 100 - (2 \times 20) = 100 - 40 = ₹ 60$$

$$\text{Now, if } Q = 30, \text{ then } AR = 100 - (2 \times 30) = ₹ 40$$

We know that $MR = AR(1 - \frac{1}{e})$ where e = elasticity of demand

$$\text{If } e = 2 \text{ and } AR = ₹ 60, \text{ then } MR = 60(1 - \frac{1}{2}) = ₹ 30$$

$$\text{Again if } e = 0.5 \text{ and } AR = ₹ 40, \text{ Then } MR = 40(1 - 1/0.5) = - ₹ 40.$$

Thus the firm earns negative marginal revenue. Since the firm is expected to incur a positive marginal cost, so it will not produce at this situation.

10. A revenue maximising monopolist requires a profit of a least ₹ 1500. His demand and cost functions are $P = 304 - 2Q$ and $C = 500 + 4Q + 8Q^2$ respectively. Determine his revenue-maximising level of output and price.

Solution:

A revenue-maximising monopolist sets his output subject to a minimum acceptable level of profit (i.e., ₹ 1500). The total revenue of function of this monopolist will be

$$R = P \cdot Q = (304 - 2Q)Q = 304Q - 2Q^2$$

Since, his cost function is given by

$$C = 500 + 4Q + 8Q^2$$

So, the profit function can be stated as

$$\pi = (304Q - 2Q^2) - (500 + 4Q + 8Q^2) \text{ and this profit should be greater than or at least equal to ₹ 1500.}$$

Let us assume that the profit is equal to ₹ 1500.

$$\begin{aligned}\text{So, } 304Q - 2Q^2 - 500 - 4Q - 8Q^2 &= 1500 \\ \text{or } -10Q^2 + 300Q &= 2000 \\ \text{or } 10Q^2 - 300Q + 2000 &= 0 \\ \text{or } Q^2 - 30Q + 200 &= 0 \\ \text{or } Q^2 - 20Q - 10Q + 200 &= 0 \\ \text{or } Q(Q - 20) - 10(Q - 20) &= 0 \\ \text{or } (Q - 20)(Q - 10) &= 0\end{aligned}$$

Thus the revenue maximising level of output may either be 20 or 10 units.

We know that the total revenue function faced by the monopolist is
 $R = 304Q - 2Q^2$

$$\begin{aligned}\text{If } Q = 20 \text{ units, } R &= (304 \times 20) - 2(20)^2 = 6080 - 800 = ₹ 5280 \\ \text{Again, if } Q = 10 \text{ units, } R &= (304 \times 10) - 2(10)^2 = 3040 - 200 = ₹ 2840\end{aligned}$$

Since the total revenue is relatively higher at $Q = 20$, so the revenue monopolist will produce 20 units of output.

The *second-order condition* for the revenue-maximising monopolist will be $d^2R/dQ^2 < 0$.

$$\begin{aligned}\text{Here, } R &= 304Q - 2Q^2 \\ \text{So, } dR/dQ &= 304 - 4Q \\ \text{So, } d^2R/dQ^2 &= -4 < 0\end{aligned}$$

Hence, the second-order condition is also satisfied (it actually implies that if the monopolist produces further, the total revenue will fall)

$$\text{The corresponding price level is } P = 304 - (2 \times 20) = 304 - 40 = ₹ 264.$$

Study Note – 4

ENTERPRISE RISK MANAGEMENT

Learning Objective: This chapter helps to understand expertise in several aspects of Enterprise Risk Management including a thorough understanding of practical aspects of Enterprise Risk Management including all elements of a robust risk management framework.

1. Choose the correct alternative:

- (i) _____ is the uncertainty of the purchasing power of monies to be received in the future.
 - a) Market Risk
 - b) Physical Risk
 - c) Purchasing Power Risk
 - d) Interest Rate Risk
- (ii) Unsystematic risk relates to
 - a) Market Risk
 - b) Inherent Risk
 - c) Beta
 - d) Interest rate risk
- (iii) Financial risk increases out of _____
 - a) Increased competition
 - b) Conduct of business and investment
 - c) The nature of financial transaction
 - d) Both (b) and (c)
- (iv) Risk management strategies are
 - a) Avoid risk, Reduce risk, Retain risk, Combine risk
 - b) Transfer risk, share risk, Hedge risk
 - c) Both (a) and (b)
 - d) None of the above
- (v) Which of the following is not a risk management technique
 - a) Risk avoidance
 - b) Risk maximization
 - c) Risk Sharing
 - d) Risk bearing
- (vi) Financial risk is associated with _____
 - a) Production strategies
 - b) Financing strategies
 - c) Marketing strategies
 - d) Purchasing strategies

- (vii) Systematic risk is measured by _____
a) Alpha
b) Beta
c) Gamma
d) Delta
- (viii) Portfolio diversification reduces _____
a) Only systematic risk
b) Only unsystematic risk
c) Both systematic and unsystematic risk
d) None of systematic and unsystematic risk
- (ix) Increase in the interest and corresponding decrease in the intrinsic value of debt instruments indicates _____
a) Interest rate risk
b) Liquidity risk
c) Default risk
d) Purchasing power risk
- (x) Which of the following is not an actuarial concept used in risk pooling?
a) Statistical variation
b) The law of averages
c) The law of large numbers
d) The law of subjective judgment
- (xi) Which of the following is not an objective of risk management?
a) Channelizing events to happen the way they are planned.
b) Setting right, at the earliest opportunity, deviations from plans, whenever they occur.
c) Ensuring that the objective of the planned event is achieved by alternative means.
d) Maximize the profit
- (xii) Which of the following risk can be reduced by diversification?
a) Purchasing power risk
b) Interest rate risk
c) Firm specific risk
d) Economy specific risk
- (xiii) Which of the following is not a key risk indicator?
a) No. of orders delivered
b) Market performance, customers' feedback/complaints & competitors' performance
c) Orders-in-hand and inventory
d) Input-output performance
- (xiv) Which of the following is not a feature of ERM?
a) A process, ongoing and following through an entity.
b) Effected by people at top level of an organization.
c) Applied in strategy-setting.
d) Applied across the enterprise, at every level and unit, and includes taking an entity-level portfolio view of risk.
- (xv) Which of the following is not a part of Basel III?
a) Minimum capital requirements
b) Supervisory review process
c) Market discipline
d) Risk elimination

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Solution:

(i)	c	(v)	b	(ix)	a	(xiii)	a
(ii)	B	(vi)	b	(x)	d	(xiv)	b
(iii)	d	(vii)	b	(xi)	d	(xv)	d
(iv)	c	(viii)	b	(xii)	c		

2. Briefly explain the term 'Enterprise Risk Management' (ERM). What are the basic needs for implementation of ERM?

Solution:

The Enterprise Risk Management (ERM) is defined as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives".

ERM deals with risk and opportunities affecting value creation or preservation. ERM is a comprehensive and integrated approach to addressing corporate risk. ERM enables management to effectively deal with uncertainty and associated risk and opportunity, enhancing the capacity to build value.

ERM needs to be implemented for the following reasons:

- Reduce unacceptable performance variability.
- Align and integrate varying views of risk management.
- Build confidence of investment community and stakeholders.
- Enhance corporate governance.
- Successfully respond to a changing business environment.
- Align strategy and corporate culture.

Traditional risk management approaches are focused on protecting the tangible assets reported on a company's Balance Sheet and the related contractual rights and obligations. The emphasis of ERM, however, is on enhancing business strategy. The scope and application of ERM is much broader than protecting physical and financial assets. With an ERM approach, the scope of risk management is enterprise-wide and the application of risk management is targeted to enhancing as well as protecting the unique combination of tangible and intangible assets comprising the organization's business model.

3. What is Risk Retention? What are the reasons for adopting a Risk Retention strategy?

Solution:

This denotes acceptance of the loss or benefit arising out of a risk when it takes place. In short, it is also termed as self insurance. This strategy is viable when the risks are small enough to be transferred at a cost that may be higher than the loss arising out of the risk itself. On the other hand, the risk can be so big that it cannot be transferred or insured. Such risks will have to be phased out when the eventuality occurs. War is an example as also are 'Acts of God' such as earthquakes and floods.

The reasons for risk retention can be cited as follows:

- Non-insurable business risks are borne for appropriate returns. It is well known a proverb that "no risk, no gain". If everything is predictable to mathematical precision, profits would not have arisen. But business is not a blind speculation. It involves vision to foresee future situations, strategies for keeping ahead of competition (in some way or the other) and finally, leadership for translating envisioned strategies into actions and results.

- (2) Sometimes, such risks are so small that they are ignored and/or phased out when they surface.
- (3) This method is also useful when the probability of occurrence is very low and a reserve built within the system over a period can take care of such losses arising out of risk retention. This is normally resorted to in businesses against credit risks that are inherent due to marketing on credit basis.
- (4) In some cases, the subject, who is susceptible to risk, also becomes fully aware of the nature of risk.

In these situations, there is a certain amount of preparedness in the system due to risk retention.

4. What is Value at Risk (VaR)? What are its advantages? Discuss its limitations.

Value at Risk (VaR) is one of the popular methods of measuring financial risks. There are different types of VaR— long-term VaR, marginal VaR, factor VaR, and shock VaR. VaR is also defined as the threshold value such that the probability of a portfolio making a market to a market loss over a specific time horizon exceeds this value. For example, if a portfolio stock has a one day 3 per cent VaR of ₹ 10 million, there is 0.03 probability that the portfolio may face a reduction in value by more than ₹ 10 million over a specific time period. This is on assuming that normal market operations and there is no trading. A loss which exceeds VaR threshold is known as 'VaR break'. VaR has applications in financial risk management, risk measurement, control and reporting. It can also be used in calculating regulatory capital.

VaR has the advantage of a structured methodology for critically analysing a risk that is available as part of management function. Daily publication of a number on time and with particular statistical data enables an organization to maintain a high objective standard. However, robust backup systems and assumptions regarding default need to be established. A quotation runs thus, 'risk taking institution that does not compute VaR might escape disaster but an institution that cannot compute VaR will not' according to Aaron Brown.

Another advantage of VaR is that it differentiates risks into two regimes, that is, normal days and extreme occurrences. Inside the VaR limit, application of the conventional statistical methods is reliable. Out VaR limit risk should be analyzed with stress testing on the basis of data available on the long-term and in the broad market. Distribution losses beyond VaR point are both impossible and useless. As such the finance manager should concentrate on developing plans to limit the loss if possible or to survive the loss.

There has been criticism against VaR. It is said that this concept has led to excessive risk taking and leveraging by financial institutions. Again VaR is not sub-additive which means that VaR of a combined portfolio can be larger than the sum of the VaRs of its components.

5. Briefly compare Basel I and Basel II.

Comparison between Basel I and Basel II

<p>Basel - I (1988 and amended in 1996) – Based on Methodology for Capital Adequacy.</p> <p>Basel - II (to be in place by 2006 in G-10.</p> <ol style="list-style-type: none"> 1. Capital adequacy based on Risk Weighted Assets 2. Not risk sensitive. Prescriptive. 3. All credit exposures carried risk weight of 100 percent - except for some sovereign exposures and mortgages. 4. Risk Capital = Credit exposure * Risk Weights * 8 percent can have lesser Capital than others. 	<p>Basel- II (to be in place by 2006 in G-10 countries and in India in 2008)- Basel II based on 3 pillars.</p> <ol style="list-style-type: none"> 1. Capital adequacy based on Risk Weighted Assets) 2. Risk sensitive. 3. Credit exposures carry risk weights based on credit qualities. 4. Risk capital: Similar to Basel I. But efficient Banks can have lesser capital than others.
<p>Implications were:</p> <ul style="list-style-type: none"> • Every bank had to maintain same 8 per cent capital. Thus Banks with good quality assets had no 	<p>Implications are:</p> <ul style="list-style-type: none"> • Banks with good quality assets have incentives because they can manage with lower capital

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incentives. As a result credit quality had to be lowered to increase returns

- Low rated exposures were subsidized by high rated exposures
- No provision for economic pricing by banks

- Better quality assets requires lesser capital
- Risk pricing can be done by banks based on credit risk perception
- Provision exists for economic pricing by banks

6. What is Risk Mapping? Briefly explain. Discuss the benefits of Risk Mapping.

Risk mapping is the first step in operational risk measurement, since it requires identifying all potential risks to which the bank is exposed and then pointing out those on which attention and monitoring should be focused given their current or potential future relevance for the bank. Risk mapping should start from process mapping and from identifying critical risks in each process phase, linked either to key people, to systems, to interdependencies with external players, or to any other resource involved in the process. Subsequently, potential effects of errors, failures or improper behavior should be analyzed. This may also lead to identifying priorities in terms of control actions. Of course, special care should be given to high-severity risks, even if they appear unlikely to occur.

Therefore, risk mapping is the process of identifying, quantifying and prioritizing the risks that may interfere with the achievement of your organizational objectives.

Its aim is to arrive at a clear set of action plans that improve risk management controls, in areas where these are necessary and help the management of the organization's direct resources.

The benefits of Risk Mapping are as follows -

- Promotes awareness of significant risks through priority ranking, facilitating the efficient planning of resources.
- Enables the delivery of solutions and services across the entire risk management value chain.
- Serves as a powerful aid to strategic business planning.
- Aids the development of an action plan for the effective management of significant risks.
- Assigns clear responsibilities to individuals for the management of particular risk areas.
- Provides an opportunity to leverage risk management as a competitive advantage.
- Facilitates the development of a strategic approach to insurance programme design.
- Supports the design of the client's risk financing and insurance programmes, through the development of effective/optimal retention levels and scope of coverage etc.

7. Write a short note on 'Risk Pooling'.

One of the forms of risk management mostly practiced by insurance companies is Risk Pool. Under this system, insurance companies come together to form a pool, which can provide protection to insurance companies against catastrophic risks such as floods, earthquakes etc. The term is also used to describe the pooling of similar risks that underlies the concept of insurance. While risk pooling is necessary for insurance to work, not all risks can be effectively pooled. In particular, it is difficult to pool dissimilar risks in a voluntary insurance market, unless there is a subsidy available to encourage participation.

Risk pooling is an important concept in supply chain management. Risk pooling suggests that demand variability is reduced if one aggregates demand across locations because as demand is aggregated across different locations, it becomes more likely that high demand from one customer will be offset by low demand from another. This reduction in variability allows a decrease in safety stock and therefore reduces average inventory.

The basis for the concept of risk pooling is to share or reduce risks that no single member could absorb on their own. Hence, risk pooling reduces a person or firm's exposure to financial loss by spreading the risk among many members or companies.

8. Briefly explain Risk Reduction through Diversification.

Diversification refers to a process of reducing the overall portfolio risk by combining investments which have either low or negative correlation between them.

The important principle to consider that in an efficient capital market, investors should not hold all their eggs in one basket; they should hold a well-diversified portfolio. In order to diversify risk for the creation of an efficient portfolio (one that allows the firm to achieve the maximum return for a given level of risk or to minimize risk for a given level of return), the concept of correlation must be understood. Correlation is a statistical measure that indicates the relationship, if any, between series of numbers representing anything from cash flows to test data. Correlation can vary from -1 to +1.

By combining negatively correlated projects, the overall variability of returns or risk can be reduced. This type of risk is sometimes described as diversifiable or alpha risk. The creation of a portfolio by combining two perfectly correlated projects cannot reduce the portfolio's overall risk below the risk of the least risky project, while the creation of a portfolio combining two projects that are perfectly negatively correlated can reduce the portfolio's total risk to a level below that of either of the component projects, which in certain situations may be zero. Combining projects with correlations falling between perfect positive correlation (i.e., a correlation coefficient of +1) and perfect negative correlation (i.e., a correlation coefficient of -1), can therefore reduce the overall risk of a portfolio.

The gains in risk reduction from portfolio diversification depend inversely upon the extent to which the returns on securities in a portfolio are positively correlated. Ideally the securities should display negative correlation. This implies that if a pair of securities has a negative correlation of returns, then in circumstances where one of the securities is performing badly the other is likely to be doing well and vice versa in reverse circumstances. Therefore the 'average' return on holding the two securities is likely to be much 'safer' than investing in one of them alone.

9. Briefly explain the term 'Risk Management'. What are the objectives of Risk Management?

Risk management is the process of measuring or assessing risk and developing strategies to manage it. Risk management is a systematic approach in identifying, analyzing and controlling areas or events with a potential for causing unwanted change. It is through risk management that risks to any specific program are assessed and systematically managed to reduce risk to an acceptable level. Risk management is the act or practice of controlling risk. It includes risk planning, assessing risk areas, developing risk handling options, monitoring risks to determine how risks have changed and documenting overall risk management program.

Risk Management process needs to identify measure and manage various risks so that comparison of risks and returns is possible to set corporate strategies. Risk Management is the identification and evaluation of risks to an organization including risks to its existence, profits and reputation (solvency) and the acceptance, elimination, controlling or mitigation of the risks and the effects of the risks.

Risk management basically has the following objectives:

- (a) Anticipating the uncertainty and the degree of uncertainty of the events not happening the way they are planned.
- (b) Channelizing events to happen the way they are planned.
- (c) Setting right, at the earliest opportunity, deviations from plans, whenever they occur.
- (d) Ensuring that the objective of the planned event is achieved by alternative means, when the means chosen proves wrong, and
- (e) In case the expected event is frustrated, making the damage minimal.

10. Briefly discuss the following type of risks.

(a) Market Risk (b) Purchasing Power Risk (c) Interest Rate Risk (d) Liquidity Risk (e) Default Risk.

Solution:

(a) Market Risk: The market risk arises due to changes in demand and supply, expectations of the investors, information flow, investor's risk perception etc. Variations in price sparked off due to real social, political and economic events are referred to as market risk.

(b) Purchasing Power Risk: Uncertainties of purchasing power is referred to as risk due to inflation. If investment is considered as consumption sacrificed, then a person, purchasing securities, foregoes the opportunity to buy some goods or services for so long as he continues to hold the securities. In case, the prices of goods and services, increases during this period, the investor actually loses purchasing power. The investors expected return will change due to change in real value of returns. The risk in prices due to inflation will cause to rise in cost of production and reduction in profit due to lower margins. The supply of money, monetary and fiscal policy of the Government will cause the changes in inflation. The investors' expectations will also change with the changes in levels of purchasing power. The purchasing power risk is inherent in all securities, which is uncontrollable by the individual investors.

(c) Interest Rate Risk: The return on investment depends on the market rate of interest, which changes from time to time. The cost of corporate debt depends on the interest rates prevailing, maturity periods, creditworthiness of the borrowers, monetary and credit policy of the central bank, riskiness of the investments, expectations of the investors etc. The uncertainty of future market values and the size of future incomes, caused by fluctuations in the general level of interest are known as 'interest rate risk'. Generally, price of securities tend to move inversely with changes in the rate of interest.

(d) Liquidity Risk: It is that portion of an asset's total variability of return which results from price discounts given or sales commissions paid in order to sell the asset without delay. It is a situation wherein it may not be possible to sell the asset. Assets are disposed off at great inconvenience and cost in terms of money and time. Any asset that can be bought or sold quickly is said to be liquid. Failure to realize with minimum discount to its value of an asset is called liquidity risk.

(e) Default Risk: The default risk arises due to the default in meeting the financial obligations as and when due for payment. The non-payment of interest and principal amounts in time will increase the risk of insolvency and bankruptcy costs. The default risk or insolvency risk will cause a sudden dip in company's stock prices.

11. Briefly discuss the following type of risks.

(a) Systematic Risk (b) Unsystematic Risk

Solution:

(a) Systematic Risk: Systematic risk refers to that part of total risk which causes the movement in individual stock price due to changes in general stock market index. Systematic risk arises out of external and uncontrollable factors. The price of individual security reflects the fluctuations and changes of general market. Systematic risk refers to that portion of variation in return caused by factors that affect the price of all securities. The effect in systematic risk causes the prices of all individual shares/bonds to move in the same direction. This movement is generally due to the response to economic, social and political changes. The systematic risk cannot be avoided. It

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relates to economic trends which affect the whole market. When the stock market is bullish, prices of all stocks indicate rising trend and in the bearish market, the prices of all stocks will be falling. The systematic risk cannot be eliminated by diversification of portfolio, because every share is influenced by the general market trend.

(b) Unsystematic Risk: Unsystematic risk is that portion of total risk which results from known and controllable factors. Unsystematic risk refers to that portion of the risk which is caused due to factors unique or related to a firm or industry. The unsystematic risk is the change in the price of stocks due to the factors which are particular to the stock. For example, if excise duty or customs duty on viscose fibre increases, the price of stocks of synthetic yarn industry declines. The unsystematic risk can be eliminated or reduced by diversification of portfolio. Unsystematic risks are those that are unique to a particular company or a particular investment, resulting downward movement in the performance of one company can be offset by an uptrend movement in another and so much of this unsystematic risk can be eliminated through diversification on the part of the shareholders when they hold a portfolio of shares. The systematic risk attached to each of the security is same irrespective of any number of securities in the portfolio. The total risk of portfolio is reduced, with increase in number of stocks, as a result of decrease in the unsystematic risk distributed over number of stocks in the portfolio.

12. Write a short note on 'Economic Risk'.

Solution:

Economic risk is concerned with the general economic climate within the country. Some of the factors which reflect the economic climate of a country are:

- (a) level of affluence enjoyed by the country.
- (b) the growth rate of income.
- (c) the nation's propensity to save/invest.
- (d) the stability of prices (inflation).
- (e) characteristics of the labour force.
- (f) level of sophistication of the financial system.
- (g) level of foreign debt outstanding.
- (h) major income earners (exports) and their sensitivity to overall global economic changes.
- (i) extent of dependence on major export items.
- (j) trends in balance of payments.
- (k) level of imports
- (l) level of reserve and credit standing, and
- (m) fluctuations of exchange rate and controls on foreign exchange.

13. Mention the causes of corporate failure.

Solution:

The causes of corporate failure are as follows:

- a. Technological causes
- b. Working capital problem
- c. Economic distress
- d. Mismanagement
- e. Over expansion and diversification
- f. Fraud by management
- g. Poorly structured board
- h. Financial distress

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14. From the five accounting ratios given below, calculate Z score in case of Distressed Ltd., using Altman's function and interpret the results.

Sales to Total Assets	2 times
Market Value of Equity to Book Value of Debt	150%
Working Capital to Total Assets	20%
Retained Earnings to Total Assets	25%
EBIT to Total Assets	10%

Solution:

According to Altman's model, the equation of Z score, is as follows:

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

$$\text{Where } x_1 = \frac{\text{Working Capital}}{\text{Total Asset}} \times 100 = 20\%$$

$$x_2 = \frac{\text{Retained Earnings}}{\text{Total Asset}} \times 100 = 25\%$$

$$x_3 = \frac{\text{EBIT}}{\text{Total Asset}} \times 100 = 10\%$$

$$x_4 = \frac{\text{Market Value of Equity}}{\text{Book Value of Total debt}} \times 100 = 150\%$$

$$x_5 = \frac{\text{Sales}}{\text{Total Asset}} = 2 \text{ times}$$

$$\text{So, } Z = 0.012 \times 20 + 0.014 \times 25 + 0.033 \times 10 + 0.006 \times 150 + 0.999 \times 2 = 3.818$$

Since Z score is greater than 2.99 the firm is non-sick.

15. The following information is available from the book of Sick Ltd. as on 31st March 2017:

Balance Sheet as at 31st March, 2017

Liabilities	₹	Assets	₹
Equity Share Capital @ ₹ 10 each	1,00,000	Land & Building (Net)	3,50,000
Reserves & Surplus	50,000	Other Fixed Assets (Net)	1,80,000
10% Debentures	3,00,000	Stock	60,000
12% Long Term Loan	1,00,000	Debtors	40,000
Creditors	50,000	Cash & Bank	20,000
Bank overdraft	50,000		
	6,50,000		6,50,000

Additional Information:

(i) Income Tax rate is 35%.

(ii) Net Sales of Y Ltd. during 2016-17 is ₹ 7,80,000.

(iii) EPS as on 31st March, 2004 is Re. 0.975

(iv) Price Earnings Ratio is 9.

Using Altman's function, calculate Z score of Sick Ltd. and interpret the result.

Solution:

According to Altman's model, the equation of Z score, is as follows:

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

Here, $X_1 = \text{Working Capital} / \text{Total Assets}$

Working Capital = Current Assets - Current Liabilities

$$= ₹(60,000 + 40,000 + 20,000) - ₹(50,000 + 50,000) = ₹ 20,000$$

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Total Assets = Fixed Assets + Current Assets = ₹ 6,50,000

So, $X_1 = 20000/350000 = 0.03077 = 3.077\%$

$X_2 = \text{Retained Earnings} / \text{Total Asset} = 50000/650000 = 0.07692 = 7.692\%$

$X_3 = \text{Earnings before Interest and Tax (EBIT)} / \text{Total Assets} = 57000/650000 = 0.0877 = 8.77\%$

Note: Calculation of EBIT

Total earnings available to Equity Shareholders	9750
[EPS × No. of Equity Shares, i.e. Re. 0.975 × 10,000]	
Add: Tax @ 35%, i.e. $35/65 \times 9750$	5250
Earnings Before Tax (EBT)	15000
Add: Interest added back :	
Debenture Interest = $3,00,000 \times 10\%$	30000
Interest Long Term Loan = $100000 \times 12\%$	12000
	42000
EBIT	57000

$X_4 = \text{MV of Equity} / \text{BV of Total Debt} = 87750/500000 = 0.1755 = 17.55\%$

Note: Market value of each equity share = Price Earnings Ratio × EPS = $9 \times 0.975 = ₹ 8.775$ So, total market value of equity = ₹ 8.775 × 10,000 = ₹ 87,750

BV of Total debt = ₹ (3,00,000 + 1,00,000 + 50,000 + 50,000) = ₹ 500000

$X_5 = \text{Sales} / \text{Total Asset} = 780000/650000 = 1.2 \text{ times}$

Putting the values of all variables as above in the discriminant function, we get

$Z = (0.012 \times 3.077) + (0.014 \times 7.692) + (0.033 \times 8.77) + (0.006 \times 17.55) + (0.999 \times 1.2)$

Or, $Z = 1.738$

According to Altman, if a firm's Z score is less than 1.81, it would be a bankrupt firm. So, Y Ltd. may be considered as bankrupt as its Z score is 1.738.

16. The Balance Sheet of Down Ltd. as on 30.6.15 is given below:

Balance Sheet as on 30th June 2015

Liabilities	₹	Assets	₹
Equity Share Capital		Fixed Assets	10,00,000
@ ₹ 10 each	2,00,000	Investment	2,00,000
Retained Earnings	2,00,000	Stock	1,50,000
12% Debentures	3,00,000	Sundry Debtors	75,000
10% Long Term Loan	2,00,000	Preliminary Expenses	25,000
Current Liabilities	5,50,000		
	14,50,000		14,50,000

Additional Information:

(i) Net Sales for 2004-05 was ₹ 29,50,000.

(ii) Dividend per share in 2014-15 = Re. 0.40

(iii) Dividend Payout Ratio as on 30.6.15 = 50%.

(iv) Price Earnings Ratio is 15.

(v) Corporate tax rate = 50%.

Using Altman's function, calculate Z score of Uncertain Ltd. and interpret the result.

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Solution:

According to Altman's model, the equation of Z score, is as follows:

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$$

Here, X_1 = Working Capital/Total Assets

Working Capital = Current Assets - Current Liabilities

$$= ₹(150000 + 75000) - ₹ 550000 = (₹ 325000)$$

Total Assets = 1450000 - 25000 = ₹ 1425000

So, $X_1 = (325000)/1425000 = -0.2281 = -22.81\%$

X_2 = Retained Earnings/ Total Asset = 175000/1425000 = 0.1228 = 12.28%

X_3 = Earnings before Interest and Tax (EBIT) /Total Assets = 88000/1425000 = 0.0617 = 6.17%

Note: Calculation of EBIT

Total earnings available to Equity Shareholders	16,000
[DPS/(1-DP Ratio)] × No. of Equity Shares, i.e. Re. 0.40/0.50 × 20,000]	
Add: Tax @ 50%, i.e. 50/50*16000	16,000
Earnings Before Tax (EBT)	32,000
Add: Interest added back :	
Debenture Interest = 3,00,000*12%	36,000
Interest Long Term Loan = 200000*10%	20,000
	56,000
EBIT	88,000

X_4 = MV of Equity/BV of Total Debt = 240000/1050000 = 0.2286 = 22.86%

Note: Market value of each equity share = Price Earnings Ratio × EPS = 15 × 0.40/0.50 = ₹12

So, total market value of equity = ₹ 12 × 20,000 = ₹ 240000

BV of Total debt = ₹(3,00,000 + 2,00,000 + 5,50,000) = ₹ 1050000

X_5 = Sales/ Total Asset = 2950000/1425000 = 2.07 times

Putting the values of all variables as above in the discriminant function, we get

$$Z = 0.012 \times (-22.81) + (0.014 \times 12.28) + (0.033 \times 6.17) + (0.006 \times 22.86) + (0.999 \times 2.07)$$

Or, $Z = 2.308$

The Z score of the firm falls in the gray zone. Hence further analysis is required for identifying the bankruptcy status of the firm.

SECTION – B : BUSINESS VALUATION**Study Note – 5****BUSINESS VALUATION BASICS**

Learning Objective: This chapter helps to understand the difference between equity value and enterprise value, comparable company analysis, drivers of business valuation, discounted cash flow (DCF) modelling, weighted average cost of capital (WACC), applicable in Corporate Valuation.

Section - I

Choose the correct answer from the given four alternatives.

1. Book value is
 - a) an accounting concept and implies historical assets less outside liabilities
 - b) an economic concept and implies historical assets less outside liabilities
 - c) an accounting concept and implies market value of assets less outside liabilities
 - d) an economic concept and implies market value of assets less outside liabilities
2. -----would be applied to the cash flows of the government bonds, as compared to shares of a company
 - a) A lower discount
 - b) A higher discount
 - c) Cost of equity
 - d) Cost of capital
3. The value of a firm's equity is equal to value of the firm
 - a) less the value of equity claims.
 - b) less the value of non- equity claims.
 - c) less the value of owners' equity.
 - d) None of the above
4. The method of capitalization of earnings for valuation of a business assumes
 - a) variable earnings for finite time.
 - b) constant earnings for finite time.
 - c) constant earnings for infinite time.
 - d) variable earnings for infinite time.
5. Discounted cash flow valuation, relates the value of an asset to
 - a) the future value of expected future cash flows on that asset
 - b) the present value of expected future cash flows on that asset
 - c) the present value of current cash flows on that asset
 - d) the future value of cash flows on that asset
6. Business is supposed to have a value for its performances _____.
 - a) done in past
 - b) done in present
 - c) done in present and past
 - d) expected in future

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7. If a firm defers taxes, the taxes paid in the current period will be at a rate _____ than the marginal tax rate.
a) higher
b) lower
c) compared
d) same
8. Production capacity is a _____ variable for valuation.
a) marketing
b) accounting
c) financial
d) operational
9. The _____ can value the company's flexibility to alter its initial operating strategy in order to capitalize on favourable future growth opportunities or to react so as to mitigate losses.
a) Real option technique approach
b) DCF approach
c) Multiplier approach
d) Cost approach
10. Which one of the following statements is not true about Efficient market?
a) Share prices behave randomly and do not show any systematic pattern in the behaviour
b) Price of one share is independent of the price of other shares in the market
c) Share prices fully reflect all available information
d) None can earn abnormally high profits on a constant basis

Answer: 1 a); 2 a); 3 b); 4 c); 5 b); 6 d); 7 b); 8 d); 9 a); 10 b);

Section - II

1. What do you mean by business valuation?

Answer:

By business valuation we mean the valuation of tangible assets (such as plant and machinery, land and building, office equipments, and so on), intangible assets (such as goodwill, brands, patents, trademark and so on) and human resources that manage the business. Besides, in business valuation, there is an imperative need to take into recorded liabilities and unrecorded or contingent liabilities so that the buyer is aware of the total sums payable for the subsequent purchase of business.

2. State the different approaches to business valuation.

Answer:

There are three approaches to valuation. The first, discounted cash flow valuation, relates the value of an asset to the present value of expected future cash flows on that asset. The second, relative valuation, estimates the value of an asset by looking at the pricing of 'comparable' assets relative to a common financial variable like future earnings, cash flows, book value or sales. The third, contingent claim valuation uses option pricing models to measure the value of assets that share option characteristics.

3. Who are the stakeholders of valuation?

Answer

The fundamental role of valuation is to offer a base for negotiation between buyer and seller. It has a great repercussion that can affect the whole financial and strategic dynamics of decision for which the valuation is being conducted. The following are the main stakeholders of valuation:

- Shareholders — who provide capital to the business;
- The company itself — they may become a takeover target or the prospective acquirer of the target company or may merge with another company;
- Financial experts — who help in financial decision making;
- The buyers of property and business — who help in creating orderly market;
- Banks and others—who provide loan by taking the property or financial assets like equity shares as a collateral;
- Mutual funds and Hedge funds, Private Equity Players, Venture Capitalists, etc. — who heavily invest in listed and unlisted companies and / or securities;
- Insurance companies — who provide risk mitigating products and invest in insecurities
- Governments — who buy products and services and deposit money with banks, mutual funds and others and / or participate in equity capital as a co-investor or acquirer.
- Whole economy — a robust banking system is the necessary for the economy to move.

4. Discuss the principles of valuation.

Answer:

Valuation is based on some basic foundations which we refer to as principles. We find six principles of valuation that provide basic ground work for different techniques of valuation. These principles of valuation are discussed below:

(i) Principle of Substitution

If business 'A' can be replicated at 'X' amount then that business is worth 'X' amount. If a similar business 'B' is available at a price less than 'X' amount, then business 'A' has worth less than 'X' amount. This principle ensures that understanding of market is important and forced comparison would lead to flawed valuation. This simply indicates that risk-averse investor will not pay more for a business if another desirable substitute exists either by creating new or by buying. Yet at the same no two businesses can be considered as exactly equal. Selection of the nearest comparable transaction for validation of the valuation done for any given asset is, therefore, very critical and equally challenging.

(ii) Principle of Alternatives

No single decision maker is confined to one transaction. Each party to the transaction has alternatives to fulfilling the transaction for a different price and with different party. Since no single transaction could be a perfect substitute to another transaction one may consider paying some premium or deduct some amount by way of adjustment if the investment meets strategic interest.

When someone is buying a business it should be kept in mind that the same should not be bought at any cost as if no alternative exists. In stock market and auction market in most of the cases bidders bid simply because of the fact that others are bidding and that simply raises the price. This Case is simply explained as 'near miss' situation where one realizes that price is far greater than value.

(iii) Principle of Time Value of Money

This is the most basic and frequently used tool used in corporate finance as well as valuation. It suggests that value can be measured by calculating present value of future cash flows discounted

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at the appropriate discount rate. Such discount rate may be weighted average cost of capital invested/to be invested, or risk equated rate in addition to the risk free return. In certain cases of valuation, it can be estimated rate of inflation in the economy. Investment opportunities may offer differing cash flows, business and earnings growth prospects and risk profile. Principle of time value of money helps us to discriminate those opportunities and to select the best subject to given parameter.

(iv) Principle of Expectation

Cash flows are based on the expectations about the performance in future and not the past. In case of mature companies, we may conservatively assume that growth from today or after some certain period would be constant. The difficult part is not only to determine or estimate the extent and direction of business growth but also estimated price(s) of product and / or services as well as various elements of cost of goods sold keeping in view the general condition of the business ecosystem in future years. These assumptions will have significant impact on valuation.

(v) Principle of Risk & Return

Harry Markowitz, the father of modern finance was first to quantify risk and used the same in portfolio decision making. Based on risk- return criteria he suggested ways to identify optimal portfolio.

Markowitz has made two important assumptions. First, an investor is risk averse. Second, an investor would prefer higher amount of wealth than the lower one. The reason is higher wealth leads to possibility of higher consumption. Given two possible portfolios with similar risk profile, the one with higher expected return will be preferred. These two assumptions are most integral part of valuation exercise.

(vi) Principle of Reasonableness & Reconciliation

In valuation exercise we need to deal with large number of uncertainties and we have to go for assumptions. This sixth principle suggests how far these assumptions are reasonable and it reconciles different values obtained under different approaches.

5. What is meant by valuation bias?

Answer:

A valuation specialist starts valuing a firm with certain assumptions and certain preconceived conditions about how the business ecosystem related to the company and sector to which it belongs, will shape up. All too often, views on a company are formed before the specialist starts inserting the numbers, determined using those assumptions, into the financial/econometric models that is used. Not surprisingly, conclusions tend to reflect his/her preconceived conditions, biases both about the company and assumptions. A reviewer will begin by considering the sources of bias in valuation and then move on to evaluate how biases manifest in the valuation and to what extent it has been impacted. The reviewer then closes with a discussion of how best to minimise or at least deal with bias in valuations.

6. State the different sources of valuation bias?

Answer:

The bias in valuation starts with the companies that are chosen to be valued. These choices are almost never random, and how valuers are made can start laying the foundation for bias. It may be that the valuer has read some news item or research based data points, good or bad, in the press or any other published literature about the company and its related business sector or heard from an expert that it was under or overvalued. Thus, valuers already begin with a perception about the company that they are about to value. Valuer adds to the bias when we collect the information they need to value the

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firm. The annual report and other financial statements include not only operating results and financial state of affair is but also management discussions and analysis of performance, guidance for near future outlook and various risk factors for the sector in general and the entity in particular. All these often put the best possible revolve on the numbers, with many larger companies. It is easy to access what other analysts following the stock think about these companies.

In many valuations, there are institutional factors that add to this already substantial bias. For instance, it is an acknowledged fact that equity research analysts are more likely to issue buy rather than sell recommendations, i.e., that they are more likely to find firms to be undervalued than overvalued. This can be traced partly to the difficulties analysts face in obtaining access and collecting information on firms that they have issued sell recommendations on, and partly to pressure that they face from portfolio managers, some of whom might have large positions in the stock, and from their own firm's investment banking arm which have other profitable relationships with the firms under valuation exercise.

The reward and punishment structure associated with finding companies to be under and overvalued is also a contributor to bias. An analyst whose compensation is dependent upon whether he / she finds a firm is under or overvalued will be biased in his / her conclusions. This should explain why acquisition valuations are so often biased upwards. The analysis of the deal, which is usually done by the acquiring firm's investment banker, who also happens to be responsible for carrying the deal to its successful conclusion, can come to one of two conclusions. One is to find that the deal is seriously overpriced and recommends rejection, in which case the analyst receives the eternal gratitude of the stockholders of the acquiring firm but little else. The other is to find that the deal makes sense, no matter what the price is and to reap large financial windfall gain from getting the deal done.

7. How do you minimize valuation bias?

Answer:

There are ways and means by which we can mitigate the effects of bias on valuation:

- (i) Reduce institutional pressures: A significant portion of bias can be attributed to institutional factors. Equity research analysts in the 1990s, for instance, in addition to dealing with all of the standard sources of bias had to grapple with the demand from their employers that they bring in investment banking business. Institutions that want honest sell-side equity research should protect their equity research analysts who issue sell recommendations on companies, not only from irate companies but also from their own sales people and portfolio managers.
- (ii) De-link valuations from reward/punishment: Any valuation process where the reward or punishment is conditional to the outcome of the valuation will result in biased valuations. In other words, if we want acquisition valuations to be unbiased, we have to separate the deal analysis from the deal making to reduce bias.
- (iii) No pre-commitments: Decision makers should avoid taking strong public positions on the value of a firm before the valuation is complete. An acquiring firm that comes up with a price prior to the valuation of a target firm has put analysts in an untenable position, where they are called upon to justify this price. In far too many cases, the decision on whether a firm is under or overvalued precedes the actual valuation, leading to seriously biased analyses. Therefore, analysts should both the independent and dispassionate without any direct and indirect link to the purpose and objective for which the valuation statement will be used.
- (iv) Self-Awareness: The best antidote to bias is awareness. An analyst who is aware of the biases he or she brings to the valuation process can either actively try to confront these biases when making input choices or open the process up to more objective points of view about a company's future. For this purpose, they have to also validate the inferences drawn from findings of PESTEL analysis and due diligence exercise without any preconceived notion or perception. Otherwise bias will creep into their assumptions and estimations of numbers to be used as inputs for the valuation model.

- (v) Honest reporting: In Bayesian statistics, analysts are required to reveal their priors (biases) before they present their results from an analysis. Thus, an environmentalist will have to reveal that he or she strongly believes that there is a hole in the ozone layer before presenting empirical evidence to that effect. The person reviewing the study can then factor that bias while looking at the conclusions. Valuations would be much more useful if analysts revealed their biases up front.

While we cannot eliminate bias in valuations, we can try to minimize its impact by designing valuation processes that are more protected from outside influences.

8. Discuss the misconceptions about valuation.

Answer:

There are many areas in valuation where remains the scope for disagreement, including how to estimate true value and how long it will take prices to adjust to true value. But asset prices cannot be justified merely by using the argument that other investors are willing to pay higher price in future. Like all analytical disciplines, valuation has developed its own Myths.

Myth 1: A valuation is an Objective search for true value.

There will hardly be any valuation exercise which can remain cent percent free from bias of the valuation team members or valuer. However, the question is how much and in which direction. Understandably all ethically sound professional valuers, worth the name, will make all possible efforts to objectively conduct the exercise to find out the near actual value with certainty equivalent approach. However, the direction in magnitude of whatever little or more impact of bias creeps into the assumptions and tool selection is directly proportional to who pays for the asset being valued and how much professional fee is being paid to the valuer.

Myth 2: Since valuation models are quantitative, valuation is better.

However, one's understanding of a valuation model is inversely proportional to the number of inputs required for the model. Moreover, simpler valuation models work out much better than complex ones. It seems obvious that making a model more complete and complex should yield better valuation. But it is not necessarily so. As models become more complex the number of inputs needed to value a firm tends to increase. Problems are compounded when models become too complex to become "black boxes." When a valuation fails the blame gets attached to the model rather than the analyst. Valuer often complains "It was not my fault. The model did it."

The following three points are common and important in all valuation works:

- Principle of parsimony, which essentially states that you do not use more inputs than what is actually needed.
- There should be trade-off between additional benefit arising from more inputs and cost arising from input errors and using more number of inputs.
- The models or tools adopted do not value companies but the valuer does.

All information inputs and data points considered to frame the assumptions are a time of excessive information. Identifying the minimum relevant information is almost as important as the valuation models and techniques that a valuer uses to value a firm.

Myth 3: A well-researched and well done valuation tends to be timeless

The value obtained in any valuation model is affected by firm-specific as well as market related information. As a consequence, the value will change as new information is revealed. Given the constant flow of information into financial markets, a valuation done on a firm quickly becomes dated and has to be updated to reflect correct information. In practice many stock brokerage firms publish bi-yearly follow up valuation updates for large listed companies after publishing a detailed research based valuation.

Information about the state of the economy and the level of interest affects all valuation in an economy. When analysts change their valuation, they will undoubtedly be asked to justify the change and in some cases the fact that valuation change over time is viewed as a problem. The best response may be the one that John Maynard Keynes gave when he was criticized for changing his position on a major economic issue: "When the facts change I change my mind and what do you do, sir?"

Myth 4: A good valuation provides a precise estimate of value.

The truth remains that there is no concept of precise valuation. The recompense of valuation is greatest when valuation is least precise.

Myth 5: To make money on valuation, you have to assume that markets are inefficient.

If a market is efficient then market price is the best estimate of value. However, it has been empirically tested that no single market is efficient for estimating price. It is recognised that market makes mistakes but finding those mistakes requires a combination of skill and knowledge. This view of markets generally leads to the following conclusions:

- If something looks good to be true, a stock looks obviously undervalued or overvalued is properly not true.
- When the value from an analysis is significantly different from the market price, start-off with the presumption that the market is correct; then valuer has to convince himself that this is not the case before valuer to conclude that something is over or undervalued. The higher standard may lead you to be more cautious in following through on valuation but given the difficulty of beating the market this is not an undesirable outcome.

Myth 6: The product of valuation (i.e., value) matters and not the valuation

Valuation models focus exclusively on the outcome. That is the value of the company and whether it is over or undervalued. In most of the cases valuable internal points are missed out that can be obtained from the process of valuation and can answer some of the most fundamental questions, e.g.,

- What is the appropriate price to pay for high growth?
- What is a brand name worth?
- How important is to return and project?
- What is the effect of profit margin on value?

Myth 7: How much a business is worth depends on what the valuation is used for?

The value of a business is its fair market value, that is what a willing buyer will pay to a willing seller when each is fully informed and under no pressure to transact.

9. Explain the different 'standard of value' along with book value and liquidation value used in business valuation.

Answer:

Standard of value is nothing but a definition of the type of value being sought. According to the International glossary of business valuation terms, standard of value is "The identification of the type of value being utilised in a specific engagement; for example, fair market value, fair value, investment value." This definition is inclusive but not exhaustive. Standard of value can be taken depending upon the purpose of the valuation. The standard of value depends upon time of engagement which gives the purpose of valuation. Five most common 'standard of value' which are used practice are:

- Fair market value,
- Investment value,
- Intrinsic value,
- Fair value, and
- Market value.

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Choice of appropriate standard of value may be dictated by circumstances, objective, contract and operation of law or other factors. Pertinent questions to be answered before choosing an appropriate standard of value are;

- What is being valued?
- What is the purpose of valuation?
- Does the property or business changes hands or does controlling power to manage the asset is being handed over to the person paying for the value since such a transfer will be at a premium?
- Who are the buyer and seller?

We will describe each of those five standards of values along with book value and liquidation value:

Book Value : Book value is an accounting concept and implies historical assets less outside liabilities. It is rarely used in valuation. The book value per share is simply the net worth of the company, which is equal to paid up equity capital plus reserves and surplus, divided by the number of outstanding equity shares. An allied and a more powerful criticism against the book value measure is that the historical balance sheet figure on which it is based are often very diverged for current economic value. Numbers in financial statements really reflect earning power and hence the book value per share cannot be regarded as a proxy for true investment value.

Liquidation Value: This method assesses the value of a business by gauging its value if were to cease operations and sell its individual assets. Under this approach, the business owner would receive no compensation for business goodwill, brand value for the entity and its products, which are not recognised in financial statements, — and other intangible assets such as the company's name, location, customer base, or accumulated experience. This method is divided into forced liquidations say in case of bankruptcy and orderly liquidations. Values are typically figured higher in the latter instances. Asset-based lenders and banks tend to favour this method, because they view the liquidation value of a company's tangible assets to be the only valuable collateral to the loan. But it is unpopular with most business owners because of the lack of consideration given to goodwill, brand values and other intangible assets.

International Glossary of Business Value Terms (IGBVT) defines three types of liquidation value:

Liquidation value: The net amount that would be realised if the business is terminated and the assets are sold piecemeal. Liquidation can either be orderly or forced.

Force Liquidation value: Liquidation value at which the asset or assets are sold as quickly as possible such as at an auction.

Orderly Liquidation value: Liquidation value at which the assets are sold over a reasonable period of time to maximise value to be realised from assets and payments to be made.

Now we describe the five most common 'Standard of Value'

- (1) **Fair Market Value (FMV)**: FMV is the most widely used standard of value in business valuation. The AICPA of USA, while issuing Statement on Standards for Valuation Services, has adopted IGBVT. It defines FMV as "The price expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, acting at arm's length in an open and unrestricted market, when neither is under compulsion to buy or sell and when both have reasonable knowledge of the relevant facts." Following example makes FMV simple.

Mr. 'A' owns 20% of a business and the balance 80% is owned by the other people. Here Mr. A has what is called a minority interest in the business. The question is whether worth of Mr. A will be taken as proportionate value of the business under FMV standard of value. Let's assume business is worth ₹ 200 million.

The 20% interest in the business would be worth less than ₹ 40 million. In the open market willing and able buyers pay perhaps 15% of the total value for a 20% interest because they are subject to control of the 80% owners. That means there will be discount known as DLOC, i. e., called as discount for lack of control. It does not necessarily mean the minority owner of 20% of the company will have to depend upon the managerial capability of the controlling shareholder and have to leave his asset at his disposal. He is taking a risk of probable lower return than market rate and hence the new buyer will look for a discount. If it is a case of closely held company, then there would be further discount on account of what is called as DLOM or discount for lack of marketability. This discount is counted to cover the fact that it will be difficult to sell the minority shares of closely held companies. If a business is marketable, then FMV seems to be the appropriate standard of value. If a closely held business cannot be compared with a listed company FMV may not be the appropriate standard. The issue is not whether it can be used or not. Rather the issue is whether it can be determined or not.

- (2) **Investment Value:** IGBVT defines 'Investment value' as "the value to a particular investor based on his / her investment requirements and expectations". Simply stated, it gives the value of an asset or business to a specific unique investor and, therefore, considers the investor's specific knowledge about the business, own capabilities, expectation of risks and return and other associated factors. Synergies are considered to a specific purchaser. For these reasons investment value may result in higher value than FMV. Some of the factors which may cause difference between FMV and investment value are:
- Estimates of future cash flows or earnings;
 - Perception of risk;
 - Tax advantages;
 - Synergy to other products;
 - Other strategic advantages and so on.

An example makes the concept of investment value clear.

Mr. A owns 20% of a business and the balance 80% is owned by the other people. Whether, worth of Mr. 'A's share' will be taken as proportionate value of the business, if intrinsic value is used as standard of value. Even it can be more than the proportionate value if this 20% acquisition meets some strategic interest of the investor. The question of DOLM need not necessarily come as the investor is looking for long term strategic investment. In case of small business, the investment value should be the definition of value as only an investor with specific knowledge of the business would be interested in buying the business. Under this one values the business in the hands of specific investor.

- (3) **Intrinsic Value or Fundamental Value:** Intrinsic or fundamental value is used when an investor wants 'true' or 'real' value on the basis of an analysis of fundamentals without considering the prevailing price in the market. It is true economic worth of a share, business or property. IGBVT defines intrinsic value as "the value that an investor considers, on the basis of an evaluation or available facts to be the "true" or "real" value that will become the market value when other investors reach the same conclusion." Graham & Dodd has defined the intrinsic value as "the value which is justified by assets, earnings, dividends definite prospects and factor of management." There are four major components of intrinsic value of a going concern:
- Level of normal earning power and profitability in the employment of assets as distinguished from the reported earnings which may be and frequently are, distorted by transient influences;

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- Dividends actually paid or the capacity to pay such dividends currently and in the future;
- A realistic expectation about the trend line growth of earning power; and
- Stability and predictability of those quantitative and qualitative projections of the future economic value of the enterprise.

Intrinsic value and investment value may seem like similar concepts but they are different. The first represents an estimate of value based on the expected cash flow of the business and not of the investor. The second represents an estimate of value based on expected cash flow in the hands of a specific investor.

- (4) **Fair Value:** The fair value as standard of value is understood differently in the two situations mentioned below:
- (i) In legal matters
 - (ii) In financial reporting purpose

Financial Accounting Standard Board is the accounting standards setting body for US-GAAP (Generally Accepted Accounting Principle) reporting has issued SFAS (Statement of Financial Accounting Standard) No. 157 - Fair Value Measurements. This is also known as mark to market standard. These establish a frame work for measurements of fair value and require disclosure about measurement but it does not require fair value accounting for any position. Its guidance is relevant only when accounting standard require or permit position to be accounted for at fair value.

The standard provides the single authoritative definition of fair value for the US-GAAP reporting. The definition of fair value reads as "The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date". International Financial Reporting Standard (IFRS) which for the timing does not have a single authority definition of fair value. The guidance on measuring fair value is scattered throughout IFRSs and they are also not consistent. A general definition of fair value under IFRS reads as the amount for which an asset could be exchanged or a liability settled between knowledgeable, willing parties in an arm's length transaction.

- (5) **Market value:** Market value standard is generally used in realised valuation. Definition of the term 'market value' is taken from IVS1, propounded by IVS committee — the leading property valuation standard setting body. "Market value is the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without any compulsion."

Highlights of the definition include;

- **Estimated amount:** The determination of highest and best use or most probable use is the first step in estimating market value. This considers physical possibilities, financial feasibility and highest possible value to the property.
- **Exchange:** Exchange means an estimated amount rather than a predetermined or actual sale price. It also assumes simultaneous exchange. It however, is not depended of actual price on the date of valuation. Intact it is an estimate of the price.
- **On the date:** Price is time specific and excludes past or future date market circumstances.
- **Willing buyer** is motivated but not compelled to buy.
- **Willing seller** is motivated to sell at whatever price is available in the current market but not over eager and not acting under any compulsion.
- **Proper marketing:** The asset should be exposed to market in the most appropriate manner to effects its disposal at the reasonably obtainable best price.
- **Acted knowledgeably and prudently:** Buyer and seller should reasonably be informed about the nature and characteristic of the asset, its actual and potential use and the state of the market.
- **Without compulsion:** The transaction should not be forced or coerced.

Another definition of market value can be taken from uniform standard of professional appraisal practice (USPAP) (2008-2009) which is the property valuation standard setting body in the USA. The USPAP defines market value as “a type of value stated as an opinion, that presume the transfer of a property, meaning is the write of ownership or a bundle of such rights, as of a certain date under specific conditions set forth in the definition of the term identified by the appraiser as applicable in an appraisal.”

Forming an opinion of market value is the purpose of many real property appraisal assignments. Particularly when client's intended use more than one intended users, the conditions included in the market value definitions established market perspective for development of the opinion. Conditions may vary from one definition to other but generally fall into three categories.

- The relationship, knowledge and motivation of the parties, i.e., seller and buyer;
- The terms of sell and mode of settlement, e.g., cash, cash equivalent or other terms; and
- The condition of sale i.e., expose in a comparative market for a reasonable time prior to sale.

The most important part in property valuation is to define the market value by quoting authority.

10. Explain the role of valuation in different arenas.

Answer:

Valuation is useful in a wide range of tasks. The role it plays, however, is different in different arenas. The relevance of valuation in business acquisition, in corporate finance, in legal and tax purposes and in Portfolio Management is discussed below:

Role of Valuation in Business Acquisition

Valuation should play a central part of acquisition analysis. The bidding firm or individual has to decide on a fair value for the target firm before making a bid, and the target firm has to determine a reasonable value for itself before deciding to accept or reject the offer.

There are special factors to consider in takeover valuation.

First, there is synergy, the increase in value that many managers foresee as occurring after mergers because the combined firm is able to accomplish things that the individual firms could not. When a large FMCG manufacturing company runs its own logistics operations, many operating synergies help saving costs. The most important of which is not paying for the profit of the external service provider while taking contracts from others at times of spare capacity. Accordingly, in an assumed takeover bid by a FMCG Company of such a logistics entity, additional benefits that will be generated, due to consolidation post takeover, should be considered as a strategic element with consequential cost savings while valuing the business to be taken over. The effects of synergy on the combined value of the two firms, viz., the target plus the bidding firm have to be considered before a decision is made on the bid.

Second, the value of control, which measures the effects on value of changing management and restructuring the target firm, will have to be taken into account in deciding on a fair price. This is of particular concern in hostile takeovers.

As we noted earlier, there is possibility of a significant problem with bias in takeover valuations. Target firms may be over-optimistic in estimating value, especially when the takeover is hostile, and they are trying to convince their stockholders that the offer price is too low. Similarly, if the bidding firm has decided, for strategic reasons, to do an acquisition, there may be strong pressure on the analyst to come up with an estimate of value that backs up the acquisition.

Role of Valuation in Corporate Finance

There is a role for valuation at every stage of a firm's life cycle. For small private businesses thinking about expanding, valuation plays a key role when they approach venture capital (VC) and private equity (PE) investors for more capital. The share of a firm that a venture capitalist will demand in exchange for a capital infusion will depend upon the value estimates for the firm.

In the present context of India when thousands of start-ups are vying for VC and PE investors, valuation as a professional service has assumed critical importance. The business and / or its share capital is to be valued both at the entry and exit point keeping in view future earning potentials. News items can be read every morning in financial newspapers about such valuation issues like that of Snapdeal, Flipkart, Zomato, etc.

As the companies get larger and decide to go public through initial public offer for PE or VC firms to exit, valuations determine the prices at which they are offered to the market in the public offering. At times it is found that PEs tend to retain some portion of their holdings even after handing over controlling rights and major part of their earlier holdings. Once established, decisions on where to invest, how much to borrow and how much to return to the owners will be all decisions that are affected by valuation. If the objective in corporate finance is to maximize firm value, the relationship between financial decisions, corporate strategy and firm value has to be delineated.

Role of Valuation in Legal and Tax Purposes

Mundane though it may seem, most valuations, especially of private companies, are done for legal or tax reasons. A partnership has to be valued, whenever a new partner is taken on or an old one retires, and businesses that are jointly owned have to be valued when the owners decide to break up. Businesses have to be valued for estate tax purposes when the owner dies and for divorce proceedings when couples break up. While the principles of valuation may not be different when valuing a business for legal proceedings, the objective often becomes providing a valuation that the court will accept rather than the "right" valuation.

Role of Valuation in Portfolio Management

The role that valuation plays in portfolio management is determined in large part by the investment philosophy of the investor and to what extent he / she is ready to take risks. Valuation plays a minimal role in portfolio management for a passive investor, whereas it plays a larger role for an active investor. Even among active investors, the nature and the role of valuation is different for different types of active investments. Market timers use valuation much less than investors who pick stocks, and the focus is on market valuation rather than on firm-specific valuation. Among security selectors, valuation plays a central role in portfolio management for fundamental analysts, and a peripheral role for technical analysts.

The following sub-section describes, in broad terms, different investment philosophies and the roles played by valuation in each one.

- (1) Fundamental Analysis: The underlying theme in fundamental analysis is that the true value of the firm can be related to its operational and financial characteristics, particularly related to its growth prospects, risk profile and cash flows. Any deviation from this true value is a sign that a stock is under or overvalued.
- (2) Activist Investors: Activist investors take positions in firms that have a reputation for poor management and then use their equity holdings to push for change in the way the company is run.

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Their focus is not so much on what the company is worth today but what its value would be if it were managed well. Investors like Carl Icahn, Michael Price and Kirk Kerkorian have prided themselves on their capacity to not only pinpoint badly managed firms but to also create enough pressure to get management to change its ways. How can valuation skills help in this pursuit? To begin with, these investors have to ensure that there is additional value that can be generated by changing management. In other words, they have to separate how much of a firm's poor stock price performance has to do with bad management and how much of it is a function of external factors. The former are fixable but the latter are not.

They then have to consider the effects of changing management on value. This will require an understanding of how value will change as a firm changes its investment, financing, operating and dividend policies as well as execution methodologies. These are some of the managerial functions as leadership level. As a consequence, they have to not only know the businesses that the firm operates in but also have an understanding of the interplay between corporate finance decisions and value. Certain investors through secondary market generally concentrate on a few businesses they understand well, and attempt to acquire undervalued firms, which in other words is called 'Value Investment.' Warren Buffett, the second richest man and the most cerebral investor of the world at all times, follows this major investment policy of value investment. Often, value investors with large shareholding wield influence on the management of these firms and can change financial and investment policy.

- (3) Chartists: Chartists believe that prices are driven as much by investor psychology as by any underlying financial variables. The information available from trading measures like price movements with short and longer term trends, trading volume and short sales, relationship between movements in prices vis-à-vis trading volumes, etc. —give collective indications of investor psychology and future price movements. The assumptions here are that prices move in predictable patterns, that there are not enough marginal investors taking advantage of these patterns to eliminate them, and that the average investor in the market is driven more by emotion than by rational analysis. At times there is another group of very short term traders, called Noise Traders who make big volume transactions based on some information about the company to their advantage or following one or two major players in the market who deals with certain motives of his / their own. While valuation does not play much of a role in charting, there are ways in which an enterprising chartist can incorporate it into analysis. For instance, valuation can be used to determine support and resistance lines on price charts.

The methodology applied by such chartists for predicting the value of a stock in near term future is also called 'Technical Valuation'

- (4) Information Traders: Prices move on information about the firm and the industry sector to which it belongs. Information traders attempt to trade in advance of new information or shortly after it is revealed to financial markets. They at times have their own channels of gathering large value impacting information which becomes a public information shortly after his using the same at the market place for trading. The other underlying assumption is that these traders can anticipate information announcements and gauge the market reaction to them better than the average investor in the market.

For an information trader, the focus is on the relationship between information and changes in value, rather than on value, per se. Thus an information trader may buy an 'overvalued' firm if he believes that the next information announcement is going to cause the price to go up, because it contains better than expected news. If there is a relationship between how undervalued or overvalued a company is, and how its stock price reacts to new information, then valuation could play a role in investing for an information trader as his / her sole objective is to make profit through buying and selling after a short interval when price increases.

- (5) Market Timers: Market timers note, with some legitimacy, that the pay-off to calling turns in markets is much greater than the returns from stock picking. They argue that it is easier to predict market movements than to select stocks and that these predictions can be based upon factors that are observable. However, timing the market is a very risky proposition particularly from the perspective of buying and selling within a short time frame. This needs continuous watch on the market and analyses of intra-day price movements and volume of trading so that the investor can hit the appropriate time to buy at lower and sell at higher price points
- (6) Efficient Marketers: Efficient marketers believe that the market price at any point in time represents the best estimate of the true value of the firm, and that any attempt to exploit perceived market efficiencies will cost more than it will make in excess profits.

They assume that:

- Markets aggregate information quickly and accurately,
- Marginal investors promptly exploit any inefficiencies, and
- Any inefficiencies in the market are caused by friction, such as transactions costs, and cannot exploited.

For efficient marketers, valuation is a useful exercise to determine why a stock sells for the price that it does. Since the underlying assumption is that the market price is the best estimate of the true value of the company, the objective becomes determining what assumptions about growth and risk are implied in this market price, rather than on finding under or overvalued firms.

11. Write a short note on “Efficient Market Hypothesis” (EMH)

Answer:

The purpose of any stock market of the world is to bring together those people who have funds to invest with those who need funds to undertake investments. Entities which seek to raise equity are asking investor for a permanent investment. Investors may not be incorrect to invest unless they are convinced that they would be able to realize their investments at a fair price at any time in the future.

For these to happen stock market must price shares efficiently. Efficient pricing means incorporating into the share price, determined and or decided for trading, impacts of all factors that could possibly effect. In an efficient market, investors can buy and sell share at a fair price and entities can raise funds at a cost that reflects the risk of the investment they are seeking to undertake.

A considerable body of financial theory has been building a hypothesis that in an efficient market, prices fully and instantaneously reflect all available information. The efficient market hypothesis is, therefore, concerned with information and pricing efficiency.

Three levels or forms of efficiency have been defined. These are depended on the amount of information available to the participants in the market.

- (1) Weak form: Weak form efficiency implies that current share price reflects all the information which could be gleaned from a study of past share prices. If this holds, then no investor can earn above average return by developing trading rules based on historical process or return information. This form of the hypothesis can be related to the activities of chartists, analysts whose belief in share prices can be charted and a pattern identified that can be used to predict future prices.
- (2) Semi-strong form: Semi-strong form efficiency implies that the current share price reflects all other published information. If they are sold, then no investors can be expected to earn above average

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return from trading rules based on any publicly available information. This form of the hypothesis can be related to fundamental analysis, in which estimates of future prices are based on the analysis all known information.

- (3) Strong form: Strong form efficiency implies that the current share prices incorporates all information, including unpublished information. In other words, the proponents of EMH is of the firm belief that market discounts the effect of any information either in positive or negative direction immediately upon the same being known to any or more of the market participants. Thus the value of equity price gets reset through the next trading transaction.

12. Explain the valuation process.

Answer:

The valuation process comprise of five broad steps:

(a) Understanding the business

This includes evaluating industry prospects, competitive position of the company in the industrial environment, corporate strategies - its planning and execution, overall economic environment where the company operates, the technological edge etc.

(b) Forecasting Company Performance

This can be achieved by doing economic forecasting and studying company's financial information. Two approaches to economic forecasting are top-down forecasting and bottom-up forecasting. In top-down forecasting analysts use macroeconomic forecasts to develop industry forecasts and then make individual company and asset forecast consistent with the industry forecasts. In bottom-up forecasting analysts aggregate individual company forecasts with industry forecasts and finally aggregate it with macroeconomic forecasts. While evaluating financial information of a company, the analyst can consider both qualitative and quantitative factors. This involves careful scrutiny and interpretation of financial statements, and other financial/accounting disclosures.

(c) Selecting the appropriate valuation model

While selecting a valuation model an analyst can use different perspectives. One of the widely used methods is determining the intrinsic value, which is fully dependent on the quality of information and the inherent assumptions. There are other value measures. We know that a company has one value if dissolved today and other if it continues operation.

One of the popular notions of value finding is the going concern assumption, which says that the company will maintain its business activities into the foreseeable future. Two broad types of going concern valuation models are absolute valuation models and relative valuation models.

An absolute valuation model is a model that specifies an asset's intrinsic value. This model specifies a value of a company at a particular point of time and is compared with the existing market prices for decision making. Present value or discounted cash flow approach is the most popular type of absolute model approach. Present value models based on dividends are called dividend discount models and those based on free cash flow concept, are called free cash flow to equity and free cash flow to firm models. When a company is valued on the basis of market value of the assets or resources it controls we call it asset based valuation approach.

The second main type of going concern valuation is relative valuation model. Here we specify an asset's value relative to that of another asset. The basic notion of relative valuation model is that similar assets should sell at similar prices. We usually denote this using price multiples. Popular relative

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price multiples are Price to Earnings (P/E), Price to Book Value (P/BV), Price to Sales etc. The approach of relative valuation as applied to equity valuation is often called method of comparables.

The prime decision on selecting the valuation model is based on the following three broad criteria:

- (1) The valuation model should be consistent with the characteristics of the company being valued;
- (2) The valuation model should be appropriate given the availability and the quality of data; and
- (3) The valuation model should be consistent with the purpose of valuation, including the analyst's own perspective.

(d) Converting forecasts to valuation

Analysts play a vital role of collecting, organising, analysing, communicating and monitoring the corporate information which they have used in the valuation analysis. They help clients achieve their investment objective and contribute to efficient functioning of the capital markets.

(e) Communicating the information - preparation of research report.

Study Note – 6

VALUATION MODELS

Learning Objective: This chapter will provide the framework to price and value both securitised and non-securitised. The discussions will approach the subject from an applied viewpoint to enable students to practise valuation methods.

Section - I

Choose the correct answer from the given four alternatives.

1. CAPM helps in determining _____ of return.
 - a) cash flows
 - b) contingent value
 - c) actual rate
 - d) required rate
2. For firms with negative FCFE and positive FCFF the present value of _____ is the suitable model of valuation of equity. (FCFE/FCFF).
 - a) FCFF.
 - b) FCFE
 - c) Cash flows
 - d) Earnings
3. DCF analysis requires the revenue and expenses of.....
 - a) present
 - b) past
 - c) future
 - d) None of the above
4. Which one is the advantage of DCF valuation
 - a) It is not based upon an asset's fundamentals
 - b) It is not the right way to think about what an investor would get when buying an asset
 - c) It forces an investor to think about the underlying features of the firm and understand its business
 - d) All of these
5. Under Asset based valuation approach individual assets are valued and aggregated in the process of finding
 - a) enterprise value
 - b) True value
 - c) Real value
 - d) Objective value
6. Estimated fair value of an asset is based on the value of operating cash flows.
 - a) current
 - b) discounted
 - c) future
 - d) none of these

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7. Which of the following statements is most accurate in describing a company's book value?
 - a) Book value increases when a company retains its net income
 - b) Book value is usually equal to the company's market value
 - c) The ultimate goal of management is to maximize book value
 - d) Book value decreases when a company retains its net income
8. A company's cost of equity is often used as a proxy for investors'
 - a) Average required rate of return
 - b) Minimum required rate of return
 - c) Maximum required rate of return
 - d) No required rate of return
9. Book value is least likely to be considered when using
 - a) A multiplier model
 - b) An asset-based valuation model
 - c) A present value model
 - d) none of the above
10. An analyst who bases the calculation of intrinsic value on dividend-paying capacity rather than expected dividends will most likely use the:
 - a) Dividend discount model
 - b) Free cash flow to equity model
 - c) Cash flow from operations model
 - d) CAPM

Answer: 1 d); 2 a); 3 b); 4 c); 5 a); 6 b); 7 a); 8 b); 9 c); 10 b);

Section - II

1. Explain the different valuation approaches.

Answer:

The different valuation approaches are explained below:

(I) Asset-based approach

The asset-based approach has many other common names such as the asset accumulation method, the net asset value method, the adjusted book value method and the asset build-up method. The purpose of the model is to study and revalue the company's assets and liabilities obtaining the substance value which also is the equity. The substance value is thus estimated as assets minus liabilities. To be useful, the substance value must be positive, if liabilities are bigger than assets there is no use of the method.

The basic idea is that the company's value could be determined by looking at the Balance Sheet. Unfortunately, the values on the balance sheet cannot be used because the book value seldom is the same as the real value, except for the case of liabilities that is often accounted in real value. The problem is when following the principles of accounting, assets often are depreciated over their life expectancy and when the asset-based approach is applied the real value for these assets must be determined. In this case, the real value is equivalent to the fair market value that is value of the asset on a free market or present value of the future earnings from the asset or a group of assets.

Two methods are used here:

- (a) The Liquidation Value, which is the sum as estimated sale values of the assets owned by a company.
- (b) Replacement Cost: The current cost of replacing all the assets of a company at times for specific purposes professional valuers also consider depreciated replacement cost of the asset(s).

This approach is commonly used by property and investment companies, to cross check for asset based trading companies such as hotels and property developers, underperforming trading companies with strong asset base (market value vs. existing use), and to work out break – up valuations.

(II) Income-based approach

The income approach is commonly called Discounted Cash Flow (DCF). It is accepted as an appropriate method by business appraisers. This approach constitutes estimation of the business value by calculating the present value of all the future benefit flows which the company are expected to generate.

Mathematically it can be expressed as the following formula: $PV = \sum FV / (1 + i)^n$

Where,

PV = Present Value of FV = Future Value

i = discount rate reflecting the risks of the estimated future value

n = raised to the nth power, where n is the number of compounding periods Source:

As formula shows, according to the income-based approach to determine a business value the appraiser must always make an estimation of the elements below:-

- Estimation of business life expectancy;
- Estimation of future income flows that a business will generate during its life expectancy; and
- Estimation of discount rate in order to calculate the present value of the estimated income flows.

There are several models of income approach depending on which type of income flows that will be discounted. The common benefit flows that are usually used in the income-based approach are dividends, free cash flows and residual income. The dividends and cash flow are two measures which refer to direct payment flows from a company to shareholders and the residual income measure has focus on return which is derived from company's book value and based on accrual accounting. The differences among the models are in how the calculation is done and what factors about the company are highlighted in the process.

(III) Market-based approach

The market approach determines company value by comparing one or more aspects of the subject company to the similar aspects of other companies which have an established market value.

2. What are the different valuation models?

Answer:

Wide ranges of models are used in valuation ranging from the simple to the sophisticated. In general terms, there are three models to valuation.

- (1) Discounted cash flow valuation:** It relates to the value of an asset to the present value of expected future cash flows from that asset or group of assets.

- (2) Relative valuation:** It estimates the value of an asset by looking at the pricing of 'comparable' assets relative to a common variable such as earnings, cash flows, book value or sales. The profit multiples used are (a) Earnings before interest, tax, depreciation and amortisation (EBITDA), (b) Earning before interest and tax (EBIT), (c) Profits before tax (PBT) and (d) Profit after tax (PAT).
- (3) Contingent Claim valuation:** It uses option pricing models to measure the value of assets that have share option characteristics. Some of these assets are traded financial assets like warrants, and some of these options are not traded and are based on real assets. Projects, patents and oil reserves are examples. The latter are often called real options.

The outcomes from each of this approach may be different because these make different assumptions. In this module, different valuation approaches would be discussed and reason for differences in different models will be explored in this study note. Lesson on how to choose the right model to use for a specific task would be shared.

3. Explain the three elements of business valuation

Answer:

Business valuation refers to the process and set of procedures used to determine the economic value of an owner's interest in a business.

The three elements of Business Valuation are:

(1) Economic Conditions

As we see in Portfolio Management Theory, wherein we adopt the Economy-Industry-Company (E-I-C) approach, in Business Valuation too, a study and understanding of the national, regional and local economic conditions existing at the time of valuation, as well as the conditions of the industry in which the subject business operates, is important. For instance, while valuing a company involved in sugar manufacture in India in January 2016 the present conditions and forecasts of Indian economy, industries and agriculture; prices of sugar in overseas market are to be understood before the prospects of Indian sugar industry and that of a particular company are evaluated.

(2) Normalization of Financial Statements

This is the second element that needs to be understood for the following purposes:

- (a) Comparability adjustments: to facilitate comparison with other organisations operating within the same industry.
- (b) Non-operating adjustments: Non-operating assets need to be excluded.
- (c) Non-recurring adjustments: Items of expenditure or income which are of the non-recurring type are to be excluded to provide comparison between various periods.
- (d) Discretionary adjustments: Wherever discretionary expenditure had been booked by a company, they are scrutinised to be adjusted to arrive at a fair market value.

(3) Valuation Approach

There are three common approaches to business valuation - Discounted Cash Flow Valuation, Relative Valuation, and Contingent Claim Valuation. Within each of these approaches; there are various techniques for determining the fair market value of a business. Valuation models fall broadly into four variance based respectively on assets, earning, dividend and discounted cash flows. For all these the typically Capital Asset Pricing Model is used to calculate a discount rate. Each method has its advantages and disadvantages and are not appropriate in all circumstances. It is often not wise to depend on a single method. Calculating a range of value using different appropriate types of valuation can provide valuable benchmarks for the project or entity valuation being considered.

4. What do you mean by discounted cash flow valuation?

Answer:

DCF method is an easy method of valuation. To understand and evaluate the other two methods of valuation it is important to understand the DCF method first. In this section, we will consider the basis of this approach.

Basis for Discounted Cash Flow Valuation

This approach has its foundation in the present value rule, where the value of any asset is the present value of expected future cash flows that the asset generates. To use discounted cash flow valuation, one needs to estimate

- to estimate the life of the group of assets from which the income flow will be generated
- to estimate the cash flows during the life of the asset
- to estimate the discount rate to apply to these cash flows to get present value.

$$\text{Value} = \sum_{t=1}^n \frac{CF_t}{(1+r)^t}$$

where,

n = Life of the asset

CF = Cash flow in period t

r = Discount rate reflecting the weighted average cost of capital employed added with the risk premium depending upon the riskiness of the estimated cash flows.

The cash flows will vary from asset to asset for example dividends for stocks, coupons (interest) and the face value for bonds and after-tax cash flows for a real project. The discount rate will be a function of the riskiness of the estimated cash flows. Discount rate will be high for riskier assets and low for safer assets. For example rate of discount on zero coupon bond is zero and for corporate bonds it is the interest rate that reflects the default risk.

In discounted cash flow valuation, the intrinsic value of an asset is calculated based on fundamentals. DCF technique perceives that markets are inefficient and make mistakes in assessing value. It also makes an assumption about how and when these inefficiencies will get corrected. Here the word asset represents collectively all the assets of the business or the company which is being valued.

5. How do you classify discounted cash flow models? What are the underlying approaches?

Answer:

There are three distinct ways in which we can categorise discounted cash flow models. First, we differentiate between valuing a business as a going concern as opposed to a collection of assets. In the second, we draw a distinction between valuing the equity in a business and valuing the business itself. In the third, we lay out three different and equivalent ways of doing discounted cash flow valuation – the expected cash flow approach, a value based upon excess returns and adjusted present value.

(a) Going Concern versus Asset Valuation

The value of an asset in the discounted cash flow framework is the present value of the expected cash flows on that asset. Extending this proposition to valuing a business, it can be argued that the value of a business is the sum of the values of the individual assets owned by the business. While this may be technically right, there is a key difference between valuing a collection of assets and a business. A business or a company is an on-going entity with assets that it already owns and assets it expects to invest in the future along with all other resources required to operate the assets to generate earnings. Those are management and execution man power, and intangibles like brand and corporate, image, channel partners, etc.

A financial balance sheet provides a good framework to draw out the differences between valuing a business as a going concern and valuing it as a collection of assets. In a going concern valuation, we have to make our best judgments not only on existing investments but also on expected future investments and their profitability, besides maintenance investments to be made to carry on the existing business. While this may seem to be foolhardy, a large proportion of the market value of growth companies comes from their growth assets. In an asset-based valuation method, we focus primarily on the assets in place and estimate the value of each asset separately. Adding the asset values together yields the value of the business. For companies with lucrative growth opportunities, asset-based valuations will yield lower values than going concern valuations.

(b) Equity Valuation versus Firm Valuation

There are two ways in which we can approach discounted cash flow valuation. The first is to value the entire business, with both assets-in-place and growth assets; this is often termed firm or enterprise valuation.

The cash flows before debt payments and after reinvestment needs are called free cash flows to the firm, and the discount rate that reflects the composite cost of financing from all sources of capital is called the weighted average cost of capital.

The second way is to just value the equity stake in the business, and this is called equity valuation.

The cash flows after debt payments and reinvestment needs are called free cash flows to equity, and the discount rate that reflects just the cost of equity financing is the cost of equity.

(c) Variations on DCF Models

The model that we have presented in this section, where expected cash flows are discounted back at a risk-adjusted discount rate, is the most commonly used discounted cash flow approach but there are two widely used variants. In the first, we separate the cash flows into excess return cash flows and normal return cash flows. Earning the risk-adjusted required return, which is otherwise, is called cost of capital or equity is considered a normal return cash flow but any cash flows above or below this number are categorised as excess returns. Excess returns can therefore be either positive or negative. With the excess return valuation framework, the value of a business can be written as the sum of two components:

Value of business = Capital invested in firm today + Present value of excess return cash flows from both existing and future projects

If we make the assumption that the accounting measure of capital invested (book value of capital) is a good measure of capital invested in assets today, this approach implies that firms that earn positive excess return cash flows will trade at market values higher than their book values and that the reverse will be true for firms that earn negative excess return cash flows.

In the second variation, called the adjusted present value (APV) approach, is separated the effects on value of debt financing from the value of the assets of a business. In general, using debt to fund a firm's operations creates tax benefits because interest expenses are tax deductible on the positive side and increases bankruptcy risk and expected bankruptcy costs on the negative side. In the APV approach, the value of a firm can be written as follows:

Value of business = Value of business with 100% equity financing + Present value of Expected Tax Benefits of Debt – Expected Bankruptcy Costs

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In contrast to the conventional approach, where the effects of debt financing are captured in the discount rate, the APV approach attempts to estimate the expected money value of debt related benefits and costs separately from the value of the operating assets.

While proponents of each approach like to claim that their approach is the best and most precise, we will argue that the three approaches yield the same estimates of value, if consistent assumptions are considered for creating the valuation model.

6. Discuss the inputs to discounted cash flow models.

Answer:

There are three inputs that are required to value any asset in this model - the expected cash flow, the timing of the cash flow and the discount rate that is appropriate given the riskiness of these cash flows.

(a) Discount Rates

In valuation, the valuer begins with the fundamental notion that the discount rate used on a cash flow should reflect its riskiness. In case of higher risk, cash flows to be discounted with higher discount rates. There are two ways of viewing risk. The first is purely in terms of the likelihood that an entity will default on a commitment to make a payment, such as interest or principal due, and this is called default risk. When looking at debt, the cost of debt is the rate that reflects this default risk.

The second way of viewing risk is in terms of the variation of actual returns around expected returns. The actual returns on a risky investment can be very different from expected returns. The greater the variation, the greater the risk. When looking at equity, the valuer tends to use measures of risk based upon return variance. There are some basic points on which these models agree. The first is that risk in an investment has to be perceived through the eyes of the marginal investor in that investment, and this marginal investor is assumed to be well diversified across multiple investments. Therefore, the risk in an investment that should determine discount rates is the non-diversifiable or market risk of that investment. The second is that the expected return on any investment can be obtained starting with the expected return on a riskless investment, and adding to it a premium to reflect the amount of market risk in that investment. This expected return yields the cost of equity.

The cost of capital can be obtained by taking an average of the cost of equity, estimated as above, and the after-tax cost of borrowing, based upon default risk, and weighting by the proportions used by each. One can argue whether the weights used, when valuing an on-going business, should be based upon the market values of debt and equity. While there are some analysts who use book value weights. Doing so they violate a basic principle of valuation. The principle directs that, one should be indifferent between buying and selling an asset.

(b) Expected Cash Flows

In the strictest sense, the only cash flow an equity investor gets out of a publicly traded firm is the dividend. Models that use the dividends as cash flows are called dividend discount models. A broader definition of cash flows to equity would be the cash flows left over after the cash flow claims of non-equity investors in the firm have been met. Those are interest and principal payments to various types of lender, lease rent against financial and operating assets. Until recently preferred dividends on preference share capital used to be also deducted. But with the introduction of Ind AS in India as a measure toward convergence to International Financial Reporting Standards (IFRS), preference shares, other than with compulsory convertible clause, will also have to be considered as borrowed capital. After such deductions free cash flow will be determined after further deducting, after enough of reinvestments into the firm to sustain the projected growth in cash flows, by way of additional working capital margin and maintenance capital expenditure. This is the free cash flow to equity (FCFE), and models that use these cash flows are called FCFE discount models.

The cash flow to the firm is the cumulated cash flows to all claimholders in the firm. One way to obtain this cash flow is to add the free cash flows to equity to the cash flows to lenders (debt) and preferred stockholders. A far simpler way of obtaining the same number is to estimate the cash flows prior to debt and preferred dividend payments, by subtracting from the after-tax profit the net investment needs to sustain growth. This cash flow is called the free cash flow to the firm (FCFF) and the models that use these cash flows are called FCFF models.

(c) Expected Growth

While estimating the expected growth in cash flows in the future, analysts confront with uncertainty most directly. There are three generic ways of estimating growth. One is to look at a company's past and use the historical growth rate posted by that company. The peril is that past growth may provide little indication of future growth. The second is to obtain estimates of growth from more informed sources. For some analysts, this translates into using the estimates provided by a company's management whereas for others it takes the form of using consensus estimates of growth made by others who follow the firm. The bias associated with both these sources should raise questions about the resulting valuations.

Taking inputs to estimate future growth from Due Diligence of immediate past few years' performance and PESTEL Analysis in the context of the business environment.

In this concept

P -Political

E -Economic

S - Societal

T - Technical

E - Environmental

L - Legal including regulatory

Findings from these analyses will not only help projecting growth rate in foreseeable future and in perpetuity but also help projecting cost of production, pricing of products and services and cost of capital.

7. Discuss the advantages and disadvantages of discounted cash flow valuation.

Answer:

Advantages: As per one school of thoughts majority of corporate finance experts believe discounted cash flow valuation is the only way to approach valuation, but the benefits may be more nuanced than they are willing to admit. On the plus side, discounted cash flow valuation, done right, requires analysts to understand the businesses that they are valuing and ask searching questions about the sustainability of cash flows and risk. Discounted cash flow valuation is tailor made for those who buy into the Warren Buffett adage that what we are buying are not stocks but the underlying businesses. In addition, discounted cash flow valuations are inherently contrarian in the sense that it forces analysts to look for the fundamentals that drive value rather than what market perceptions are. Consequently, if stock prices rise (fall) disproportionately relative to the underlying earnings and cash flows, discounted cash flows models are likely to find stocks to be overvalued (undervalued).

Discounted cash flow valuation is based upon expected future cash flows and discount rates. Given these informational requirements, this approach is easiest to use for assets and / or business entities.

- whose cash flows are currently positive and can be estimated with some reliability for future periods,
- and where a proxy for risk that can be used to obtain discount rates is available.

Limitations of DCF Valuation

This technique requires lot of information. The inputs and information are difficult to estimate and also can be valuer. This technique cannot differentiate between over and undervalued stocks. It is difficult to apply this technique in the following scenarios:

- **Negative earnings firms:** For such firms, estimating future cash flows is difficult to do, since there is a strong probability of insolvency and failure. DCF does not work well since under this technique the firm is valued as a going concern which provides positive cash flows to its investors.
- **Cyclical Firms:** For such firms earnings follow cyclical trends. Discounting smoothes the cash flows. It is very difficult to predict the timing and duration of the economic situation. The effect of cyclical situation on these firms is neither avoidable nor separable. Therefore, there are economic biases in valuations of these firms.
- **Firms with un/under utilised assets:** DCF valuation reflects the value of all assets that produce cash flows. If a firm has assets that are un/under utilised that do not produce any cash flows, the values of these assets will not be reflected in the value obtained from discounting expected future cash flows. But, the values of these assets can always be obtained externally, and added on to the value obtained from discounted cash flow valuation.
- **Firms with patents or product options:** Firms often have unutilized patents or license that do not produce any current cash flows and are not expected to produce cash flows in the near future, but, nevertheless, these are valuable and with changing business ecosystem those may be used to general income. If values of such patents are ignored then value obtained from discounting expected cash flows to the firm will understate the true value of the firm.
- **Firms in the process of restructuring:** Firms in the process of restructuring often sell, acquire other assets, and/ or change their capital structure dividend policy business model operating structure etc. Some of them also change their status from private to public. Each of these changes makes estimating of future cash flows more difficult and affects the riskiness of the firm. Using historical data for such firms may give a misleading picture of the firm's value. In case of business restructuring through acquisitions and if there is synergy then its value is to be estimated after considering the value addition to be generated from such synergy. This will require assumptions about the synergy and its effect on cash flows.
- **Private Firms:** The measurement of risk to be used in estimating discount rates is a challenge since securities in private firms are not traded, this is not possible. One solution is to look at the riskiness of comparable firms, which are publicly traded. The other is to relate the measure of risk to accounting variables, which are available for the private firm. But identifying a firm with comparable attributes is quite a difficult task.

8. Explain the steps in DCF equity valuation.

Answer:

- (1) Estimate the Free cash flow to equity:
 - (a) Forecast earnings for the future.
 - (b) Adjust earnings (net income) to get free cash flow to equity:

Free Cash Flow to Equity = Net Income - (Capital Expenditure – Depreciation) – Working capital Accruals + (New debt issued - Debt Repayment)

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Following table shows how to calculate free cash flows:

Working Capital	
Year	
Revenue	
Less: Costs of goods and / or services sold	
Less: Depreciation of tangible / intangible assets	Non-cash item
Add: Other Income	
Profit/ (Loss) from asset sales	
Taxable income	
Tax	
Net operating profit after tax (NOPAT)	Adjustment for non-cash item
Add: Depreciation	
Profit/ (Loss) from asset sales	
Operating cash flow and other income	Capital items
Change in working capital	
Capital Expenditure	
Salvage value of assets	
Free cash flow	

(c) Calculate the PV of equity cash flows by using cost of equity (K_e) as discounting rate. Cost of equity can be calculated using CAPM approach.

(2) CAPM Approach: $K_e = RF + \beta(RM - RF)$

K_e = Required rate of return

RF = Risk free rate

β = Beta coefficient

RM = Expected return for common stocks in the market

$(RM - RF)$ = Equity risk premium (ERP)

9. Discuss the key components of relative valuation.

Answer:

In relative valuation, the value of an asset is derived from the pricing of 'comparable' assets, standardised using a common variable. Included in this description are two key components of relative valuation. The first is the notion of comparable or similar assets. From a valuation standpoint, this would imply assets with similar cash flows, risk and growth potential. In practice, it is usually taken to mean other companies that are in the same business as the company being valued. The other is a standardized price. After all, the price per share of a company is in some sense arbitrary since it is a function of the number of shares outstanding; a two for one stock split would halve the price. Dividing the price or market value by some measure that is related to that value will yield a standardised price. When valuing stocks, this essentially translates into using multiples where we divide the market value by EBIDTA, book value or revenues to arrive at an estimate of standardised value. We can then compare these numbers across companies.

The simplest and most direct applications of relative valuations are with real assets where it is easy to find similar assets or even identical ones.

Harking back to the earlier discussion of discounted cash flow valuation, it has been argued that discounted cash flow valuation was a search albeit unfulfilled for intrinsic value. In relative valuation, the valuer will given up on estimating intrinsic value and essentially put trust in markets getting it right, at least on average.

10. Write a short note on variations of relative valuation.

Answer:

In relative valuation, the value of an asset is based upon how similar assets are priced. In practice, there are three variations of relative valuation, with the differences primarily in how one defines comparable firms and control for differences across firms:

- (a) **Direct comparison:** In this approach, analysts try to find one or two companies that look almost exactly like the company they are trying to value and estimate the value based upon how these similar companies are priced. The key part in this analysis is identifying these similar companies and getting their market values.
- (b) **Peer Group Average:** In the second, analysts compare how their company is priced (using a multiple) with how the peer group is priced (using the average for that multiple). Thus, a stock is considered cheap if it trades at 12 times EBITDA and the average price earnings ratio for the sector is 15. Implicit in this approach is the assumption that while companies may vary widely across a sector, the average for the sector is representative for a typical company.
- (c) **Peer group average adjusted for differences:** Recognising that there can be wide differences between the company being valued and other companies in the comparable firm group, analysts sometimes try to control for differences between companies. In many cases, the control is subjective. A company with higher expected growth than the industry will trade at a higher multiple of earnings than the industry average. But how much higher is left unspecified. In a few cases, analysts explicitly try to control for differences between companies by either adjusting the multiple being used or by using statistical techniques. As an example of the former, consider PEG ratios. These ratios are computed by dividing PE ratios by expected growth rates, thus controlling at least in theory for differences in growth and allowing analysts to compare companies with different growth rates.

11. State the advantages and limitations of relative valuation.

Answer:

The allure of multiples is that they are simple and easy to relate to. They can be used to obtain estimates of value quickly for firms and assets, and are particularly useful when there are a large number of comparable firms being traded on financial markets, and the market is, on average, pricing these firms correctly. In fact, relative valuation is tailor made for analysts and portfolio managers who not only have to find undervalued equities in any market, no matter how overvalued, but also get judged on a relative basis. An analyst who picks stocks based on their PE ratios, relative to the sectors they operate in, will always find undervalued stocks in any market; if entire sectors are overvalued and his stocks decline, he will still look good on a relative basis since his stocks will decline less than comparable stocks assuming that the relative valuation is right.

By the same token, they are also easy to misuse and manipulate, especially when comparable firms are used. Given that no two firms are exactly similar in terms of risk and growth, the definition of 'comparable' firms is a subjective one. Consequently, a biased analyst can choose a group of comparable firms to confirm his or her biases about a firm's value. While this potential for bias exists with discounted cash flow valuation as well, the analyst in DCF valuation is forced to be much more explicit about the assumptions which determine the final value. With multiples, these assumptions are often left unstated.

The other problem with using multiples based upon comparable firms is that it builds in errors in the form of over valuation or under valuation that the market might be making in valuing these firms. If, for instance, we find a company to be undervalued because its equity share trades at 15 times of its earnings and comparable company's trade at 25 times earnings, we may still lose on the investment if the entire sector is overvalued. In relative valuation, all that we can claim is that a stock looks cheap or expensive relative to the group we compared it to, rather than make an absolute judgment about value. Ultimately, relative valuation judgments depend upon how well we have picked the comparable companies and how good a job the market has done in pricing them.

12. Explain the steps in relative valuation.

Answer:

The following steps are followed in relative valuation:

(1) Search and select the comparable companies: The first part of the process is the selection of a group of comparable companies, that is, companies whose business operations are as similar as possible to those of the subject company. This requires a thorough understanding of the subject for example:

- How does it create value?
- What drives its financial performance?
- Who are its customers and suppliers?
- With whom and how does it compete?
- What risks does it face?

and so forth. Comparability is established by matching key business attributes of the subject with those of another group of firms. The similar step in the used car analogy is to match attributes such as make, model, year, engine size, mileage, options, and so on. List of salient characteristics could be prepared and then companies can be inspected one by one. A systematic selection procedure should be designed prior to the inspection to guard against biases.

(2) Selection of Multiples: The next step is to select certain multiples to be calculated based on market participants' views of the relevant metrics. The most commonly used multiples of enterprise value are value/revenue, value/ EBIT, and value/EBITDA. Different multiples are used for enterprise value or equity value. For instance, the market-multiple approach is sometimes used to estimate a subject company's equity value rather than its enterprise value. In such instances the multiples computed from comparable companies are derived from stock prices or market capitalization rather than enterprise values. Sometimes some industry specific multiples also can be used that relate value to, say, sales per square foot or to subscriber base or patents, and so on if data is available.

Note: Enterprise Value = Equity Share Price in Market + All Loans – Cash and Cash Equivalent. However, there is a need for adjusting this value if there is in any critical finding from due diligence prompting for adjustment, e. g. riskiness in terms of achieving growth in future or major probability of any major contingent liability being payable.

(3) Selection of comparables and size of sample: Next step is to form of sample of comparables. The question is How big should be the size of a sample? As with most statistical exercises, the easy answer is that more is better as the estimates are more reliable in larger samples. Unfortunately, in a desire to create a large sample we may have to reduce the degree of comparability. A pragmatic response to this difficulty is to examine more than one set of comparables, ranging from a small set of closely matched companies to larger sets of loosely matched companies, and see what the effect is on indicated value. Selection of samples should not based on the multiples themselves or financial measures that directly affect the multiples. That is, we should not look at a set of comparables and decide to exclude companies with low EBIT multiples. This generates bias.

- (4) Computation of Multiples:** Computing multiples requires a calculation of enterprise value on the one hand and one or more operating metrics e.g., EBIT, EBITDA etc. on the other. Enterprise value is generally computed as the market value of sum of the market values of debt and equity securities outstanding, including hybrid securities, which is sometimes referred to as "MVIC" (Market Value of Invested Capital). In practice, we sometimes assume that the market value of debt equals its book value. This may not always be an acceptable approximation. Therefore we may have to actually price the options or the conversion features of the securities to obtain reliable estimates of MVIC. For obtaining operating metrics it will often be necessary to adjust or normalise financial or other data to preserve and enhance comparability within the sample.

For example, the choice of LIFO (last in, first out) versus FIFO (first in, first out) accounting for inventory affects a company's cost of goods sold, which in turn affects EBIT. The extent they affect sales, operating profit, or cash flow, should be eliminated before multiples are computed. Nonrecurring items might include results from discontinued operations, extraordinary gains or losses, should also be adjusted.

Multiples themselves may be computed based on historic data or forecasts. Commonly last twelve months data is considered in case of historic method. Multiples can also be computed based on forecasts of operating metrics that may be generated using the analyst's best judgment or expert opinions in trade publications or equity analyst reports.

After computation, it is the multiples that have to be applied to the subject. The multiples will differ in the comparable companies within the sample. Therefore, simple means and medians of multiples can be used. Another alternative is to aggregate the MVICs and operating metrics for a sample of comparable companies and then compute a multiple based on the aggregates. This is in effect a value-weighted average of the sample. Whether this is appropriate depends on circumstances, but it is at least questionable in different sample size. Sometimes the minimum and maximum are used in conjunction with a mean or median to establish a range around a central point estimate.

- (5) Apply and conclude:** The concluded multiple is applied to the subject company by computing the product of the multiple and the indicated operating metric. The subject company's operating metric may have to be normalized for LIFO vs. FIFO; extraordinary nonrecurring items etc to ensure consistency with the sample of firms that generated the multiple. Further adjustments may be required after the multiple is applied.

(a) Adjustment for excess cash: If the subject has non operating assets such as excess cash, the amount of excess cash must be added to the value obtained from the multiple to arrive at enterprise value.

(b) Adjustment for operating control: The control premium should be included in the bidder's assessment of the subject enterprise value, in case the acquirer is taking over controlling shares and / or operational control of the target company. However, if the multiples are derived from observed stock prices for comparable companies, they probably lack any control premium since the shares being traded represent minority interests rather than controlling interests; On the other hand, if the multiples are derived from a sample of M&A transactions, and if those deals were for controlling interests, then a premium is already built into the concluded multiples. In general, whether an adjustment for control is indicated depends on what type of purpose of analysis and type of sample. How the adjustment should be made depends on the availability of reliable data on the incremental value of control.

(c) Adjustment for illiquidity: In general, an asset that is readily saleable is worth more than an otherwise identical asset that is not saleable. In case of valuation of a minority interest in a private company, or restricted shares of stock that may not be sold during a stipulated period, the concluded values derived from standard market multiples will need to be further adjusted (discounted) for illiquidity, also known as "lack of marketability." The Comparables are traded the subject is not. The estimation of the size of discount is subjective depending on the source, degree, and duration of the illiquidity.

Examples of adjustments to Comparables Data

- Inventory accounting (LIFO vs. FIFO)
- Extraordinary items (e.g., litigation settlements)
- Non-recurring items (e.g., discontinued operations, asset sales)
- Owner's compensation
- Capitalization of intangibles (from prior acquisitions)
- Non-operating assets (e.g., excess cash, idle land)
- Construction in progress etc.

13. What is meant by valuation multiplies?

Answer:

A valuation multiple is the ratio of firm value or equity value to some aspect of the firm's economic activity, such as cash flow, sales, or EBITDA. The table below lists the most common multiples used to value firms, together with the terminology that is used to describe the multiple.

Multiples Used in Finance:

Quantity	X	Multiple	Terminology	=	Value
Cash Flow	X	Firm Value / Cash Flow of Firm	"Cash flow multiple"	=	Value of Firm
EBITDA	X	Firm Value / EBITDA of Firm	"EBITDA multiple"	=	Value of Firm
Sales	X	Firm Value / Sales Value of Firm	"Sales multiple"	=	Value of Firm
Customers	X	Firm Value / Customers	"Customer multiple"	=	Value of Firm
Earnings	X	Price per Share / Earnings	"Price-earnings ratio"	=	Share Price

The technique for applying a valuation multiple is identical to that of applying a price-per-square-foot multiple to value real estate, or a price per pound to a purchase of fish. If you are studying a firm with a cash flow of ₹ 5 Crores and you believe it should be valued at a cash flow multiple of 10, you will determine that the firm is worth ₹50 Crores.

Sources of Multiples:

Multiples can be derived either by using fundamentals or by comparables. In discounted cash flow valuation, the value of a firm is determined by its expected cash flows. Other things remaining equal, higher cash flows, lower risk and higher growth should yield higher value. Thus, multiples can be derived from CF techniques and by comparing across firms or time, and make explicit or implicit assumptions about how firms are similar or vary on fundamentals. This approach requires the same information. Its primary advantage is to show the relationship between multiples and firm characteristics. For instance, what will happen to price-earnings ratios as growth rates decrease? What is the relationship between price-book value ratios and return on equity?

14. Explain the free cash flow valuation.

Answer:

Estimation of cash flows is an important step of a valuation process and the nature of cash flows that would be used in the calculation would depend on the perspective of the investor doing the analysis. Free cash flow concept focuses on the cash generated from operations in excess of that needed for reinvestment. Analysts frequently value firms based on the present value of expected future free cash flow. If a firm is not expected to generate free cash flow in the future, it is unlikely to be valuable.

Free cash flow valuation defines the value of the firm to be the present value of its expected future cash flows discounted at the company's cost of capital. Free cash flow available to the firm (FCFF) represents cash flow available to both debt and equity holders. Free cash flow to equity (FCFE) is what remains after debt holders have received their contractually obligated payments namely interest.

A company generates revenue by selling its products and services, while incurring expenses— like salaries, cost of goods sold (COGS), selling and general administrative expenses (SGA), research and development (R&D). To produce revenue a firm not only incurs operating expenses, but it also must invest money in real estate, buildings and equipment, and in incremental working capital to support growth and sustain its business activities. Also, the company must pay income taxes on its earnings. The amount of cash that is left over after the payment of these investments and taxes is known as Free Cash Flow to the Firm (FCFF).

This cash flow represents the return to all providers of capital, whether debt or equity. It can be used to pay off debt, repurchase shares, pay dividends or be retained for future growth opportunities. It is the hard cash that is available to pay the company's various claim holders, especially the shareholders.

FCFF = Net Operating Profit - Taxes - Net Investment - Net Change in Working Capital or

FCFF = Net Income + Non Cash Charges + Interest (1-T) - Net Investment - Net Change in Working Capital

A positive value would indicate that the firm has cash left after expenses. A negative value, on the other hand, would indicate that the firm has not generated enough revenue to cover its costs and investment activities.

FCFF can be calculated from the statement of cash flows as follows:

FCFF = Cash Flow from operations + After-tax interest expense - Capital expenditures

Free Cash Flows to Equity (FCFE) Model

Free Cash Flow to Equity (FCFE) is a measure of how much cash can be paid to the equity shareholders of the company after all expenses, reinvestment and debt repayment. Free cash flow to equity (FCFE) represents the cash flow a company generates after necessary expenses and expenditures and after satisfying the claims of debt holders. It can be calculated from Free Cash Flow to the Firm (FCFF) as follows:

FCFE = FCFF - After-tax interest expense + Net borrowing

If the company borrows more in a year than it repays it will have additional funds that could be distributed to shareholders, which is why net borrowing is added to FCFF in order to determine FCFE.

Once the free cash flows are estimated from the right perspective, the value of the firm is the sum of the present values of the free cash flows for a “planning period” plus the present value of the cash flows beyond the planning horizon (i.e., the terminal value), i.e.,

$$= \sum_{t=1}^T \frac{FCF_t}{(1+k)^t} + \frac{FCF_{t+1}}{(k-g)} \times \frac{1}{(1+k)^T}$$

Where,

g = growth

t = time

k = cost of equity

If free cash flow is positive then the company has done a good job of managing its cash. If free cash flow is negative then the company may have to look for other sources of funding such as issuing additional shares or debt financing. If a company has a negative free cash flow and has to issue more equity shares, this will dilute the profits per share. If the company chooses to seek debt financing, there will be additional interest expense as a result and the net income of the company will suffer. Free cash flow is one indicator of the ability of a company to return profits to shareholders through debt reduction, increasing dividends, or stock buybacks. All of these scenarios result in an increased shareholder yield and a better return on your investment.

To find the value of a firm, debt holders and/or contributors of debt and equity capital, would discount FCFF by weighted average cost of capital (WACC). Similarly, the equity shareholders would discount FCFE by cost of equity.

There are two major approaches to determine cost of equity. An equilibrium model - either CAPM or Arbitrage Pricing Theory (APT) and the Government security (bond) yield plus risk premium method.

The FCFE is the residual cash flows left after meeting interest and principal payments providing for capital expenditures to both – sustain existing operating company and add new assets for future growth– fund required to finance incremental working capital.

FCFE = Net Income + Depreciation – Capital spending – □ Working capital– Principal repayments + New Debt Issues.

In a special case where capital expenditures and working capital are expected to be financed at the target debt equity ratio and principal repayments are made from new debt issues.

FCFE = Net Income - (1 - d) (Capital Exp. – Depreciation) + (1 - d) (□ Working capital).

- 15. State the situations when FCFE models and dividend discount valuation models provide similar as well as dissimilar results**

Answer:

FCFE model is alternative to dividend discounting model. But at times both provide similar results: When result obtained from FCFE and Dividend discount model may be same:

- (i) Where dividends are equal to FCFE.
- (ii) Where FCFE is greater than dividends but excess cash (FCFE- dividends) is invested in projects with NPV = 0 (Investments are fairly priced)

When results from FCFE and Dividend discounting models are different:

- (i) When FCFE is greater than dividends and excess cash earns below market interest rates or is invested in negative NPV – value projects, the value from FCFE will be greater than the value from discount model.
- (ii) When dividends are greater than FCFE, the firm will have to issue either new stock or new debt to pay their dividends- with attendant costs.
- (iii) Paying too much of dividend can lead to capital rationing constraints when good projects are rejected, resulting in loss of wealth.

The dividend model uses a strict definition of cash flows to equity, i.e. expected dividends on stock, while FCFE model uses an expensive definition of cash flows to equity as the residual cash flows after meeting all financial obligations and investment needs.

When the firms have dividends that are different from FCFE, the values from two models will be different. In valuing firms for takeover or where there is reasonable chance of changing corporate control, the value from the FCFE provides the better value.

16. Explain the steps in the discounted cash flow analysis.

Answer:

Discounted cash flow valuation is based upon the notion that the value of an asset or group of assets, e. g., an operating division or a company, is the present value of the expected operating cash flows from that asset, discounted at a rate considering weighted average cost of capital (WACC) plus a factor to take care of the riskiness of those cash flows. The nature of the cash flows will depend upon the asset, the dividends for an equity share, coupons and redemption value for bonds and the post-tax cash flows for a project. The approach is based on time value concept where the value of any asset is the present value of its expected future cash flows. An acquirer would need to follow the steps given below and first find the intrinsic value of share.

Step I

Estimate free cash flows for the explicit forecast period

The free cash flows represent the cash flow available to all the suppliers of the capital to the firm. These include equity holders, the preference investors and the providers of debt to the firm.

Free Cash Flow = Gross Cash Flow of the firm - Tax - Investments - Change in NWC + Depreciation + Non-Cash Charges

Note that financing is not incorporated in the cash flows. Suitable adjustments for the specific financing have to be made in the discount rate.

Step II

Estimate a suitable Discount Rate for the Acquisition

The second step involves computation of the cost of capital to the firm. The cost of capital is the rate to be used for discounting the free cash flows to their present values. The cost of capital is to be computed as the weighted average of the costs of all sources of capital, which are based on the market value of each of the components of the capital.

$$K_o = K_e \left(\frac{S}{V} \right) + K_p \left(\frac{P}{V} \right) + K_d (1 - T) \left(\frac{B}{V} \right)$$

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Where V is the total market value of firm, S, P and B indicate the market values of Equity, preference share and Debt respectively. K_0 , K_e , K_p and K_d respectively are the weighted average cost of capital, cost of equity capital, cost of preference capital and cost of debt and t is the tax rate applicable to the firm. If the acquirer who is valuing the firm intends to change the capital structure of the target company, then suitable adjustments for the discount rate must be made.

Step III

Calculate the Present Value of Cash Flows for the explicit forecast period

One of the premises of this approach is that the firm is a going concern. The implication of this assumption is that the cash flows in perpetuity need to be discounted to value the firm. This is however, impossible in practice. Hence, the cash flows are explicitly computed for a finite period of time known as explicit forecast period and the continuing value of the firm at the end of such period is computed known as Terminal Value. The forecast period is set in such a way that the company reaches a stable phase / steady state at the end of forecast period and the growth rate remains constant in perpetuity.

Step IV

Estimate the Terminal Value

The terminal value is the present value of the cash flows occurring after the forecast period.

$TV = \frac{CF_t (1+g)}{(k-g)}$ where CF_t is the Cash flow in the last year, g is the constant growth rate and k is the discount rate.

Step V

Determination of the Value of the firm

Add PV of the free cash flows (as arrived at in Step III) and the Terminal Value (as arrived at in Step IV).

Step VI

Subtract the Value of the debt

Subtract the Value of the debt and preference share capital and other obligations assumed by the acquirer to arrive at the value of equity.

It should be noted that the final price paid by the acquirer might be much higher than the estimate arrived at by the DCF method. The target company's value can be thought of as

Value of Buyer = Value of Seller + Value added by the Buyer by +Benefits from Synergies + Strategic Considerations + Change in the value to a buyer if the target firm is acquired by the competitor + Control Premium if applicable. However, final payment will always depend on negotiation skills of both the parties.

Note = Negotiation is a method by which people settle differences. It is a process by which compromise or agreement is reached while avoiding argument and dispute.

17. What do you mean by enterprise valuation?

Answer:

Valuation of an enterprise includes takes of all equity, preference shareholders and debt holders. The value of the firm is obtained by discounting expected cash flows to the firm, i.e., the residual cash flows after meeting all operating expenses, reinvestment needs and taxes, but prior to any payments to either debt or equity holders, at their respective cost of equity culminating to weighted average cost of capital, which is the cost of the different components of financing used by the firm, weighted by their market value proportions.

$$\text{Value of Firm} = \sum_{t=1}^T \frac{\text{CF to Firm}}{(1+WACC)^t}$$

CF to Firm = Expected Cash flows to Firm in period t

And WACC = Weighted average cost of capital

Valuation of firm in pieces (Adjusted Present value):

Valuation is done in pieces beginning with its operations and adding the effects on value of debt and other non-equity claims. The value of the firm can also be obtained by valuing each claim on the firm separately. In this approach, first equity is valued assuming that it was financed only with equity. Then the value taken away by debt is considered by considering the present value of the tax benefits that flow from debt and the expected bankruptcy costs.

Value of firm = Value of all-equity financed firm + PV of tax benefits + Expected Bankruptcy Costs Piece or Adjusted PV approach allows different cash flows to the firm to be discounted at different rates, given their riskiness. Following example shows the equivalence of equity and firm valuation.

18. What do you mean by Cash Value Added (CVA) ?

Answer:

Cash value added (CVA) is the excess of cash generated over and above the requirement of cash. It is a cash flow based measure of value that includes only the cash items.

Cash Value Added is given by:

Cash value added (CVA) = Operating Cash Flow (OCF) – Operating Cash Flow Demand (OFCD)

The operating cash flow is computed for the essential strategic investment and excludes non-strategic investment. Operating cash flow is computed by adding earnings before interest, taxes, depreciation and amortization (EBITDA) and the increase in working capital, and subtracting from that non-strategic investment.

Operating Cash Flow (OCF) = EBITDA + Increase in Working Capital – Non-strategic Investment

It is clear that investment in working capital is regarded as essential and strategic, if the same is planned and not due to market forces like increase in receivables due to non-payment by customer.

From OCF is subtracted the operating cash flow demand (OFCD) representing the opportunity cost of capital demanded by the investors for the strategic investment. It measures the requirement of investors not in percentage terms but in actual cash flow terms. The difference of OCF and OFCD is the cash value added.

Not being a market-based determinant it can be computed at strategic business unit level. The emphasis is on cash and not on accounting earnings such as EBIT or net profit of the strategic unit being evaluated.

19. What do you mean by Relative Value of Growth?

Answer:

The firm's management often faces the dilemma as to how to provide increased value to the shareholders. Two common strategies available to them are increase the revenue by increased marketing and sale promotion effort, and to increase the productivity by undertaking cost cutting exercises wherever possible. Undoubtedly, both are desirable and increase value to the shareholders. Given the constraint of time with the top management it is hard to imagine if management can be focus on both the strategies of value addition simultaneously and with equal vigor.

Relative value of growth (RVG) is one parameter that helps resolve this dilemma.

Nathaniel Mass (2005) defined RVG as:

Relative Value of Growth (RVG) = Value of 1% Growth (VG) / Value of 1% improvement in Margin (VM)
Where,

$$\text{Value of 1\% Growth (VG)} = \text{Value of the Firm with 1\% Extra Revenue} - \text{Current Value of the Firm} \\ = \frac{\text{Current Cash Flow}}{\text{WAC} - (g+1\%)} - \text{Current Value of the Firm}$$

$$\text{Value of improvement in margin by 1\% (VM)} \\ = \frac{\text{Post-tax increase in Cash Flow}}{\text{WAC} - g} = \frac{\text{Current Cash Flow} \times 1\% \times (1-T)}{\text{WAC} - g}$$

Here g = Expected rate of growth

Relative value of growth compares what is achievable by an increase in revenue as compared to increase in profitability. The higher the value of RVG the more desirable it is. It compares the contribution of increase in revenue to that of strategy of cost cutting. With an RVG greater than one, the increase in the value would be higher if the firm focuses on increased revenue than if the focus is on cost cutting to improve margins. It is a measure of how increased revenue, which implies increased market share, impact shareholders' value creation. Growth in revenue outweighs cost cutting measures. If RVG is less than one, cost cutting is more effective in value creation than the increase in revenue. Such a situation would signify the maturity of the market where only way to improve value is cost cutting.

Understanding the RVG would help strike a good balance between marketing and production activities. It is useful for making investment decisions, establishing long term focus and formulation of corporate strategy. The limitation of RVG includes its inability to value intangibles besides being a relative measure ignoring the increase in value in absolute terms.

20. Write a short note on Economic Value Added (EVA).

Answer:

It is a performance metric that calculates the creation of shareholder value. It distinguishes itself from traditional financial performance metrics such as net profit and EPS. EVA is the calculation of what profits remain after the cost of company's capital-both debt and equity-are deducted from operating profit.

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The value of a firm is the sum of the capital invested and the present value of the economic value added. The present value of the economic value added by an asset over its life is the net present value of that asset. The value of a firm can be written as the sum of three components, the capital invested in assets in place, the present value of the economic value added by these assets, and the expected present value of the economic value that will be added by future investments. It can be calculated as:

$$\text{Firm Value} = \text{Capital Invested Assets in Place} + \sum_{t=1}^{\infty} \frac{\text{EVA}_{t, \text{Assets in place}}}{(1+WACC)^t} + \sum_{t=1}^{\infty} \frac{\text{EVA}_{t, \text{Future Project}}}{(1+WACC)^t}$$

Where:

Economic Value Added for all years = Net Operating Profit after Taxes – WACC × Capital Employed
Or, (Return on Capital Invested – WACC) × Capital Invested

Terminal EVA = EVA / (WACC – Net sales growth rate).

WACC = Cost of capital means the “fair rate of return to invested capital”, which goes to all claimholders. It is computed by multiplying Capital invested with WACC.

Return on Capital = Operating Income (1 – tax rate) / Capital Invested

NOPAT = Net Operating Profit After Tax

NOPLAT = Net Operating Profit Less Adjusted Taxes.

It means total operating profit for a firm with adjustments made for taxes. It is used in variant of the FCF and used in mergers of acquisitions.

NOPLAT is very similar to NOPAT, except its (net income + after tax interest expenses + Deferred taxes)

Capital Invested for all years = Total equity + Interest bearing liabilities + Convertibles - Total interest bearing financial assets.

Capital Invested for terminal year = (NOPLAT – Gross capital expenditure – Change in working capital + Increase in non-interest bearing liabilities – Total depreciation)/(Net sales growth × NOPLAT).

Limitations of EVA Method of Firm Valuation

- (1) Needs calculation of invested capital for every year which depends on valuation issues.
- (2) Economic profits as excess returns are fairly subjective, depending on the valuation of invested capital.
- (3) Economic profit framework may provide data inducing illusory accuracy of the quantified business plan.

21. What do you mean by Income/ Earnings Capitalisation Approach?

Answer:

There are two main income approaches of valuation. The first, the discounted future income method, involves forecasting a company's “income” streams (e.g., earnings or cash flow) on a year-by-year basis, and then converting these results into their present worth today based on the investor's required annual rate of return for taking the associated risk. The second, the capitalisation of earnings method, looks at the actual past results of the company as an indicator of its expected future results. There are a variety of potential “income streams” that might be used to determine value in the discounted future income method and capitalisation method such as a company's net profit (after- tax), pre-tax profit, cash flow, dividends and so forth. It then converts these earnings into an estimate of value using a capitalization rate.

(1) Discounted future income method: Value of a business is the present value of all of its anticipated future income streams. This method looks to the future by making annual forecasts of a company's earnings and cash flows and then uses present value techniques to convert these estimates into a value of the business today. In this method higher discount rate is used for higher uncertainty. It is assumed that growth rate will be constant after a period of 5-7 years since it is difficult to reliably predict beyond five or seven years in a forecast. The term "income" is used generically. It is calculated as:

$$\sum_{t=1}^n \frac{\text{Income}}{(1+WACC)^t}$$

(2) Earnings Capitalisation Method: The capitalization method simply says that value is a function of the elements of a company's income, the risk associated with that income (reflected in the discount rate), and the income's expected rate of future annual growth.

Firm Value = Income Stream for the Coming Year / (D – g)

Where, D is the discount rate which is WACC and g is the growth rate.

22. What do you mean by Contingent Claim Valuations (CCV)?

Answer:

In valuation, the value of a firm is the present value of the expected cash flows from the assets of the firm. The net present value of a project does not capture the values of the options to delay, expand or abandon a project. When comparing across investments, the traditional approach of picking the investment with the highest return or net present value may short-change investments that offer a firm more flexibility in operations and investing. A financing model that focuses on minimising the current cost of capital does not consider the value of financial flexibility that comes from having excess debt capacity. In a similar vein, firms that hold back on returning cash to their stockholders and accumulate large cash balances might also be guided by the desire for financing flexibility. The value of equity, obtained from a discounted cash flow valuation model, does not measure the option to control, and if necessary, liquidate the firm that equity investors possess, and it ignores other options that might be owned by the firm, including patents, licenses and rights to natural reserves. In light of these options that seem to be everywhere, these options should be considered when analyzing corporate decisions. We should try to quantitatively estimate the value of these options, and build them into the decision process.

The value of an asset may not be greater than the present value of expected cash flows if the cash flows are contingent on the occurrence or non-occurrence of an event. As a simple example, consider an undeveloped oil reserve belonging to Exxon, the renowned crude oil exploring company. It can be valued based upon expectations of oil prices in the future, but this estimate would miss the non-exclusive facts that the oil company will develop this reserve if oil prices go up and will not if oil prices decline or the oil company will develop this reserve if development costs go down because of technological improvement and will not if development costs remain high. Such undeveloped reserves are real options and should be valued as such, rather than with traditional discounted cash flow models.

Contingent Claim Valuations (CCV) is a revolutionary development in valuation techniques, to recognise the value of assets whose cash flows are contingent on a future event occurring. Typical examples would be the development of a pharmaceutical drug, an unknown oil field, or the development of a new product, innovation or service, with huge risk and uncertainty.

Earnings Valuations have some difficulty dealing with these firms having unused assets, or where the value of the assets cannot be easily linked to future cash flows.

CCV techniques sometimes use option valuation theory to value the underlying options present in many of these assets. Discounted cash flows techniques tend to understate the value of these assets, or punish them with higher discounting rates (higher WACC).

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23. Sandip Corporation is considering for going public but is unsure of a fair offering price for the company. Before hiring an investment banker to assist in making the public offering, managers at Sandip have decided to make their own estimate of the firm's common stock value. The firm's CFO has gathered data for performing the valuation using the free cash flow valuation model. The firm's weighted average cost of capital is 12 percent, and it has 14,00,000 of debt at market value and 5,00,000 of preferred stock at its assumed market value. The estimated free cash flows over the next five years, 2009 through 2013, are given below. Beyond 2013 to infinity, the firm expects its free cash flow to grow by 4 percent annually.

Year	Free Cash Flow
2012	2,50,000
2013	2,90,000
2014	3,20,000
2015	3,60,000
2016	4,00,000

- (a) Estimate the value of Sandip Corporation's entire company by using the free cash flow approach.
 (b) Using (a), along with the data provided above, to find Sandip Corporation's equity share value.
 (c) If the firm plans to issue 2,00,000 shares of equity, what is its estimated value per shares ?

Solution:

- (a) The total value of the firm equals

$$\frac{2,50,000}{1.12} + \frac{2,90,000}{1.12^2} + \frac{3,20,000}{1.12^3} + \frac{3,60,000}{1.12^4} + \frac{1}{1.12^4} \times \frac{4,00,000}{0.12 - 0.04} = 40,88,547$$

- (b) Of this amount, ₹1.4 million is debt and RS.0.5 million is preferred stock, so the equity value is ₹ 21,88,547.

- (c) With 2,00,000 shares, the price per share would be ₹10.94.

24. From the given financial statement of ABC Ltd find the following free cash flows viz. Free Cash Flow to Firm (FCFF) and Free Cash Flow to Equity (FCFE).

Balance Sheet of ABC Ltd	₹ in Millions	
	31.3.2015	31.3.2016
Asset:		
Current Assets		
Cash	210	248
Account Receivable	474	513
Inventory	520	564
Total Current Assets	1204	1325
Gross Fixed Assets	2501	2850
Accumulated Depreciation	(604)	(784)
Net Fixed Assets	1897	2066
Total Assets	3101	3391
Equity & Liabilities:		
Current Liabilities		
Accounts Payable	295	317
Notes Payable	300	310

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Accrued Taxes and expenses	76	99
Total Current Liabilities	671	726
Long Term Debt	1010	1050
Share Capital	50	50
Additional paid in Capital	300	300
Retained Earnings	1070	1265
Total Shareholders' Equity	1420	1615
Total Liabilities	3101	3391

Statement of Income — ABC Ltd (₹ Million) — 31.3.2016

Total revenues	2215
Operating Costs and Expenses	1430
EBITDA	785
Depreciation	180
EBIT	605
Interest Expense	130
PBT	475
Tax (@40%)	190
Net Income	285
Dividends	90
Transfer to Retained Earnings	195

Statement of Cash Flows — ABC Ltd (₹ Million) — 31.3.2016

Operating Activities	
Net Income	285
Adjustments	
Depreciation	180
Income taxes Paid	(190)
Change in Working Capital	
Account Receivable	(39)
Inventories	(44)
Accounts Payable	22
Accrued taxes & expenses	23
Cash provided by Operating Activities	427
Investing Activities	
Purchases of fixed assets	349
Cash used for Investing Activities	349
Financing Activities	
Notes Payable	(10)
Long Term Debt	(40)
Dividends	90
Cash used for Financing Activities	40
Cash and Equivalents Increase	38
Cash - beginning of the year	210
Cash - end of the year	248
Additional disclosures	
Interest Paid	130

Solution:

Free cash flow to the firm is given by the formula:

$$\text{FCFF} = \text{NI} + \text{Non Cash Charges} + \text{Interest (1-T)} - \text{Net Investment} - \text{Net Change in Working Capital}$$

$$\text{FCFF} = 285 + 180 + 130(1 - 0.40) - 349 - (39 + 44 - 22 - 23)$$

$$\text{*Net Investment in 2016} = \text{Change in Gross Fixed Assets} = (2850 - 2501) = 349 \quad \text{FCFF} = 285 + 180 + 78 - 349 - 38 = ₹ 156 \text{ million}$$

Free cash flow to equity is given by:

$$\text{FCFE} = \text{FCFF} - \text{Interest (1 - T)} + \text{Net borrowing}$$

And we know that:

$$\text{FCFF} = \text{NI} + \text{Non Cash Charges} + \text{Interest (1-T)} - \text{Net Investment} - \text{Net Change in Working Capital}$$

Therefore:

$$\text{FCFE} = \text{NI} + \text{Non Cash Charges} - \text{Net Investment} - \text{Net Change in Working Capital} + \text{Net Borrowing}$$

$$\text{FCFE} = 285 + 180 - 349 - (39 + 44 - 22 - 23) + (10 + 40)$$

$$\text{FCFE} = 285 + 180 - 349 - 38 + 50 = ₹ 128 \text{ million}$$

Or directly from FCFF as follows:

$$\text{FCFE} = \text{FCFF} - \text{Interest (1 - Tax rate)} + \text{Net borrowing}$$

$$\text{FCFE} = 156 - 130(1 - 0.40) + (10 + 40)$$

$$\text{FCFE} = 156 - 78 + 50 = ₹ 128 \text{ million}$$

Study Note – 7

VALUATION OF ASSETS AND LIABILITIES

Learning Objective: This will help you to understand the net asset value – also known as net tangible assets – is the book value of tangible assets on the balance sheet (their historical cost minus the accumulated depreciation) less intangible assets and liabilities – or the money that would be left over if the company was liquidated.

Section - I

Choose the correct answer from the given four alternatives.

1. Default risk is lower in
 - a) Government bonds
 - b) ICICI Bonds
 - c) Treasury bills
 - d) IDBI Bonds
2. The value of the bond depends on
 - a) The coupon rate
 - b) Years to maturity
 - c) Expected yield to maturity
 - d) All of the above
3. Coupon yield of the bond is
 - a) The discounted value of bond
 - b) Coupon payment stated as a percentage of bond features
 - c) Coupon payment stated as a percentage of bond's present price
 - d) a and c
4. Conceptual frame work of valuation through P/E ratio arises from
 - a) Multiple year holding model
 - b) Constant growth model
 - c) Two stage growth model
 - d) Three stage growth model
5. According to constant growth model, the next year's dividend is 20%, required rate of return is 10% and the growth rate is 15%. The market price would be
 - a) ₹ 50
 - b) ₹ 55
 - c) ₹ 45
 - d) ₹ 40
6. Economic Value Added is directly related to
 - a) Shareholders' value
 - b) Stakeholders' value
 - c) Creditors' value
 - d) Debtors' value
7. Intangible assets are treated as
 - a) Fixed assets
 - b) Fictitious assets
 - c) Current assets
 - d) None of the above

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8. An investment is risk free when actual returns are always-----the expected returns.
- equal to
 - less than
 - more than
 - depends upon circumstances
9. Negative EVAs
- Destroy shareholders' value
 - Create shareholders' value
 - Change shareholders' value
 - none of the above
10. For trading investments, the valuation is at
- Par value
 - Fair value
 - Current price
 - Market value

Answer: 1 c); 2 d); 3 c); 4 b); 5 d); 6 a); 7 a); 8 a); 9 a); 10 d);

Section - II

1. What is meant by valuation of inventory? Why is it Important for different types of merchandising and manufacturing companies?

Answer:

An inventory valuation allows a company to provide a monetary value for items that make up their inventory. Inventories are usually the one of the top three current assets of manufacturing and / or trading business, and proper measurement of them is necessary to assure accurate financial statements. If inventory is not properly measured, expenses and revenues cannot be properly matched, funds deployed in working capital as well as its cycle and costs cannot be properly measured and a company could make poor business decisions.

The inventory valuation involves two major aspects:

- The costs of the purchased and / or fully and partly manufactured / processed inventory have to be determined and
- Such costs are retained in the inventory accounts of the company until the product is sold.

A single company may conduct merchandising, service, and/or manufacturing activities. For convenience, we shall assume that each company described here conducts only one type of business. If a company does conduct more than one type of activities, it will use the accounting method appropriate for each type.

Retail stores, wholesalers, distributors, and similar companies that sell tangible goods are merchandising companies. A merchandising company substantially sells goods in the same physical form as that in which it acquires them. Its cost of sales is therefore the acquisition cost of the goods that are sold. On the balance sheet, a current asset, Merchandise Inventory, shows the cost of goods that have been acquired but not yet sold as of the balance sheet date.

A manufacturing company converts raw materials and purchased parts into finished goods. Its cost of sales includes the conversion costs as well as the raw material and parts costs of the goods that it sells. A manufacturing company has three types of inventory accounts: Materials, Work in Process, and Finished Goods.

Since both merchandising and manufacturing companies sell tangible goods, their income statements sometimes use the term cost of goods sold rather than cost of sales. We shall use the two terms interchangeably for merchandising and manufacturing companies, but use only cost of sales for service organisations.

Service organisations furnish intangible services rather than tangible goods. They include hotels, telecom services, beauty parlours and other personal services organisations, hospitals and other health care organisations, educational organisations, banks and other financial institutions, and governmental units. Service organizations may have materials inventories-for example, the pipes and fittings of a plumbing company. Professional service firms, such as law, consulting, accounting, and architectural firms, may have intangible inventories consisting of costs that have been incurred on behalf of clients but that have not yet been billed to clients. These inventories, often called jobs in progress or unbilled costs, correspond to work in process inventories in a manufacturing company. Service organisations do not have finished goods inventories.

2. Explain the different costs of inventories.

Answer:

Cost of inventory can be classified as

- (a) Costs of purchase,
- (b) Costs of conversion, and
- (c) "Other costs" incurred in bringing the inventories to their present location and condition.

(a) Costs of Purchase

The costs of purchase includes

- Purchase price, inclusive of government levies,
- Import duties and import related expenses if procured from overseas sources,
- All logistics costs, including warehousing and stock keeping expenses,
- Handling costs directly pertaining to the acquisition of the goods

(b) Costs of Conversion of Inventory

Cost of conversion of inventory includes costs directly attributable to the units of production, for example, direct labour. The conversion costs could also include variable and fixed manufacturing overhead incurred in converting raw materials into finished goods. Fixed overhead costs remain constant irrespective of the units of production. Variable costs are those costs that vary directly with the volume of production. Allocation of overhead to the cost of conversion is based on the "normal capacity" of the facility or in proportion to actual quantity manufactured vs. quantity in stock, as is appropriate. Normal capacity is the production that is normally achieved on average over a number of periods.

(c) Other Costs in Valuing Inventories

Valuing inventories include those costs that are incurred in bringing inventories to their present location and condition in other cost. For example cost for designing a product on the basis of specific customer needs or transport costs to an interim position for certain logistics activity prior to acceptance and actual passing of property to the goods to the customer.

Costs that are excluded from inventory valuation

Certain costs are excluded in valuing inventory are:

- (a) Abnormal amounts of wasted materials, labour, or other production costs
- (b) Storage costs unless they are essential to the production process
- (c) Administrative overheads that do not contribute to bringing inventories to their present location and condition
- (d) Selling costs.

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3. What are the list of disclosure requirements in the Balance Sheet (BS)/Statement of Financial Position (SOFP) in relation to inventories?

Answer:

The financial statements should disclose

- Accounting policies adopted for measuring inventories and the cost flow assumption (i.e., cost formula) used,
- Total carrying amount as well as amounts classified as appropriate to the entity,
- Carrying amount of any inventories carried at fair value less costs to sell,
- Amount of inventory recognised as expense during the period,
- Amount of any write-down of inventories recognised as an expense in the period,
- Amount of any reversal of a write-down to net realizable value and the circumstances that led to such reversal,
- Circumstances requiring a reversal of the write-down, and
- Carrying amounts of inventories pledged as security for liabilities.

4. Explain the acceptable methods of valuation of inventories.

Answer:

Several acceptable methods of valuation of inventories are

- Specific identification,
- Average cost,
- Weighted average cost – Moving weighted average or period end weighted average
- First-in, first-out (FIFO), and
- Last-in, first-out (LIFO).

We shall explain these methods with an example from a merchandising company, but the same principles apply to a manufacturing company. In our illustration, we assume the following for a year:

Units	Unit	Cost (₹)	Total Cost (₹)
Inventory, January 1	100	8	800
Purchased June 1	60	9	540
Purchased October 1	80	10	800
Goods available for sale	240	8,917	2140
Goods sold during the year	150	?	?
Ending inventory	?	?	?

Specific Identification

Specific identification method is common practice with certain big-ticket items such as automobiles and with unique items such as paintings, expensive jewellery, custom-made furniture; and bar codes and scanners is making it feasible with lower cost items. In many cases, however, when a substantial number of physically similar items are sold, this method can be unsatisfactory because the cost of goods sold depends on what specific items happen to be sold.

Illustration 1.

In the above Example, 150 units were sold. If the merchant selected the 100 units with a unit cost of ₹8 and 50 of the units having a unit cost of ₹9, the cost of goods sold would be

$(100 \times ₹8) + (50 \times ₹9) = ₹1,250$. If the 150 units with the highest cost were selected, the cost of goods sold would be $(80 \times ₹10) + (60 \times ₹9) + (10 \times ₹8) = ₹1,420$.

Average cost

The average cost method, the average cost of the goods available for sale is calculated, and the units in both cost of goods sold and ending inventory are costed at this average cost. In the periodic inventory method, this average is computed for the whole period. It is a weighted average. Each unit cost is weighted by the number of units with that cost. In the perpetual inventory method, a new average unit cost is sometimes calculated after each purchase. In either case, the average cost is representative of the cost of all of the items that were available for sale during the period.

Weighted Average Cost is a method of calculating Ending Inventory cost. It is also known as WAVCOs. It takes Cost of Goods Available for Sale and divides it by the number of units available for sale (number of goods from Beginning Inventory + Purchases/production). This gives a Weighted Average Cost per Unit. A physical count is then performed on the ending inventory to determine the number of goods left. Finally, this quantity is multiplied by Weighted Average Cost per Unit to give an estimate of ending inventory cost. The cost of goods sold valuation is the amount of goods sold times the Weighted Average Cost per Unit. The sum of these two amounts (less a rounding error) equals the total actual cost of all purchases and beginning inventory.

Moving-Average (Unit) Cost is a method of calculating Ending Inventory cost.

Assume that both Beginning Inventory and beginning inventory cost are known. From them the Cost per Unit of Beginning Inventory can be calculated. During the year, multiple purchases are made. Each time, purchase costs are added to beginning inventory cost to get Cost of Current Inventory. Similarly, the number of units bought is added to beginning inventory to get Current Goods Available for Sale. After each purchase, Cost of Current Inventory is divided by Current Goods Available for Sale to get Current Cost per Unit on Goods.

Also during the year, multiple sales happen. The Current Goods Available for Sale is deducted by the amount of goods sold, and the Cost of Current Inventory is deducted by the amount of goods sold times the latest (before this sale) Current Cost per Unit on Goods. This deducted amount is added to Cost of Goods Sold.

At the end of the year, the last Cost per Unit on Goods, along with a physical count, is used to determine ending inventory cost.

Illustration 2.

Assuming the periodic inventory method, the 240 units available for sale have a total cost of ₹ 2,140; hence, the average cost is $\text{₹}2,140/240 = \text{₹}8.917$. The calculations cost of goods sold and ending inventory are as follows:

	Units	Units (₹)	Cost Total (₹)
Cost of Goods sold	150	8.917	1338
Ending Inventory	90	8.917	802
	240		2140

First-in, First-Out (FIFO)

The FIFO method assumes that the oldest goods, in terms of date of receipt and entry to stock are first issued to production or sold first and that the most recently purchased goods are in the ending inventory. In the illustration, for the 150 units sold, it is assumed that the 100 units in beginning inventory were sold first and that the other 50 units sold were from the purchase made on June 1.

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Units	Units	Cost (₹)	Cost Total (₹)
Cost of Goods Sold:			
From beginning inventory	100	8	800
From purchase of June	50	9	450
Cost of Goods Sold	150		1250
Ending Inventory:			
From Purchase of June 1	10	9	90
From purchase of October 1	80	10	800
Ending Inventory	90		890

For the moment, it is sufficient to note that with FIFO (1) cost of goods sold is likely to approximate the physical flow of the goods because most companies sell their oldest merchandise first and (2) the ending inventory approximates the current cost of the goods, since it is costed at the amounts of most recent purchases.

Last-In, First Out

The LIFO method is the reverse of FIFO. Cost of goods issued to production or sold is based on the cost of the most recent purchases, and ending inventory is costed at the cost of the oldest units available.

Units	Units	Cost (₹)	Cost Total (₹)
Cost of Goods Sold:			
From purchase of October 1	80	10	800
From Purchase of June 1	60	9	540
From beginning inventory	10	8	80
Cost of Goods Sold	150		1420
Ending Inventory:			
From beginning inventory	90	8	720

LIFO (1) cost of goods sold does not reflect the usual physical flow of merchandise and (2) the ending inventory may be costed at amounts prevailing several months or years ago, which in an era of repaid inflation are far below current costs.

(Note that LIFO is not permitted under international accounting standards.)

Changes in Inventory

In a year when the physical size of the inventory increases above the amount on hand at the beginning of the year, with LIFO the inventory account is increased by the additional quantity valued at the costs existing during that year. During a period of growth, the inventory account will therefore consist of a number of layers, a new layer being added each year. If subsequently the physical inventory should decrease in size, these layers are, in effect, stripped off, taking the most recently added layer first in accordance with the basic LIFO rule. This process can have a peculiar effect on the income statement. If inventory is decreased to the extent that several LIFO layers are stripped off, then inventory items will be moving into cost of goods sold at costs established several years previously. If there has been constant inflation during the interim, such a decrease in inventory can result in a significant increase in reported income. Some people assert that in a recession, some companies deliberately eat into their LIFO inventories in order to increase reported income in a lean year. Careful readers of financial statements are not fooled by this practice, since the profit effect of reducing LIFO inventories must be disclosed in the notes to the financial statements.

LIFO Reserve

Companies that use LIFO for determining their balance sheet valuation of inventory nevertheless keep their detailed inventory records on a FIFO or average cost basis. The inventory amounts on these other bases usually will be higher than the LIFO valuation shown on the balance sheet. At the end of each accounting period, the difference between the LIFO valuation and the FIFO or average cost valuation is

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determined. (This is a complex calculation that is covered in advanced accounting texts.) This difference is sometimes called the LIFO reserve. The terminology is unfortunate because "reserve" suggests something set aside or saved for some special future purpose. The LIFO reserve is nothing more than the mathematical difference between two inventory amounts, one based on LIFO and the other one based on a different method of valuing inventory. LIFO companies disclose their LIFO reserve in the notes for their financial statement.

Income Tax Considerations

FIFO, average cost, and LIFO are all permitted for inventory, valuation as well as income computation. Once a method is chosen, a company cannot change it without seeking permission from the Internal Revenue Service (IRS). If a company chooses the LIFO method for tax purposes, it must also use LIFO in its published financial statements. This LIFO conformity rule is the only significant instance in which the IRS requires use of the same accounting method for income tax and "book" (financial reporting) purposes.

In periods of inflation, LIFO results in lower income than FIFO or average costs, and thus results in lower income taxes. If the physical size of inventory remains constant or grows, LIFO reduces taxable income indefinitely. Only if LIFO layers are stripped off in future years might taxable income under LIFO exceed taxable income under FIFO; and even in that case, LIFO will have postponed some income tax payments. These tax advantages of LIFO in periods of rising prices can improve a company's cash flow and therefore lead many companies to select the LIFO method regardless of the conceptual pros and cons of the various alternatives.

5. The XYZ Machineries Ltd. requests you to ascertain the amount at which the inventory should be included in the financial statement for the year 2015-16. The value of inventory as shown in the books is ₹12, 50,000.

To determine the net realisable value of the inventory (on a test check basis), you had selected several items whose book value was ₹ 3, 50,000. You ascertain that except for items (a) to (b) mentioned below, the cost was in excess of the realisable value by ₹ 29,532.

The following items require special treatment.

- (a) One machine (cost ₹ 1, 30,000) can now fetch ₹ 1, 15,000. It was priced at ₹ 70,000 and was written down to the same figure at the end of 2015-16.
- (b) A pump (cost ₹ 50,000) was expected to realise ₹ 35,000. A special commission would have to be paid to the broker.
- (c) 6 units of product No. 15,710 were in stock valued each at ₹ 5,520; the selling price was ₹ 4,500 per unit; selling expenses are 10% of the selling price.

Taking into consideration only the above mentioned items requiring special treatment, compute the value of their inventory as at 31st March, 2016 you would consider reasonable.

Answer:

Book value of selected items is given. From the given information, realisable value of remaining selected items will have to be found. Then the value of inventory (net realisable value) for all the items to be included in the financial statements of the company for the year 2015-16 is to be determined.

Working showing Realisable Value of Selected Items

Book value of selected items		₹ 3,50,000
Less: Book value of items (a) to (c)		
(a) One machine	₹ 70,000	
(b) One pump	₹ 50,000	
(c) 6 units of product No. 15,710@ ₹ 5,520	33,120	1,53,120
Remaining book value	1,96,880	

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It is given in the question that except for the items (a) to (b) the cost was in excess of realisable value by ₹ 29,532. In order to find out the realisable value of remaining items, this amount should be deducted from the book value of selected items.

The realisable value of remaining selected items will be: ₹ 1,96,880 - ₹29,532 = ₹ 1,67,348. Percentage of the cost in excess of realisable value to the book value of selected items = $(29,532/1,96,880) \times 100 = 15\%$

Working showing the Inventory Valuation (on Net Realisable Value Basis) (as on 31-03-2016)

	₹
Value of all the items as shown in the books	12,50,000
Less: Book value of special items	3,50,000
Book value of the remaining items	9,00,000
Less: Cost of excess of realisable value by 15% i.e. $(9,00,000 \times 15\%)$	1,35,000
	7,65,000
Add: Realisable value of remaining selected items	1,67,348
	9,32,348
Add: Realisable value of selected items:	
One machine	₹ 1,15,000
One pump (₹ 35,000 less 15% brokerage)	29,750
6 units of product No. 15,710 $(6 \times 4,500 \text{ less } 10\% \text{ selling expenses})$	24,300
Value of all items of inventory (as on 31-3-16)	11,01,398

6. Why do enterprisers hold investments?

Answer:

Enterprises hold investments for diverse reasons. For some enterprises, investment activity is a significant element of operations and assessment of the performance of the enterprise may largely, or solely, depend on the reported results of this activity. Some hold investments as a store of surplus funds and some hold trade investments in order to cement a trading relationship or establish a trading advantage. Enterprises, for which investment activity is a significant element of operations, such as insurance companies and some banks, are often subject to regulatory control. The Preface to Financial Reporting Standards provides that Financial Reporting Standards do not override local regulations governing the issue of financial statements.

Some investments are represented by certificates or similar documents; others are not. Then nature of an investment may be that of a debt, other than a short or long-term trade debt, representing a monetary amount owing to the holder and usually bearing interest; alternatively it may be a stake in an enterprise's results, such as an equity share. Most investments represent financial rights, but some are tangible — such as certain investments in land or buildings and direct investments in gold, diamonds or other marketable commodities.

For some investments, like listed debentures of companies, an active market exists from which a market value can be established. For such investments, market value is an indicator of fair value. For other investments, an active market does not exist and other means are used to determine fair value.

7. How do you classify investments?

Answer:

An enterprise that distinguishes between current and long-term assets in its financial statements should present current investments as current assets and long-term investments as non-current assets.

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Enterprises that do not distinguish between current and non-current investments in their balance sheets should nevertheless make a distinction for measurement purposes and determine the carrying amount for investments.

Current investments are included in current assets. The fact that a marketable investment has been retained for a considerable period does not necessarily preclude its classification as current. The declared intention and purpose of holding the investment is important as per Ind AS 32 – Financial Instruments.

Investments held primarily to protect, facilitate or further existing business or trading relations, often called trade investments, are not made with the intention that they will be available as additional cash resources and are thus classified as long-term. Other investments, such as investment properties, are intended to be held for a number of years to generate income and capital gain. They are therefore classified as long-term assets even though they may be marketable.

Some enterprises choose not to distinguish between current and long-term assets, and others may be required by regulations to adopt a balance sheet format that makes no distinction. Many such enterprises operate in the financial field, such as banks and insurance companies. Large Corporates also park their temporary surplus cash in liquid financial instruments for easy encashment if needed. Although such enterprises do not intend to realise their assets in current operations, they usually regard many of their investments as being available for the purposes of their current operations as liquid assets if required to manage mismatches in cash flows.

However, such enterprises may have investments properly regarded as long-term assets, for example a bank may hold shares in a leasing company or a corporate holding equity shares in one of its operating subsidiaries which are intended to be held till the subsidiary in existence or till not divested or demerged. Many such enterprises, therefore, analyse their investments and attribute carrying amounts to them according to whether their characteristics are those of current investments or non-current investments.

8. What is cost of investment?

Answer:

The cost of an investment includes acquisition charges such as brokerages, fees, duties and bank fees. If an investment is acquired, or partly acquired, by the issue of shares or other securities, the acquisition cost is the fair value of the securities issued and not their nominal or par value. If an investment is acquired in exchange, or part exchange, for another asset, the acquisition cost of the investment is determined by reference to the fair value of the asset given up. It may be appropriate to consider the fair value of the investment acquired if it is more clearly evident.

Interest, royalties, dividends and rentals receivable in connection with an investment are generally regarded as income, being the return on the investment. However, in some circumstances, such inflows represent a recovery of cost and do not form part of income. For example, when unpaid interest has accrued before the acquisition of an interest-bearing investment and is therefore included in the price paid for the investment, the subsequent receipt of interest is allocated between pre-acquisition and post-acquisition periods; the pre-acquisition portion is deducted from cost. When dividends on equity securities are declared from pre-acquisition profits a similar treatment applies. If it is difficult to make such an allocation except on an arbitrary basis, the cost of an investment is normally reduced by dividends receivable only if they clearly represent a recovery of part of cost.

The difference between the acquisition cost and redemption value of an investment in debt securities (the discount or premium on acquisition) is usually amortised by the investor over the period from acquisition to its maturity so that a constant yield is earned on the investment. The amortised discount or premium is credited or charged to income as though it were interest and added to or subtracted from the carrying amount of the security. The resulting carrying amount is then regarded as cost.

9. What is meant by carrying amounts of investments?

Answer:

Investments classified as current assets should be carried in the balance sheet at either:

- (a) market value; or
- (b) the lower of cost and market value.

If current investments are carried at the lower of cost and market value, the carrying amount should be determined either on an aggregate portfolio basis, in total or by category of investment, or on an individual investment basis.

Opinions differ on the appropriate carrying amount for current investments. Some maintain that, for financial statements prepared under the historical cost convention, the general rule of lower of cost and net realisable value is applicable to investments; and since most current investments are marketable, the carrying amount is the lower of cost and market value. Supporters of this method of determining carrying amount claim that it provides a prudent balance sheet amount and does not result in recognising unrealised gains in income.

Others argue that, since current investments are a readily realisable store of wealth, or a cash substitute, it is appropriate to value them at fair value, usually market value. The enterprise is not concerned with the cost of such items but with the cash it could raise by disposing of them. Investments are distinguished from inventories because they can generally be sold without effort, whereas it would normally be inappropriate to recognise profit on sale of inventories before the sale was assured. Each investment is dispensable by the business - for example an equity investment could be sold and the proceeds re-invested in a bank deposit account without detriment to the business - and therefore it is appropriate to report it at market value. Supporters of market value also argue that reporting investments at historical cost allows management to recognise income at its discretion, since selected investments can be sold and immediately repurchased and the resulting profit reported in income, although such transactions have not changed the enterprise's economic position.

10. How do you value investments on the basis of their classification?

Answer:

Investments classified as long-term assets should be carried in the balance sheet at either:

- (a) cost;
- (b) revalued amounts; or
- (c) in the case of marketable equity securities, the lower of cost and market value determined on a portfolio basis.

If revalued amounts are used, a policy for the frequency of revaluations should be adopted and an entire category of long-term investments should be revalued at the same time. The carrying amount of all long-term investments should be reduced to recognise a decline other than temporary in the value of the investments, such reduction being determined and made for each investment individually.

Non-current investments with the intention for holding till maturity are usually carried at cost. However, when there is a decline, other than temporary, in the value, the carrying amount is reduced to recognise the decline. Indicators of the value of an investment may be obtained by reference to its fair value, the investee's assets and results and the expected cash flows from the investment. Risk and the type and extent of the investor's stake in the investee are also taken into account. Restrictions on distributions by the investee or on disposal by the investor may affect the value attributed to the investment.

Reductions for other than a temporary decline in the carrying amounts of long-term investments are charged in the income statement unless they offset a previous revaluation.

Reductions in carrying amount may be reversed when there is a rise in the value of the investment, or if the reasons for the reduction no longer exist. However, in some countries reductions in the carrying amount are not reversed.

Note: Fair Value is defined as a sale price agreed to by a willing buyer and seller, assuming both parties enters the transaction freely.

11. How do you recognise carrying amount in relation to disposals of Investments?

Answer:

On disposal of an investment the difference between net disposal proceeds and the carrying amount should be recognised as income or expense. If the investment was a current asset carried on a portfolio basis at the lower of cost and market value, the profit or loss on sale should be based on cost. If the investment was previously revalued, or was carried at market value and an increase in carrying amount transferred to revaluation surplus, the enterprise should adopt a policy either of crediting the amount of any remaining related revaluation surplus to income or of transferring it to retained earnings. This policy should be applied consistently in accordance with Financial Reporting Standard.

Any reduction to market value of current investments carried at the lower of cost and market value on a portfolio basis is made against the cost of the portfolio in aggregate; individual investments continue to be recorded at cost. Accordingly the profit or loss on sale of an individual investment is based on cost; however the aggregate reduction to market value of the portfolio needs to be assessed.

When disposing of part of an enterprise's holding of a particular investment, a carrying amount must be allocated to the part sold. This carrying amount is usually determined from the average carrying amount of the total holding of the investment.

12. What is meant by specialised investment enterprises?

Answer:

Specialised investment enterprises which are prohibited from distributing profits on the disposal of investments may exclude from income changes in value of investments, whether realised or not, provided they carry their investments at fair value. Such enterprises should include in the financial statements a summary of all the movements in value of their investments for the period.

In certain countries, there are specialised investment enterprises whose main business is the holding of a portfolio of marketable securities as an investment vehicle for their individual shareholders. These enterprises carrying their investments at fair value, usually market value, because this is the most appropriate basis in the circumstances. They regard realised profits and losses on their investments as being the same in substance as unrealized gains and losses and therefore account for them in the same way. They disclose a summary of all the movements in the value of their investments for the period.

The constitutions of these enterprises prohibit the distribution as dividends of profits on disposal of investments and require a distinction to be drawn between income arising from interest and dividends and the gains or losses arising on the disposal of the investments. Hence these enterprises exclude from income all changes in value of investments whether or not they are realised.

13. What do you mean by bond? State the basic bond terminology.

Answer:

A bond is a long-term debt instrument. In India, debt instruments issued by the government and public sector units are generally called bonds, while debt instruments issued by private sector joint sector companies are known as debentures. The two terms, however, are often used interchangeably. It is a long-term debt contract under which a borrower agrees to make payments of interest and principal, on specific date, to the lenders of the bonds.

Bond Terminology

There are some terms which are associated to bond and to understand bond more meaningfully you should first know the following terms:

- 1. Principal:** The amount borrowed is called principal and it is often called par value or face value of the security. It is the nominal value stated on the bond.
- 2. Maturity Date:** The maturity date of the bond is the specified date on which the par value of a bond must be repaid.
- 3. Maturity:** The time period (e.g., number of years) remaining till the maturity date is known as the maturity of the bond.
- 4. Issue Price:** The issue price is the price at which the bonds are issued. The issue price may be higher than the face value (issued at a premium), lower than the face value (issued at a discount), or equal to the face value (at par).
- 5. Redemption:** The value that a bondholder will get on maturity is called redemption or maturity value. A bond may be redeemed at par or at premium (i.e., more than par value) or at discount (i.e., less than par value).
- 6. Coupon:** The cash flows in terms of interest to be received at regular intervals by the lender on a yearly or half-yearly or quarterly basis are referred to as coupon. When this coupon payment is divided by the par value, it is called coupon interest rate.
- 7. Market Value:** The price at which it is currently bought or sold is called the market value of the bond. Market value may be different from par value or redemption value.

14. How do you value bond?

Answer:

Bonds promise to pay coupons to their holders at regular intervals and to repay the principals on maturity date. Thus, the value of a bond is nothing but the present value of all cash flows that will be received by their owner. The present value of the bond is calculated as follows:

$$B = \frac{C}{(1+i)} + \frac{C}{(1+i)^2} + \dots + \frac{C}{(1+i)^{n-1}} + \frac{C+B_n}{(1+i)^n} \quad (1)$$

$$= \sum_{t=1}^n \frac{C}{(1+i)^t} + \frac{B_n}{(1+i)^n} \quad (2)$$

Where,

B = Present value of the bond or fair price of the bond,

B_n = Face (on the reimbursement) value of the bond,

C = Annual fixed coupon payment,

n = Maturity of the bond, i.e., the number of years remaining until maturity,

i = market determined interest/discount rate or required rate of return on a bond with this risk class and maturity.

From expression (1), we can write

$$B = \frac{C}{(1+i)} \left[1 + \frac{1}{(1+i)} + \dots + \frac{1}{(1+i)^{n-1}} \right] + \frac{B_n}{(1+i)^n} \quad (3)$$

The term in bracket is a geometric series of the form
 $1 + a + \dots + a^{n-1}$ where $a = \{1 / (1+i)\}$, i.e.,

$$\begin{aligned} \text{Sum: } S_{n-1} &= 1 + a + a^2 + \dots + a^{n-1} \\ \Rightarrow aS_{n-1} &= a + a^2 + \dots + a^n \\ \Rightarrow S_{n-1} - aS_{n-1} &= 1 - a^n \\ \Rightarrow S_{n-1} (1-a) &= 1 - a^n \\ \Rightarrow S_{n-1} &= \{(1 - a^n) / (1-a)\} \end{aligned} \quad (4)$$

Using the expression of (4) in (3) we can write

$$\begin{aligned} B &= \frac{C}{(1+i)} \left[\frac{1 - (1/(1+i))^n}{1 - (1/(1+i))} \right] + \frac{B_n}{(1+i)^n} \\ &= \frac{C}{(1+i)} \left[\frac{(1+i)^n - 1}{(1+i)^n} \right] + \frac{B_n}{(1+i)^n} \\ B &= \frac{C}{(1+i)} \left[\frac{1 - [1/(1+i)^n]}{(1/(1+i))} \right] + \frac{B_n}{(1+i)^n} \\ &= \frac{C}{(1+i)} \times \left\{ 1 - \frac{1}{(1+i)^n} \right\} \times \frac{(1+i)}{i} + \frac{B_n}{(1+i)^n} \\ &= \frac{C}{i} \left[1 - \frac{1}{(1+i)^n} \right] + \frac{B_n}{(1+i)^n} \end{aligned}$$

15. Discuss the basics of company analysis and stock selection.

Answer:

It should be remembered that good companies are not necessarily good investments. As an investor we are interested in comparing the intrinsic value of a stock to its market value. A prudent investor should bear in mind that the stock of a great company may be overpriced, while the stock of a lesser company may be a superior investment since it is undervalued.

What are growth companies and growth stocks? Companies that consistently experience above-average increases in sales and earnings have traditionally been thought of as growth companies. Financial theorists define a growth company as one with management and opportunities that yield rates of return greater than the firm's required rate of return.

Growth stocks do not necessarily refer to shares in growth companies. A growth stock has a higher rate of return than other stocks with similar risk or which have a higher growth potential in comparison to its

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peers in the same sector or the indexed rate of return say return from NIFTY 50. Superior risk-adjusted rate of return occurs because of market under-valuation compared to other stocks. Studies indicate that growth companies have generally not been growth stocks.

Defensive companies' future earnings are more likely to withstand an economic downturn, due to low business risk and not excessive financial risk. Defensive stocks' returns are not as susceptible to changes in the market, as they represent stocks with low systematic risk.

Cyclical companies' sales and earnings heavily influenced by aggregate business activity, due to high business risk and sometimes high financial risk as well. Cyclical stocks experience high returns in up markets, low returns in down markets. They are stocks with high betas.

Speculative companies invest in assets involving great risk, but with the possibility of great gain as they have very high business risk. Speculative stocks have the potential for great percentage gains and losses. They may be firms whose current price-earnings ratios are very high.

Growth stocks will have positive earnings surprises and above-average risk adjusted rates of return because the stocks are undervalued. Value stocks appear to be undervalued for reasons besides earnings growth potential. They usually have low P/E ratio or low ratios of price to book value.

16. Explain the different approaches to common stock valuation

Answer:

There are a number of methods when it comes to common stock valuation. They are given below:

1. Discounted Cash Flow Techniques:
 - Present value of Dividends (DDM)
 - Present value of Operating Cash Flow
 - Present value of Free Cash Flow
2. Relative valuation techniques:
 - Price-earnings ratio (P/E)
 - Price-cash flow ratios (P/CF)
 - Price-book value ratios (P/BV)
 - Price-sales ratio (P/S)
 - Sales to EBIDTA Ratio
 - Market Value to EBIDTA Ratio

Discounted Cash Flow Techniques:

This is based on the basic valuation model: the value of a financial asset is the present value of its expected future cash flows:

$$V_j = \sum CF_t / (1+k)^t$$

The different discounted cash flow techniques consider different cash flows and also different appropriate discount rates.

Dividend Discount Models:

Simplifying assumptions help in estimating present value of future dividends:

$$V_j = \sum Dt / (1+k)^t$$

Can also assume various dividends for a finite period of time with a reselling price, and simply calculate the combined present value of the dividends.

Alternative dividend assumptions:

Constant Growth Model:

- Assumes dividends started at D_0 (last year's dividend) and will grow at a constant growth rate
- Growth will continue for an infinite period of time
- The required return (k) is greater than the constant rate of growth (g)

$$V = D_1 / (k - g)$$

where $D_1 = D_0(1 + g)$

The growth rate can be estimated from past growth in earnings and dividends, using the sustainable growth model. The discount rate would consider the systematic risk of the investment (beta).

Valuation with Temporary Supernormal Growth:

If you expect a company to experience rapid growth for some period of time:

- (a) Find the present value of each dividend during the supernormal growth period separately.
- (b) Find the present value of the remaining dividends when constant growth can be assumed.
- (c) Find the present value of the remaining dividends by finding the present value of the estimate obtained in step 2.

Present Value of Operating Cash Flows:

Another discounted cash flow approach is to discount operating cash flows. Operating cash flows are pre-interest cash flows, so the required rate of return would be adjusted to incorporate the required returns of all investors (use the WACC)

$$VF_j = \sum OCF_t / (1 + WACC)^t$$

If we further assume a growth rate of g_{OCF} for operating cash flows, we can value the firm as:

$$VF_j = OCF_t / (WACC - g_{OCF})$$

Present Value of Free Cash Flow to Equity:

A third discounted cash flow technique is to consider the free cash flows of a firm available to equity as the cash flow stream to be discounted. Since this is an equity stream, the appropriate discount rate is the required return on equity:

$$VS_j = \sum FCF_t / (1 + k)^t$$

Once again, if we want constant growth in free cash flows, this expression reduces to the following:

$$VS_j = FCF_t / (k - g_{FCF})$$

Relative Valuation Techniques:

These techniques assume that prices should have stable and consistent relationships to various firm variables across groups of firms:

- (a) Price-Earnings Ratio
- (b) Price-Cash Flow Ratio
- (c) Price-Book Value Ratio
- (d) Price-Sales Ratio

Price – Earnings Ratio:

The Price-Earnings ratio, popularly known as P/E ratio, is affected by two variables:

1. Required rate of return on its equity (k)
2. Expected growth rate of dividends (g)

$$P/E_i = (D_1/E) / (k - g)$$

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Look at the relationship between the current market price and expected earnings per share over the next year. The ratio is the earnings multiplier, and is a measure of the prevailing attitude of investors regarding a stock's value.

Using the P/E approach to valuation:

1. Estimate earnings for next year
2. Estimate the P/E ratio (Earnings Multiplier)
3. Multiply expected earnings by the expected P/E ratio to get expected price

$$V = E1 \times (P/E)$$

Price - Cash Flow Ratio:

Cash flows can also be used in this approach, and are often considered less susceptible to unwarranted adjustment. The steps are similar to using the P/E ratio.

$$V = CF1 \times (P/CF)$$

Price-Book Value Ratio:

Book values can also be used as a measure of relative value. The steps to obtaining valuation estimates are again similar to using the P/E ratio.

$$V = BV1 \times (P/BV)$$

Price-Sales Ratio:

Finally, sales can be used in relation to stock price. There are some drawbacks, in that sales do not necessarily produce profit and positive cash flows. The advantage is that sales are also less susceptible to unwarranted adjustment. However, assumptions for determination of projected sales needs to be with an approach toward near certainty. The steps are similar to using the P/E ratio.

$$V = S1 \times (P/S)$$

17. The Directors of Kamdhenu Private Ltd are planning to sell the Company. For this purpose they want you to put a value on the equity share of the Company using the methods which a prospective purchaser might apply.

The following information should be considered in valuing the shares under each method, commenting briefly on each method adopted –

1. Balance Sheet as on 31st March 2015

Equity and Liability	₹	Assets	₹
(1) Shareholders Fund:		(1) (1) Non-Current Assets:	
(a) Share Capital		(a) Fixed Assets: (Tangible):	
Equity Share Capital of ₹10 each	2,00,000	Land and Building	5,00,000
(b) Reserve & Surplus		Plant and Machinery	2,75,000
Revenue Reserve	5,95,000	— Motor Vehicles	55,000
(2) Non-Current Liabilities:		(b) Other Non-Current Assets	
Long Term Borrowings		Preliminary Expenses	2,000
- Secured Loan against Land & Building	1,50,000	(2) Current Assets:	
(3) Current Liabilities:		(a) Inventories	1,33,000
(a) Trade Payables – Sundry Creditors	1,35,000	(b) Trade Receivables	
(b) Short Term Provision		— Sundry Debtors	1,45,000
Provision for Taxation	45,000	(c) Cash and Cash Equivalents	15,000
Total	11,25,000	Total	11,25,000

2. Profit/ Dividend record: The Profit record after tax and interest but before dividends over the last five years have been as follows:

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Year	2011	2012	2013	2014	2015
Profit	₹80,000	₹75,000	₹95,000	₹80,000	₹85,000

The average dividend has been ₹30,000 (gross) for the last ten years.

- The operating budget shows that estimated after tax profit for the next year will be ₹85,000 and thereafter it is estimated that this will increase by 5% p.a. over the next four years.
- In the light of recent developments in the field of financial reporting, the Company has had its Fixed Assets valued by an independent expert whose report discloses the following values – Land & Building - ₹6,10,000, Plant & Machinery- ₹2,88,000, Motor Vehicles - ₹1,02,000.
- A study of three public companies in the same market as Kamdhenu Private Ltd shows that the average dividend yield and price earning ratio of these over last three years have been –

Year	Abhilasha Ltd		Ninder Ltd		Sanju Ltd	
	Dividend Yield %	P/E Ratio	Dividend Yield %	P/E Ratio	Dividend Yield %	P/E Ratio
2009	17.00	8.00	17.00	8.50	16.50	9.00
2010	17.00	8.00	15.00	9.00	17.00	10.00
2011	17.00	9.00	18.00	10.00	17.50	11.50
Average	17.00	8.33	16.70	9.17	17.00	10.17

- One of the Directors has indicated that after tax cost of capital is now 17½%. The estimated net cash flow of the Company after taking into consideration taxation and capital expenditure over next five years in order to achieve/and as a result of, the five years profit plan, are as follows:

Year	2016	2017	2018	2019	2020
CF (₹)	1,00,000	1,20,000	1,40,000	10,000	1,50,000

Another Director is of the view that profitability be measured at 12 ½% on Tangible Capital and 17 ½% on Intangible Capital.

Answer:

1. Net Assets Method

Particulars	₹	₹
Land and Building (at revalued amount)	6,10,000	
Plant and Machinery (at revalued amount)	2,88,000	
Motor Vehicles (at revalued amount)	1,02,000	
Stock in trade (at Balance Sheet Value)	1,33,000	
Sundry Debtors (at Balance Sheet Value)	1,45,000	
Cash at Bank (at Balance Sheet Value)	15,000	
Total Assets	12,93,000	
Less: Outside Liabilities		
Secured Loans	(1,50,000)	
Sundry creditors	(1,35,000)	
Provision for Taxation	3,30,000	
Net Tangible Assets		9,63,000
Number of Equity Shares		20,000
Value per Equity Share (₹9,63,000 ÷ 20,000)		48.15

2. Dividend Yield Method

a. Actual Dividend Rate of the Company = Average Dividend ÷ Paid Up Capital =	15.00%
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$\text{₹}30,000 \div \text{₹}2,00,000$	
b. Average Industry Dividend Rate = $(17\% + 16.70\% + 17\%) \div 3$	16.90%
c. Value per Equity Share = $(\text{Face Value} \times \text{Actual Yield}) / \text{Industry Dividend Rate} = (\text{₹}10 \times 15.00\%) \div 16.90\%$	8.88

3. PE Multiple Method (based on Projected Earnings)

Note: Industry Average PE Ratio = $(8.33 + 9.17 + 10.17) / 3 = 9.22$ times

Year	Profit after Tax	Weights*	Product
2016	₹85,000	5	4,25,000
2017	$85,000 \times 1.05 = \text{₹}89,250$	4	3,57,000
2018	$89,250 \times 1.05 = \text{₹}93,713$	3	2,81,139
2019	$93,713 \times 1.05 = \text{₹}98,399$	2	1,96,798
2020	$98,399 \times 1.05 = \text{₹}1,03,319$	1	1,03,319
Total	₹ 4,69,681	15	13,63,256

a. Average Profits (Simple/ Weighted)	$4,69,681 \div 5 = \text{₹} 93,936$	$13,63,256 \div 15 = \text{₹} 90,884$
b. Number of Equity Share	20,000 shares	20,000 shares
c. Projected Earnings per Share	₹ 4.70	₹4.54
d. Value per Share (on PE Multiple) = Co' EPS x Industry average PE Ratio	$\text{₹}4.70 \times 9.22 \text{ times} = \text{₹}43.33$	$\text{₹}4.54 \times 9.22 = \text{₹}41.86$

Note:

- Also, PAT for the year ending on the B/s date i.e 2015 can be taken as a Future Earning Capacity i.e., at ₹85,000. Hence, EPS = ₹4.25 and Value per share = ₹4.25 x 9.22 times = ₹39.19.
- Higher weightage is give to the near future years than far further future years.

4. Projected Earnings Capitalization Method

Particulars	Simple Average	Weighted Average
a. Projected Earnings (PAT) of the Company	₹ 93,936	₹90,884
b. Normal Rate of Return of the Industry = $1 \div \text{PE Ratio}$	$(1 \div 9.22) = 10.85\%$	$(1 \div 9.22) = 10.85\%$
c. Capitalized Value of Projected Earnings (a ÷ b)	₹8,65,770	₹8,37,641
d. Value per share = $(c \div 20,000 \text{ Shares})$	₹43.29	Rs41.88

Note: The valuation under PE Multiple and Earnings Capitalization Method (at 10.85%) is effectively the same. The difference is due to rounding – off aspect in calculations.

5. Discounted Cash Flow Method

Year	PVF at 17.5%	Cash Flows	Present Value
2016	0.85	₹ 1,00,000	₹ 85,000
2017	0.72	₹ 1,20,000	₹ 86,400
2018	0.62	₹ 1,40,000	₹ 86,800
2019	0.52	₹ 10,000	₹ 5,200
2020	0.45	₹ 1,50,000	₹ 67,500
2021 onwards (See Note below)	0.45	$\text{₹} 1,50,000 \div 10.85\% = \text{₹} 13,82,488$	₹ 6,22,120
Present Value of Future Cash Flows till perpetuity			₹ ₹9,53,020
Value per Share $[\text{₹}9,53,020 \div 20,000 \text{ shares}]$			₹ 47.65

Note:

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- Cash Flows of Year 2020 ₹1,50,000 are assumed to continue till perpetuity. Hence, it is divided by the Industry Normal Rate of Return, to estimate the cash flows till perpetuity. These are discounted to the present value, to ascertain the total discounted cash flows.
- Cash Flows of year 2019 is not in tune with the other years. This may be because of Capital Expenditure proposed during the year. In the absence of information of Capital Expenditure, no adjustment has been made.

6. Summary of Value per Share

Method	Value per Share	Remarks
1. Net Assets Method	₹ 48.15	Reports the Fair Values of assets available to Equity Shareholders. Provides basis for negotiating prices
2.Dividend – Yield Method	₹ 8.88	Suitable only for purchase of small lots and not for acquisition of controlling interest.
3. Earnings – Yield (PE Multiple)		
(a) On Simple Average	₹ 43.33	Recognizes market / industry expectations and the
(b) On Weighted Average	₹ 41.86	Company's future performance. However, weighted average
(c) On B/s Year Profits	₹ 39.19	Based calculations are more appropriate.
4. Earnings Capitalization Method		
(a) On Simple Average	₹ 43.29	Only a variant of the PE Multiple method. Weighted Average
(b) On Weighted Average	₹ 41.88	Based calculations are more appropriate.
5. Discounted Cash Flows	₹ 47.65	Most suited for acquisition of controlling interest.

18. What do you mean by intangible assets?

Answer:

Intangible assets include a wide array of assets ranging from intellectual property rights like brand, patents and trademarks to goodwill. The accounting standards vary across intangible assets.

In case of specifically identifiable intangibles, the cost associated with obtaining of intangibles like patents, copyrights, trademarks, etc. can be identified

In accordance with the provisions of Ind AS 38 recognition of an item as an intangible asset requires an entity to demonstrate that the item meets:

- the definition of an intangible asset as stated in paragraphs 8 to 17 of Ind AS 38 – Intangible assets; and
- the recognition criteria as stated in paragraphs
An intangible asset shall be recognised if, and only if:
- it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity; and
- the cost of the asset can be measured reliably.

An entity shall assess the probability of expected future economic benefits using reasonable and supportable assumptions that represent management's best estimate of the set of economic conditions that will exist over the useful life of the asset.

An entity uses judgment to assess the degree of certainty attached to the flow of future economic benefits that are attributable to the use of the asset on the basis of the evidence available at the time of initial recognition, giving greater weight to external evidence.

An intangible asset shall be measured initially at cost.

19. Write short notes on patents and copyrights

Answer:

Patents

A patent gives the holder the exclusive right to produce, use and sell a product or process without interference or infringement from others.

Cost of patent: If purchased from an inventor, the cost will include the purchase price plus any legal fees to successfully protect the patent. If any additional legal fees occur after the acquisition of a patent to successfully defend the right of the patent should also be capitalized. The cost of a patent should be amortized over the legal life or the useful life, whichever is shorter.

If a patent becomes worthless, the net value of the patent should be written-off as an expense or loss. If a patent is internally developed, no cost can be capitalized. All the research and development (R&D) costs should be expensed.

Patents and Trademarks are valued differently depending on whether they are generated internally or acquired. When patents and trademarks are generated from internal research, the costs incurred in developing the assets are expensed in that period, even though the asset might have a life of several accounting periods unless the conditions prescribed under the aforesaid provisions of Ind AS 38 are satisfied. Thus, recognition of the costs of an internally developed intangible asset in balance sheet of a company is conditional and restrictive. In contrast, when an asset is acquired from an external party, including through merger and acquisition route, it is recognised as an asset.

Intangible assets have to be amortized over their respective expected lives.

Copyrights

Copyright is a government granted right to authors, sculptors, painters, and other artists for their creations. A copyright is granted for the life of the creator plus 70 years. It gives the creator and heirs an exclusive right to reproduce and sell the artistic work or published work.

Cost of Copyright: If purchased, the cost includes the purchase price plus any legal fees. If developed by the owner (the creator), no cost can be assigned and capitalized.

Amortization is by Straight-line method or a unit-of-production method.

20. Write short notes on: Trademarks & Trade Names, Leaseholds, Franchise & License, Research and Development (R&D) and Computer Software Costs

Answer:

Trademarks & Trade Names

Trademarks and trade names refer to a word, a phrase, or a symbol that distinguishes a product or an enterprise from another (i.e., company names such as IBM, Microsoft, Intel, and XEROX).

Cost is similar to that of copyrights. The owner should register at the Patent Office for 10 years life. The registration can be renewed every 10 years for unlimited times.

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Amortization is over the shorter of the useful or legal life, not to exceed 40 years.

Leaseholds

By signing a contract, the lessee acquires an exclusive right to use the property. Leasehold improvements denote the improvements made to the leased property.

Incorporation Costs

Organization costs refer to costs associated with the formation of a corporation including fees to underwriters (for stock issuance), legal fees, promotional expenditures, etc.

Franchise & License

A franchise is a contractual agreement under which the franchiser grants the franchisee the right to sell certain products or service or to use certain trade names or trademarks.

A license is a contractual agreement between a governmental body and a private enterprise to use public property to provide services.

Costs should be capitalized.

Amortization is done over the shorter of the contractual life or the useful life, not to exceed 40 years. When central or state government permits any entity to use some national property for commercial use, a Concessional Right agreement is entered upon against certain capital fees without or without usage based fees. For example, when radio spectrum is granted to telecom companies or any sea shore is licensed to a private company for developing and running ports. The one-time initial fee paid upon signing the contract is recognised as an intangible asset, and the recurring payment against usage is considered as a revenue expenditure.

Research and Development (R&D)

R&D related expenditures are expensed and disclosed, if they are incurred for internal use. Costs of R&D performed under contracts are capitalized as inventory. Income from these contracts can be recognized based on percentage-of completion or complete contract method as discussed for the long-term construction contracts.

R&D expenditures include salaries of personnel involved in R&D, costs of materials used, equipments, facilities and intangibles used in R&D activities. If equipment has an alternative usage, only the depreciation expense will be included in the R&D expense.

Purchased R&D and Earnings Quality

When acquiring another company, the purchase price is allocated to tangible assets, intangibles (developed technology) and in-process R&D. The remaining will be the goodwill. The in-process R&D is expensed.

The more the purchase price is assigned to the in-process R&D, the lesser will be the amount assigned to goodwill.

This strategy can reduce future goodwill amortization expense and increase future earnings.

Computer Software Costs

If the software is to be sold, most of the costs need to be expensed. Costs include designing, coding, testing, documentation and preparation of training materials. All these costs should be expensed as R & D expenses.

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Costs occurred after technological feasibility of the product is established (i.e., the costs of design to suit the needs of customers) should be capitalized as an intangible asset.

Costs occurred after the software is ready for general release and production: These costs should be product costs.

21. What is meant by goodwill?

Answer:

When a business is able to earn profits at a rate higher than that at which a similar business earns, the former business is said to possess goodwill. Goodwill is, therefore, an invisible asset by the possession of which a business can enjoy super earning. Since it is invisible the goodwill is called an intangible asset. But since its existence can be felt through superior earning power it is a real asset.

There are several causes for which a business may have goodwill and some of them are:

- Possession of a large number of profitable contracts;
- Suitable nature of the business;
- Exclusive franchise;
- Protected valuable patents and trademarks;
- Suitable location of the business;
- Ideal window dressing;
- Government patronage;
- Reputability, respectability and reliability of the proprietor or partners or trustees;
- Special ability and skill of the persons in management, etc.

In case of transfer of business, separation of the partners from the business due to retirement, death, etc, assessment of the value of the business for any reason, goodwill may have to be valued.

22. Explain the different methods for valuation of goodwill.

Answer:

There are various methods for valuation of goodwill of a business of which the following are of common use:

Few years' Purchase of Average Profits Method: Under this method goodwill is valued on the basis of an agreed number of years' purchase of the average maintainable profit. The word maintainable indicates several adjustments in respect of the factors which might have influenced abnormally the profits of the years over which the average is taken. If in any year there is an exceptional opportunity or an exceptional expense or absence of expense, the profit for the year has to be so adjusted as to get it free from such exceptional influences.

Sometimes instead of the simple average of the adjusted profits as discussed above, weighted average is taken into consideration. Weights are given to each year's profit on the consideration how each year's profit is likely to influence the future profit trend.

Super Profits Method: Under this method average super profit is ascertained. Goodwill is calculated at a few years' purchase of the super profit of the concern. The number of years to be taken for consideration depends upon the nature of the business, the steady or fluctuating nature of the profit and also the nature of goodwill.

First, ascertain the average capital employed during the year. For this purpose, take the total of the closing real assets of the concern as revalued (excluding the non-trading assets and goodwill already appearing in the balance sheet unless such goodwill represented the payment to the vendor).

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In order to find out the average capital employed it is necessary to deduct from the above the current liabilities and 50% of the profits for the year after tax. The profit should also be excluding non-operating income, if any. The average capital employed in this way excludes the long term loans, debentures and preference shares.

The idea of capital employed is not suitable for the purpose of valuation of goodwill of an individual company where valuation is to be done to the advantage of the equity shareholders. In this case, from the above total assets we deduct the current liabilities, long term loans, preference capital, etc, also 50% of the profit for the year after excluding non-operating income and after charging interest on long term loans and debentures, preference dividend, etc.

The average capital employed is the mean of the opening and closing capitals. As we have taken the closing net assets which include the profits for the year it is necessary to deduct 50% of the profit in order to get the capital at the middle of the year. If, however, the closing net assets are after the payment of dividend or after setting aside a portion of the profit to proposed dividend account, necessary adjustments must be done so that the average capital ascertained includes only 50% of the profit after tax.

Now we calculate the normal average annual trading profit after tax, but before charging interest on debentures and long term loans and also preference dividend. From this average profit reasonable managerial remuneration should also be deducted. The profit as obtained after the above adjustments is to be compared with the reasonable return on the average capital employed, calculated at the rate of return earned by similar businesses. If the former exceeds the latter the balance represents the super profit.

A few years' purchase of the super profit is taken as the value of goodwill.

Annuity Method: Under this method the basis is super profit. Let us take an example:

Suppose the super profit of a concern has been calculated at ₹50,000 and it has been considered reasonable that 5 years' purchase of the super profit approximates the value of goodwill. The contention behind this is that, the purchaser of the business can expect to enjoy super profit of ₹50,000 per year for the next 5 years. If this is the contention it is not reasonable that he should pay ₹ (50,000× 5) or ₹2,50,000. He should pay an amount which will give him an annuity of ₹50,000 over the next 5 years at the current rate of interest. This is what is known as the annuity method of valuation of goodwill. Once the super profit is ascertained, the present value and hence the value of goodwill can be ascertained by the following formula:-

$$V = a/i [1 - (1+i)^{-n}] \text{ ,or,}$$

$$V = a/i [1 - 1/(1+i)^n]$$

Where,

V = the present value of the annuity or the value of goodwill in this case

a = the annuity or the annual super profit in this case

n = the number of years the annuity would be enjoyed

i = the rate of interest per rupee per year

Capitalization Method:

Capitalization of Average Profit: Under this method the average annual profit is to be ascertained after providing for reasonable management remuneration. This profit should be capitalized at the rate of reasonable return to find out the total value of business. Now the value of goodwill will be the total value of business minus its net assets. If, however, the net asset is greater there will be no goodwill, rather there is negative goodwill.

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Capitalization of Super Profit: Under this method the average super profit is capitalised at a certain rate of interest and this capitalized amount becomes the value of goodwill.

23. The following is the extract from the Balance Sheets of Popular Ltd.:

Equity and Liability	As at 31/03/15	As at 31/03/16	Assets	As at 31/03/15	As at 31/03/16
(1) Shareholders Fund:			(1) Non-Current Assets:		
(a) Share Capital			(a) Fixed Assets	550	650
Equity Share Capital of 500 ₹10 each		500	(b) Non-Current Investments		
(b) Reserve & Surplus			10% Investment	250	250
(i) General Reserve	400	425	(2) Current Assets:		
Profit & Loss Account	50	80	(a) Inventories	260	300
(2) Non-Current Liabilities:			(b) Trade Receivables		
Long Term Borrowings			Sundry Debtors	170	110
(i) (1) 18% Debentures	180	165	(c) Cash and Cash Equivalents	46	43
(3) Current Liabilities:					
(a) Trade Payables - Sundry Creditors	35	45			
(b) Short Term Provision					
Provision for Taxation	11	13			
Proposed Dividend	100	125			
Total	1,276	1,353	Total	1,276	1,353

Additional information:

- Replacement values of Fixed assets were ₹1,100 lakhs on 31.3.15 and ₹1,250 lakhs on 31.3.2016 respectively.
- Rate of depreciation adopted on Fixed Assets was 5% p.a.
- 50% of the stock is to be valued at 120% of its book value,
- 50% of investments were trade investments.
- Debtors on 31st March, 2016 included foreign debtors of \$35,000 recorded in the books at ₹35 per U.S. Dollar. The closing exchange rate was \$1 = ₹39.
- Creditors on 31st March, 2016 included foreign creditors of \$60,000 recorded in the books at \$1 = ₹33. The closing exchange rate was \$1 = ₹39.
- Profits for the year 2015-16 included ₹60 lakhs of government subsidy which was not likely to recur.
- ₹125 lakhs of Research and Development expenditure was written off to the Profit and Loss Account in the current year. This expenditure was not likely to recur.
- Future maintainable profits (pre-tax) are likely to be higher by 10%.
- Tax rate during 2015-16 was 50%, effective future tax rate will be 40%.
- Normal rate of return expected is 15%.

One of the directors of the company Sherjahan, fears that the company does not enjoy a goodwill in the prevalent market circumstances.

Critically examine this and establish whether Popular Ltd. has or has not any goodwill.

If your answers were positive on the existence of goodwill, show the leverage effect it has on the company's result.

Industry average return was 12% on long-term funds and 15% on equity funds.

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Answer:

1. Future Maintainable Profit

Particulars	₹ in Lakhs	₹ in Lakhs
Increase in General Reserve	25	
Increase in Profit and Loss Account	30	
Proposed Dividends	125	
Profit After Tax		180
Pre-Tax Profit = $180 / (1 - 0.5)$		360
Less: Non-Trading investment income (10% of ₹125)	12.5	
Subsidy	60.00	
Exchange Loss on creditors [$\$ 0.6 \text{ lakhs} \times (\text{₹}39 - \text{₹}33)$]	3.60	
Additional Depredation on increase in value of Fixed Assets (current year) $1250 - 650 = (1250 - 650 = 600 \times (5/100) \text{ i.e.,}$	30.00	106.10
		253.90
Add: Exchange Gain on Debtors [$\$ 0.35 \text{ lakhs} \times (\text{₹}39 - \text{₹}35)$]	1.40	
Research and development expenses written off	125.00	
Stock Adjustment (30-26)	4.00	130.40
		384.30
Add: Expected increase of 10%		38.43
Future Maintainable Profit before Tax		422.73
Less: Tax @ 40% (40% of ₹422.73)		169.09
Future Maintainable Profit		253.64

2. Calculation of Capital employed (CE)

Particulars	₹ in Lakhs	₹ in Lakhs
	As on 31.3.15	As on 31.3.16
Replacement Cost of Fixed Assets	1100.00	1250.00
Trade Investment (50%)	125.00	125.00
Current cost of stock		
$130 + 130 \times (120/100)$	286.00	
$150 + 150 \times (120/100)$		330.00
Debtors	170.00	111.40
Cash-at-Bank	46.00	43.00
Total (A)	1727.00	1859.40
Less: Outside Liabilities		
18% term loan	180.00	165.00
Sundry creditors	35.00	48.60
Provision for tax	11.00	13.00
Total (B)	226.00	226.60
Capital employed (A – B)	1501.00	1632.80

Average Capital employed at current value = $(\text{CE as on 31.03.2015} + \text{CE as on 31.03.2016}) / 2$
 $= (1501 + 1632.80) / 2 = 1,566.90 \text{ Lakhs}^*$

* Average capital employed can also be calculated in the following manner:

Closing capital employed as on 31.3.2016	₹ 1,632.80 lakhs
Less: $\frac{1}{2}$ of actual post tax profit for 2013-2016	₹ 90.00 lakhs
Average capital employed	₹ 1,542.80 lakhs

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3. Valuation of Goodwill

(i) According to Capitalisation of Future Maintainable Profit Method

	₹ in lakhs
Capitalised value of Future Maintainable Profit $(253.64 / 15) \times 100$	1,690.93
Less: Average capital employed	1,566.90
Value of Goodwill	124.03

Or

(ii) According to Capitalisation of Super Profit Method

	₹ in lakhs
Future Maintainable Profit	253.64
Less: Normal Profit @15% on average capital employed $(1566.90 \times 15\%)$	235.03
Super Profit	18.61
Capitalised value of super profit i.e., Goodwill	124.06

Goodwill exists; hence director's fear is not valid.

Leverage Effect on Goodwill

	₹ in lakhs
Future Maintainable Profit on equity fund	253.64
Future Maintainable Profit on Long-term Trading Capital employed	
Future Maintainable Profit After Tax	253.64
Add: Interest on Long-term Loan (Term Loan) (After considering Tax) $165 \times 18\% = 29.7 \times (50/100)$	14.85
Average capital employed (Equity approach)	1,566.90
Add – 18% Term Loan $(180+165)/2$	172.50
Average capital employed (Long-term Fund approach)	1739.40

Value of Goodwill

(A) Equity Approach	₹ in lakhs
Capitalised value of Future Maintainable Profit = $(253.64/15) \times 100$	1690.93
Less: Average capital employed	1566.90
Value of Goodwill	124.03
(B) Long-Term Fund Approach	
Capitalised value of Future Maintainable Profit = $(268.49/12) \times 100$	2237.42
Less: Average capital employed	1739.40
Value of Goodwill	498.02

Comments on Leverage effect of Goodwill:

Adverse Leverage effect on goodwill is 373.99 lakhs (i.e., ₹498.02 - 124.03). In other words, Leverage Ratio of Popular Ltd. is low as compared to industry for which its goodwill value has been reduced when calculated with reference to equity fund as compared to the value arrived at with reference to long term fund.

Working Notes:

	₹ in lakhs
(1) Stock adjustment	
(i) Excess current cost of dosing stock over its Historical cost (330 – 300)	30.00
(ii) Excess current cost of opening stock over its Historical cost (286-260)	26.00
(iii) Difference [(i – ii)]	4.00
(2) Debtors' adjustment	
(i) Value of foreign exchange debtors at the dosing exchange rate (\$35,000 x 39)	13.65
(ii) Value of foreign exchange debtors at the original exchange rate (\$35,000x35)	12.25
(iii) Difference [(i – ii)]	1.40
(3) Creditors' adjustment	
(i) Value of foreign exchange creditors at the dosing exchange rate (\$60,000 x 39)	23.40
(ii) Value of foreign exchange creditors at the original exchange rate (\$60,000 x 33)	19.80
(iii) Difference [(i – ii)]	3.60

24. What do you mean by brand?

Answer:

Brands are strategic assets. The key to survival of companies is their brands in the modern world of complex and competitive business environment. According to American Marketing association, brand means a name, term, sign, symbol or design or group of sellers and to differentiate them from those of competitors. For example, the logo and name Airtel, together represent the Brand of Airtel Ltd., a telecom company. Name Bata is by itself a brand as their name itself, written in a particular style, is their corporate logo. At times name of a product is considered as a brand name, e.g., Maggi. It conveys the noodles product of Nestle. Nestle as a company has its own separate corporate brand logo of two small birds sitting on a small nest.

Corporate Branding represents the Brand of a corporate house, e. g., Reliance Industries Ltd. has their corporate brand name as RIL with the image of a Lamp drawn in a particular style. Over and above this brand all their products have separate brand name, e.g., Vimal is the brand name of their suiting and shirting cloths.

Thus corporate branding can be taken to mean strategic exercise by managerial decision making of creating, developing, maintaining, conveying to market and monitoring the identity, image and ownership of a product etc. Brand comprises an important item in that they greatly determine the corporate market value of a firm.

Brand achieves a significant value in commercial operation through the tangible and intangible elements. Brand is that intangible assets which is acquired from outside source while acquiring business or may also be nurtured internally by a company, which are known as home grown brands. By assigning a brand name to the product, the manufacturer distinguishes it from rival products and helps the customer to identify it while going in for it.

Necessity of branding of products has increased enormously due to influence of various factors like growth of competition, increasing importance of advertising etc, attracting customer loyalty to a corporate house and its products, e.g., Tata Group, standing for unflinching quality and ethics. A powerful brand creates lasting impact on the consumers and it is almost impossible to change his/her preference even if cheaper and alternative products are available in the market, e.g., Zillet safety razors and baldes. Brands have major influence on takeover decisions as the premium paid on takeover is almost always in respect of the strong brand portfolio of the acquired company and of its long term effect on the profit of the acquiring company in the post –acquisition period.

25. Are brands asset?

Answer:

An asset is having following characteristics;

- (i) there must exist some specific right to future benefits or service potentials;
- (ii) rights over asset must accrue to specific individual or firm;
- (iii) there must be legally enforceable claim to the rights or services over the asset;
- (iv) asset must arise out of past transaction or event or long standing business use, practice and marking of products and corporate houses by one name and representing Logo for it.

Based on above characteristics, brands are considered as an asset. The sole purpose of establishing brand names is to incur future benefit increased sale to loyal customers increased sale price of the brand itself or the business that owns the brand. For example, if any healthcare products company wants to purchase 'Dettol' as a product, from Reckit Benckiser including its manufacturing facilities, the buyer will have to pay huge money for the brand Dettol in addition to net fair value of assets and liabilities, because of acquiring the Dettol brand which by the name itself indicates large volume of profit earning abilities

The companies with valuable brand register those names with the Patent Registration authority and are legally entitled to sole ownership and use of them. International brands held by MNCs like Pepsi or Coca Cola are registered in every country their operated their business. Brands are created through marketing efforts over time. They are the result of several past transactions and events.

26. State the objectives of corporate branding

Answer:

Important objectives of corporate branding are as follows;

Corporate Identity: Brands help corporate houses to create and maintain identity for them in the market. This is chiefly facilitated by brand popularity and the eventual customer loyalty attached to the brands.

Total Quality Management (TQM): By building brand image, it is possible for a body corporate to adopt and practice TQM. Brands help in building lasting relationship between the brand owner and the brand user.

Customer Preference: Interaction between a specified group of products and services and a specified group of loyal customers creates a psychological lasting impression in the mind of those customers. Branding gives them advantage of status fulfillment.

Market Strength: By building strong brands, firms can enlarge and strengthen their market base. This would also facilitate programmes, designed to achieve maximum market share.

Market Segmentation: By creating strong brand values, companies classify market into more strategic areas on a homogeneous pattern of efficient operations. It enables firms to focus on target group of customers to meet competition.

Quality, Governance and Ethical Values: A corporate house wants to convey through their brand about their longstanding pursuit for quality, governance and ethical values.

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27. State the factors that have influence on brand valuation.

Answer:

Mode of valuation of brands depends on type of brands; (i) acquired or (ii) self-generated. In general method of valuation of brands depends on one or more following variables;

- Cost of acquisition of brand,
- Expenses incurred on nurturing a home grown brand,
- Earning power of the brand,
- Product life cycle,
- Separating one brand from other less important value drivers,
- Intrinsic strength of the people and process handling the brand,
- Impact of other new brands in the market,
- Accuracy in projecting the super or extra earnings offered by a brand and the rate of discounting cash flows
- Cost of withdrawing or rejecting the brand.

28. How do you value acquired brand?

Answer:

A purchased brand is one, which is acquired from other existing concerns. The acquiring company may acquire only the brand names. The value of acquired brands is given below:

$$\text{Brand value} = \text{Price paid for acquisition.}$$

On the other hand, a company may acquire an existing business concern along with its brands. It happens in case of mergers and acquisitions. The sum involved in these transactions provides an indication of the financial value of brands. In this case;

$$\text{Brand Value} = \text{Purchase consideration(X)} - \text{Net assets acquired(Y)}.$$

Does excess price always represent brand value? (X-Y) represents the amount of purchased goodwill but acquiring company might have paid excess price for varied factors also. Those are;

- Location of manufacturing facility and possibility to enter into new market areas;
- Long term contracts with suppliers;
- Better manufacturing technology;
- Possible competitive advantages, benefits of scale and synergic values that can be added to existing and the new business acquired,
- Killing competition or acquiring the brand etc.

Competitive force may make the acquirer to increase the bid price thereby increasing the amount of purchased goodwill. This inseparability of brand from other intangible assets makes it difficult to value brands. In such a situation professional valuers are appointed to determine the value of any assets acquired, other than those recognised by the acquiree in their balance sheet, e. g., intangible assets like Brand(s) acquired, which is an essential necessity under the new accounting standard of Ind AS. The purchase consideration has to be first allocated, including intangibles.

29. Explain different methods of self-generated brands.

Answer:

Important methods for valuation of self-generated brands are discussed below;

- (i) **Historical Cost Model:** Under historical cost model actual expenses incurred in creation, maintenance and growth of corporate brands are taken into consideration. The value of corporate brands is computed as follows:

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Brand Value = Brand Development Cost + Brand marketing and Distribution Cost + Brand promotion cost including advertising and other costs.

Historical cost model is applied for home-grown brands in most of the cases for which various costs like development costs, marketing costs, advertising and general communication costs etc. are incurred. However, the total advertisement costs cannot be regarded as incurred for brand. Further, several heavily advertised brands show hardly any value or presence. This is a simple method as it depends on actual cost but it fails to explain the impact of brand value on the profitability of the firm.

- (ii) **Replacement Cost Model:** Under replacement cost model brands are valued at the costs which would be required to recreate the existing brands. The method is based on the assumption that the existing brands can be recreated exactly by new brands. It is the opportunity cost of investment made for the replacement of the brand.

$$\text{Brand Value} = \text{Replacement Cost of Brand.}$$

- (iii) **Market Price Model:** Probable value that a company would fetch by selling its brand is taken as the value of the brand. Brand value is given by:

$$\text{Brand Value} = \text{Net realisable value}$$

As there is no readymade market for many brands, the value is only assumed one. Although the method determines the value from seller's point of view, the actual value is determined on the basis of expected benefit to be derived by the purchaser by purchasing the brand.

- (iv) **Present Value Model:**

According to present value model, the value of a brand is the sum total of present value of future estimated flow of brand revenues for the entire economic life of brand plus the residual value attached to the brand. The model is also called Discounted Cash Flow model which has wisely been used by considering the year wise revenue attributable to the brand over a period of 5, 8 or 10 years. The discounting rate is the weighted average cost of capital. The residual value is estimated on the basis of a perpetual income, assuming that such revenue is constant or increased at a constant rate.

$$\text{Brand value} = R_t / (1 + r)^t + \text{Residual value} / (1 + r)^N$$

Where, R_t = Anticipated revenue in year t , attributable to the brand

r = Discounting rate

Residual value beyond year N

Brands supported by strong customer loyalty, may be visualised as a kind of an annuity. Great care must be taken to estimate as much correctly as possible, the future cash flow likely to be generated from a strongly positioned specific brand. A realistic present value of a particular brand having strong loyalty of customers can be obtained from summation of discounted values of the expected future incomes from it.

DCF model for evaluating brand values has got three sources of failure; (i) anticipation of cash flow; (ii) choice of period and (iii) discounting rate.

30. Why is brand valuation needed? Explain the steps in valuation of a brand.

Answer:

Measurement of Brand valuation is needed for:

- (i) Accounting purpose
- (ii) Business valuation and transactional purposes
- (iii) Brand management purposes

Various companies find brand valuation helpful for the followings:

- (i) Making decisions on business investments;
- (ii) Measuring the return on brand investment based on brand value to arrive at an ROI that can be directly compared with other investments;
- (iii) Allocating marketing expenditures according to the benefit each business unit derives from the brand asset;
- (iv) Organizing and optimizing the use of different brands in the business;
- (v) Managing a portfolio of brands across a variety of markets;
- (vi) Assessing fair transfer prices for the use of brands in subsidiary companies;
- (vii) Determining brand royalty rates for optimal exploitation of the brand asset through licensing the brand to third parties;
- (viii) Capitalizing brand assets on the balance sheet according to US GAAP, IAS in compliance with country specific accounting standards, whenever needed.

Steps in Valuation of Brand:

- (i) **Market segmentation:** Brands influence customer choice, but the influence varies depending on the market in which brand operates. For valuation we need to split brand's market into non-overlapping and homogeneous groups of consumers according to applicable criteria such as product or service, distribution channels, consumption patterns, purchase sophistication, geography existing and new customers and so on. The brand is valued in each segment and the sum of the segments constitutes the total value of the brand.
- (ii) **Financial analysis:** Identify and forecast revenue and earnings from intangibles generated by the brand for each of the distinct segments determined in step-1. Intangibles earnings are defined as brand revenue less operating costs, applicable taxes and a charge for the capital employed. The concept is similar to the economic profit.
- (iii) **Demand analysis:** Assess the role that the brand plays in driving demand for products and services in the markets in which it operates and determine what proportion of intangible earning is attributable to the brand measured by an indicator referred to as the "role of branding index". The role of branding index represents the percentage of intangible earnings that are generated by the brand. Brand earnings are calculated by multiplying the role of branding index by intangible earnings.
- (iv) **Competitive benchmarking:** Determine the competitive strengths and weaknesses of the brand to derive the specific brand discount rate that reflects the risk profile of its expected future earnings. This comprises extensive competitive benchmarking and a structured evaluation of the brand's market, stability, leadership position, growth trend, support geographic footprint and legal protect ability.
- (v) **Brand value measurement:** Brand value is the net present value (NPV) of the forecast brand earnings, discounted by the brand discount rate. The NPV calculation comprises both the forecast period and the period beyond, reflecting the ability of brands to continue generating future earnings.

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This computation is useful for brand value modeling in a wide range of situations, viz.,

- Predicting the effect of marketing and investment strategies;
- Determining and assessing communication budgets;
- Calculating the return on brand investment;
- Focus it as an icon of quality and customer loyalty;
- Assessing opportunities in new or unexpected markets; and
- Tracking brand value management and its consequential effect on business value and overall corporate image

31. Sanju Ltd. has hired a Marketing Consultancy Firm for doing market research and provide data relating to Tyre industry for the next 10 years. The following were the observations and projections made by the consultancy firm -

1. The Tyre Industry in the target area i.e. Whole of India, is expected to grow at 5% p. a. for the next 3 years, and thereafter at 7% p. a. over the subsequent seven years.
2. The market size in terms of unencumbered basic sales of Tyres was estimated at ₹8,000 Lakhs in the last year, dominated by medium and large players. This includes roughly 9.0% of fake brands and locally manufactured Tyres. Market share of this segment is expected to increase by 0.5%.
3. Cheap Chinese imports accounts for 40% of the business (but 60% of the volume). This is expected to increase by 0.25% over the next decade.
4. The other large players account for roughly 35% of the business value, which is expected to go down by 0.5% over the next ten years, due to expansion of Sanju Ltd.'s product portfolio.
5. The Company is in the process of business re-engineering, which will start yielding results in 2 years' time, and increase its profitability by 3% from its existing 12%.

If the appropriate discount rate is 15% what is the Brand Value of Sanju Ltd., under Market Oriented Approach?

Answer:

(a) **Current Market share** = 100 – Fake Brands 9% - Chinese Imports 40% - Other Domestic Brands 35% = 16%

(b) **Increase or Decrease in Market Share:** Chinese Imports 0.25% + Local Brands 0.5% - Other Players 0.5% = 0.25% increase other product's market share. Hence, market share is expected to fall by 0.25% every year over the decade, from the current levels of 16%. Therefore, next year it will be 15.75%, the year after 15.50% etc.

2. Brand Valuation under Market Approach

Year	Market Size (₹ Lakhs)	Market Share of Sanju Ltd.	Market Share (₹ Lakhs)	Expected Profit (₹ Lakhs)	Discount Factor at 15%	Discounted Cash Flow
1	8,000.00 + 5% = 8,400.00	15.75%	1,323.00	@ 12% = 158.76	0.870	138.12
2	8,400.00 + 5% = 8,820.00	15.50%	1,367.10	@ 12% = 164.05	0.756	124.02
3	8,820.00 + 5% = 9,261.00	15.25%	1,412.30	@ 15% = 211.84	0.658	139.39
4	9,261.00 + 7% = 9,909.27	15.00%	1,486.39	@ 15% = 222.96	0.572	127.53
5	9,909.27 + 7% = 10,602.92	14.75%	1,563.93	@ 15% = 234.59	0.497	116.59
6	10,602.92 + 7% = 11,345.12	14.50%	1,645.04	@ 15% = 246.75	0.432	106.60
7	11,345.12 + 7% = 12,139.28	14.25%	1,729.85	@ 15% = 259.48	0.376	97.56
8	12,139.28 + 7% = 12,989.03	14.00%	1,818.46	@ 15% = 272.77	0.327	89.20
9	12,989.03 + 7% = 13,898.26	13.75%	1,911.01	@ 15% = 286.65	0.284	81.41
10	13,898.26 + 7% = 14,871.14	13.50%	2,007.60	@ 15% = 301.14	0.247	74.38
Brand Value						1094.80

Brand Value of Sanju Ltd under Market Oriented Approach is ₹1094.80 Lakhs.

32. What do you mean by Human Resource Accounting (HRA)? Discuss its benefits.

Answer:

There are no generally accepted accounting procedures for employee valuation. The first major attempt at employee valuation was made by R.G. Barry Corporation of Columbus, Ohio in their 1971 annual report, to enable the company to report accurate estimates of the worth of the organization's human assets.

The American Accounting Association's Committee on Human Resource Accounting (1973) has defined Human Resource Accounting as "the process of identifying and measuring data about human resources and communicating this information to interested parties". HRA, thus, not only involves measurement of all the costs / investments associated with the talent acquisition, placement, training and development of employees, but also the quantification of the economic value of the people in an organisation.

Flamholtz (1971) too has offered a similar definition for HRA. They define HRA as "the measurement and reporting of the cost and value of people in organizational resources".

In India, the Companies Act, 1956 does not mandate furnishing of HRA related information in the financial statements of the companies. The Institute of Chartered Accountants of India too, has not brought out any definitive standard or measurement in the reporting of human resources costs. Some general qualitative pronouncements are made by the top management in major forums such as an annual general meeting on the importance of human resources, which have sounded more like platitudes and prosaic. However, some organizations in India such as Infosys, BHEL and ACC have furnished the value of their human resources and related information in their annual reports.

Benefits of HRA

According to Likert (1971), HRA serves the following purposes in an organisation:

- (i) It furnishes cost / value information for making management decisions about acquiring, allocating, developing, and maintaining human resources in order to attain cost-effectiveness;
- (ii) It allows management personnel to monitor effectively the use of human resources;
- (iii) It provides a sound and effective basis of human asset control, that is, whether the asset is appreciated, depleted or conserved;
- (iv) It helps in the development of management principles by classifying the financial consequences of various practices.

Basically, HRA is a management resource which is designed to assist senior management in understanding the long term cost and benefit implications of their HR decisions so that better business decisions can be taken. If such accounting is not done, then the management runs the risk of taking decisions that may improve profits in the short run but may also have severe repercussions in future. For example, very often organisations hire young people from outside on very high salaries because of an immediate business requirement. Later on, however, they find that the de-motivating impact of this move on the existing experienced staff has caused immense long – term harm by reducing their productivity and by creating salary distortions across the organisational structure.

HRA also provides the HR professionals and management with information for managing the human resources efficiently and effectively. Such information is essential for performing the critical HR functions of acquiring, developing, allocating, conserving, utilizing, evaluating and rewarding in a proper way. These functions are the key transformational processes that convert human resources from 'raw' inputs (in the form of individuals, groups and the total human organization) to outputs in the form of goods and services. HRA indicates whether these processes are adding value or enhancing unnecessary costs.

In addition to facilitating internal decision making processes, HRA also enables critical external decision makers, especially the investors in making realistic investment decisions. Investors make investment decisions based on the total worth of the organisation. HRA provides the investors with a more complete and accurate account of the organisations' total worth, and therefore, enables better investment decisions. For example, conventional financial statements treat HR investments as "expenditures". Consequently, their income statement projects expenditures to acquire, place, train and retain human resources as expenses during the current year rather than capitalizing and amortizing them over their expected service life. The balance sheet, thus, becomes distorted as it inaccurately presents the "total Assets" as well as the "net income" and, thereby, the "rate of return" which is the ratio of net income to the total assets. HRA helps in removing this distortion.

Furthermore, in a business environment where corporate social responsibility is rapidly gaining ground, HRA reflects the extent to which organisation contributes to society's human capital by investing in its development.

Finally, in an era where performance is closely linked to rewards and, therefore, the performance of all groups, departments, and functions needs to be quantified to the extent possible, HRA helps in measuring the performance of the HR function as such.

33. Describe cost based model, replacement cost approach and opportunity cost approach for human resource valuation.

Answer:

Cost Based Model

Historical Cost Model: This model was first introduced by R. Likert at R.G. Barry Corporation in Columbus, Ohio (USA) in 1967. Under this model, The actual cost of recruiting, selecting, hiring, placing and developing the employees of an organisation are capitalized and amortized over the expected useful life of the asset concerned. The sum of are the cost as mentioned above for all the employees of the enterprise is taken to represent the total value of human resources. If the assets are liquidated permanently, losses are recorded and if the asset has longer life than estimated, are made in the amortized value. If an employee's leaves the firm before the expiry of expected service life of the employees the net asset value to that extent is charged to current revenue.

The model is simple and easy to understand and to be consistent with the matching principle. But it fails to provide reasonable value to human assets. It only capitalize only recruiting training, development, placement and inducting cost but ignores the future expected costs to incurred for their maintenance. Secondly estimation of the number of years over which the capitalized expenditure is to be taken and is likely to be largely subjective. It is difficult to calculate the rate which total expenditure on human resources is to be amortized. Lastly value of human resource increase but through this treatment capital cost decrease through amortization.

The Replacement Cost Approach

Value to an organisation of an individual's services is reflected by the amount that the organisation would have to pay to replace these services. This method consists of estimating the cost of replacing a firm's existing human resources; these costs will include costs of recruiting, selecting, hiring, training, placing and developing new compliance of the existing employee. Falmhotz has offered two different concepts of replacement cost individual and replacement cost refers to the cost that would have been incurred to replace an individual by a substitute who can provide the some kind of services as that of the individual replacement. On the other hand, positional replacement cost represents cost of replacing the set services of any individual in a defined position in an organisation. The replacement cost approach incorporates the current value of the company's human resources. It takes into account fluctuation of the job market and general rise in price level. This method is regarded as a good surrogate for the economic value of the asset in the sense that market consideration is essential in reaching a final figure. But it is difficult to find replacement of the excising human resources in actual practice.

Opportunity Cost Approach:

This model proposed by J.S. Hekimian and C.H. Jones in 1967. These methods are used to value employees possessing certain skills and thus are rare in availability. Under this method it is assumed that opportunity cost is the best means to value HRs. According to this approach, the opportunity cost of an employee is determined by using comparative bidding method. Under this method the investment centre managers will be for rare (scarce) employees they need to recruit. In other words, employees who are not considered, are not included in the human asset base of the organisation. This model provides for more optimal allocation of human resource and sets a quantitative base for planning, developing and evaluating human resources of the organisation. However, this approach adopts a discriminating attitude. Since it takes into account only scarce HRs.

34. Explain different Value based models to value human assets?

Answer:

Present value of future earnings:

This model was introduced by Baruch Lev and Schwarz. According to the authors, valuations of HRs of a homogeneous group can be done by aggregating the present values of wages and salary payable to individual employees during the stay with the organisation. Measurement of HRs under this method involves (a) division of employee according to their age, grade of pay and designation (b) determination of average per year (c) calculating of total earnings based on the remaining tenure of the service life (d) discounted total earning on the basis of average rate of return.

This HRs can be valued on the basis of following formula:

$$V_x = \sum_{t=x}^T \frac{I(t)}{(1+R)^{T-x}}$$

Where V_x = The human capital value of a person 'x' years old.

T = Retirement Age

$I(t)$ = The person's annual earning up to retirement.

R = Discount rate

Stochastic Rewards valuation model

This model was proposed by Eric G Flamholtz in 1971 to measure the HR value to the organisation with the help of stochastic process. This model focuses on the measurement of a person's value to a specified organisation. It is recognized that a person renders value for an organisation as he occupies and plays different roles and renders services to the organisations. The movement of people from one organisation role (service state) to another over some specified period of time may be valued as a stochastic process, depending up on the roles previously occupied and such movement can be estimated probabilistically. The expected service to be derived from an individual is ascertained by

$$E(R) = \sum_{i=1}^n R_i P(R_i)$$

R_i = Represent quantity of services expected to be derived in each state.

$P(R_i)$ = The probability that they will be obtained.

The major advantage of this model is that it takes into account the probability of an individual's career movement and of his leaving the organisation prior to the retirement or death. However, it is very difficult to obtain reliable data pertaining to incomes of employee for various positions during different time periods.

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Group basis valuation model:

This model is proposed by Jaggi and Law. This model recognised the fact that proper valuation of human resource is not possible unless the contributions of individuals as a group are taken into view. A group refers to homogeneous employees whether in the same investment centre or not. It might be difficult to predict an individual's expected service tenure in the organisation or at a particular level or position but on a group basis, it is easier to ascertain the percentage of people in a particular group likely either to leave the firm during each of the fourth-coming period or to be promoted to higher leaves. The model aims at calculating the present value of all existing employees in each grade or rank.

The following methodology is followed to measure present value.

- Ascertain the number of employees in each rank.
- Estimate the probability that an employee will be his grade within organisation or terminated/promoted in the next period.
- Ascertain the economic value of an employee in a specified grade during each period of time.
- The present value of existing employees in each rank/grade is obtained by multiplying the above three factors.

Limitations:

- The existing HR valuation models are not free from drawback. Thus no model can be traded universally as a suitable model yet.
- There is no clear guidance how to differentiate the cost and value of human resources. Like physical assets human assets can't be owned, retained or utilized at the sweet will and pressure of organisation.
- There is no consensus as yet among the Account and Finance professionals regarding in what form and manner the human assets are to be valued and then shown in B-sheet.
- There is also a fear that employees and trade unions may not accept the idea valuing HR and this may lead to division of labours.

35. A company has a capital base of ₹3 crore and has earned profits of ₹33 Lakhs. Return on investment of the particular industry to which the company belongs is 12.5%. If the services of a particular executive are acquired by the company, it is expected that the profits will increase by ₹7.5 lakhs over and above the target profit. Determine the amount of maximum bid price for that particular executive and the maximum salary that could be offered to him.

Particulars	₹
Capital Base	3,00,00,000
Actual profit	33,00,000
Target profit (₹ 3Cr × 12.5%)	37,50,000

Answer:

1. Maximum Salary Payable:

Particulars	₹ Lakhs
Capital Base	300.00
Target Profits (= Capital Base × 12.50%)	37.50
Add: Extra Profits due to induction of the Executive	7.50
Total Profits of the Company (anticipated after induction of the Executive)	45.00
Less: Current Profits	33.00
Incremental Profit	12.00

Maximum Salary = Incremental Profit due to introduction = ₹12.00 Lakhs per annum.

2. Maximum Bid Price:

= Value of Salary Payable in perpetuity

= Maximum Salary Payable ÷ Desired Rate of Return on Investment

= ₹ 12 Lakh ÷ 12.5% = ₹ 96 Lakhs.

36. What do you mean by MARKET VALUE ADDED (MVA)? State the relationship between EVA AND MARKET VALUE ADDED.

Answer:

Market value Added (MVA) is the difference between the current market value of a firm and the capital contributed by investors. If MVA is positive, the firm has added value. If it is negative the firm has destroyed value.

To find out whether management has created or destroyed value since its inception, the firm's MVA can be used:

MVA = Market value of equity capital (No. Shares × Quoted Rate) – capital employed

Another school of thought about this formula is as under:

No. of outstanding Equity Shares (Common Stock) at the closing day of a financial year multiplied by the market rate on that day minus No. of those shares on the last date of the previous financial year multiplied by that year end rate.

If in between the financial year any new share has been issued, then difference between closing market value of those shares at the yearend less the gross issue value, including premium received, is added to the value calculated as per the immediately preceding paragraph.

This calculation shows the difference between the market value of a company and the capital contributed by investors (both bondholders and shareholders). In other words, it is the sum of all capital claims held against the company plus the market value of debt and equity. Calculated as:

The higher the MVA, the better. A high MVA indicates the company has created substantial wealth for the shareholders. A negative MVA means that the value of the actions and investments of management is less than the value of the capital contributed to the company by the capital markets, meaning wealth or value has been destroyed.

The aim of the company should be to maximize MVA. The aim should not be to maximize the value of the firm, since this can be easily accomplished by investing ever-increasing amounts of capital.

Relationship Between Eva And Market Value Added

- The relationship between EVA and Market Value Added is more complicated than the one between EVA and Firm Value
- The market value of a firm reflects not only the Expected EVA of Assets in place but also the Expected EVA from future projects To the extent that the actual economic value added is smaller than the expected EVA the market value can decrease even though the EVA is higher.

This does not imply that increasing EVA is bad from a corporate finance stand point. In fact, given a choice between delivering a "below-expectation" EVA and no EVA at all, the firm should deliver the "below- expectation" EVA. It does suggest that the correlation between increasing year-to-year EVA

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and market value will be weaker for firms with high anticipated growth (and excess returns) than for firms with low or no anticipated growth. It does suggest also that "investment strategies" based upon EVA have to be carefully constructed, especially for firms where there is an expectation built into prices of "high" surplus returns.

37. Discuss the determinants of liabilities valuation

Answer:

- (a) The obligation must, of course, exist at the present time. That is, it must arise out of some past transaction or event. It may arise from the acquisition of goods or services, from losses already sustained for which the firm is liable, or from the expectation of losses for which the firm has obligation itself.
- (b) Equitable obligations or duties should be included if they are based on the necessity of making future payment to maintain good business relationship or if they are in accordance with normal business practice.
- (c) There should be little or no discretion to avoid the future sacrifice. It is necessary that the amount of the obligation be known with certainty so long as a future sacrifice is probable.
- (d) There should be a determinable maturity value or the expectation that payment of an amount determined by reasonable estimation will be required at some specific time in the future, even though the exact thing is not known at present. The time of payment may be extended by the substitution of new liabilities, or the obligation may be terminated by their conversion into stockholder equities.
- (e) Normally, the payee would be known or be identifiable either specifically or as a group. However, so long the payee becomes identifiable by the settlement date, it is not necessary that the payer knows the identity of payee or that the creditor professes the claim or has knowledge of it at the present time.

The valuation of liabilities is part of the process of measuring both capital and income, and is important to such problems as capital maintenance and the ascertainment of a firm's financial position. According to Borton, the requirements for an accurate measurement of the financial position and financial structure should determine the basis for liability valuation. Their valuation should be consistent with the valuation of assets and expenses. The need for consistency arises from the objectives of liability valuation, which are similar to those to asset valuation. Probably the most important of these objectives is the desire to record expenses and financial losses in the process of measuring income. However, the valuation of liabilities should also assist investors and creditors in understanding the financial position.

Liabilities may be valued (i) at their discounted net values in accordance with the manner of valuing assets in economics; (ii) in accordance with accounting conventions, they may be recorded at their historic value, that is, the valuation attached to the contractual basis by which they were created. There is no difference between the two methods of valuation as regards liabilities which are payable immediately and it is only as the maturity date of liabilities, that makes the difference. While accounting conventions dictate that the valuation of liabilities should be based on the sum which is payable, it is accounting practice to make a distinction between current and long-term liabilities. As regard current liabilities there is little difference between the discounted net value and the contractual value of liabilities. In this connection, current liabilities are defined as those which will mature during the course of accounting period. The gap between the two methods of valuation is significant as regard long term liabilities. Long term liabilities are valued on the basis of their historical value, that is, by reference to the contract from which they originated, and hence, during periods of inflation or where the interest payable is less than the current market rate of interest, the accounting valuation will certainly be overstated by comparison with the discounted net value.

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38. State the different processes involved in liabilities valuation

Answer:

There is different process of valuation of liabilities which are discussed below:

Historical Cost: The value of liabilities are recorded at the amount of proceeds received in exchange for the obligation, or in some situation, at the amount of cash equivalents expected to be paid to satisfy the liabilities in the normal course of business.

Current Cost: Liabilities are carried at the undiscounted amount of cash equivalents that would be required to settle the obligation currently.

Settlement Value: The undiscounted amounts of cash equivalents expected to be required to settle the liabilities in the normal course of business.

Present Value: Liabilities are carried at the present value of the future cash flow that are expected to be required to settle the liabilities in the normal course of business.

39. What do you mean by contingent liability?

Answer:

A Contingent Liabilities is not a actual liability. Instead, it is a potential liability that depends on a future event arising out of a past transaction. For example, a town Government may sue the company that setup new light, claiming that the electrical wiring is fault. The past transaction is the street light installation. The future event is the court case that will decide the suit. The light companies thus face a contingent liability, which may or may not become a actual obligation.

Sometimes this liability has a definite amount. Discounting a note receivable creates a contingent that is, a potential liability for the endorser. If the market of the note pays at maturity, the contingent liability ceases to exist. However if the maker defaults the payee, who sold the note, must pay its maturity value to the purchaser.

Another contingent liability of know amount arise from guaranteeing that another company will pay a note payable that the other company owes a third party, this practice is called consignment a note.

The line between contingent liabilities and real liabilities is heard to draw. The contingent liabilities appear in the body of the balance sheet of total liability, but with no amount. Generally an explanatory note accompanies a short presentation.

As a practical guide, the FASB says to record an actual liability if a (a) it is probable that the business has suffered a loss and (b) it amount can be reasonably estimated. If both of these conditions are met, the FASB reasons that the obligation has passed from contingent to real, even if its amount is estimated.

40. RS Ltd. furnishes the following information relating to the previous three years, and requests you to compute the value of the brand of the Company —

Particulars	[₹ in Lakhs]		
	2014	2015	2016
Profits Before Interest and Tax	75.00	85.25	150.00
Loss on Sale of Assets	3.00	---	18.00
Non Operating Income	12.00	7.25	8.00

Inflation was 9% for 2015 and 15% for 2016. If the capitalization factor considering internal and external value drivers to the brand is 14, determine the brand value. Assume an all inclusive future tax rate of 35%.

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Solution:

(₹ in Lakhs)

Particulars	2014	2015	2016
Profits Before Interest and Tax	75.00	85.25	150.00
Add: Loss on Sale of Assets	3.00	---	18.00
Less: Non Operating Income	(12.00)	(7.25)	(8.00)
Branded Earnings	66.00	78.00	160.00
Inflation Adjustment Factor	1.09 x 1.15 = 1.25	1.15	1.00
Inflation Adjusted Earnings as at 31.03.2016	82.50	89.70	160.00
Weights	1	2	3
Product	82.50	179.40	480.00
Weighted Average Earnings Before Tax [(82.50 + 179.40 + 480)/(1+2+3)]			123.65
Less: Taxes at 35%			(43.28)
Weighted Average Brand Earnings After Tax			80.37
Capitalization Factor			14
Brand Value			₹ 1125.18 Lakhs

41. From the following data in respect of an employer kindly calculate the total value of Human Capital under 'Lev and Schwarts' Model –

Distribution of Employees

Age Group	Unskilled		Semi- Skilled		Skilled	
	No	Average Annual Earnings	No	Average Annual Earnings	No	Average Annual Earnings
30-39	100	₹18,000	60	₹36,000	40	₹84,000
40-49	50	₹30,000	30	₹48,000	20	₹1,20,000
50-54	30	₹36,000	20	₹60,000	10	₹1,80,000

Retirement age is 55 years. Apply discount factor of 15%. In calculation of total value of Human factor the lowest value of each class should be taken Annuity factor @ 15%.

5 years	10 years	15 years	20 years	25 years
3.352	5.019	5.847	6.259	6.464

Solution:

Valuation In Respect Of Unskilled Employees

1. **Age Group 30-39:** (assuming that all 100 employees are just 30 years old)

Particulars	Computation	Present Value
₹18,000 p.a. for next 10 years	18,000 x 5.019	90,342
₹ 30,000 p.a. from years 11 to 20	30,000 x (6.259 - 5.019)	37,200
₹36,000 p.a. from years 21 to 25	36,000 x (6.464 - 6.259)	57,384
Total		1,84,926

2. **Age Group 40-49:** (assuming that all 50 employees are just 40 years old)

Particulars	Computation	Present Value
₹30,000 p.a. for next 10 years	30,000 x 5.019	1,50,570
₹36,000 p.a. from years 11 to 15	36,000 x (5.847 - 5.019)	29,808
Total		1,80,378

3. **Age Group 50-54:** (assuming that all 30 employees are just 50 years old)

Particulars	Computation	Present Value
₹36,000 p.a. for next 5 years	36,000 x 3.352	1,20,672

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Valuation In Respect Of Semi- Skilled Employees

1. **Age Group 30-39:** (assuming that all 60 employees are just 30 years old)

Particulars	Computation	Present Value
₹36,000 p.a. for next 10 years	$36,000 \times 5.019$	1,80,684
₹48,000 p.a. from years 11 to 20	$48,000 \times (6.259 - 5.019)$	59,520
₹60,000 p.a. from years 21 to 25	$60,000 \times (6.464 - 6.259)$	12,300
Total		2,52,504

2. **Age Group 40-49:** (assuming that all 30 employees are just 40 years old)

Particulars	Computation	Present Value
₹48,000 p.a. for next 10 years	$48,000 \times 5.019$	2,40,912
₹60,000 p.a. from years 11 to 15	$60,000 \times (5.847 - 5.019)$	49,680
Total		2,90,592

3. **Age Group 50-54:** (assuming that all 20 employees are just 50 years old)

Particulars	Computation	Present Value
₹60,000 p.a. for next 5 years	$60,000 \times 3.352$	2,01,120

Valuation In Respect Of Skilled Employees

1. **Age Group 30-39:** (assuming that all 40 employees are just 30 years old)

Particulars	Computation	Present Value
₹ 84,000 p.a. for next 10 years	$84,000 \times 5.019$	4,21,596
₹1,20,000 p.a. from years 11 to 20	$1,20,000 \times (6.259 - 5.019)$	1,48,800
₹1,80,000 p.a. from years 21 to 25	$1,80,000 \times (6.464 - 6.259)$	36,900
Total		6,07,296

2. **Age Group 40-49:** (assuming that all 20 employees are just 40 years old)

Particulars	Computation	Present Value
₹1,20,000 p.a. for next 10 years	$1,20,000 \times 5.019$	6,02,280
₹1,80,000 p.a. from years 11 to 15	$1,80,000 \times (5.847 - 5.019)$	1,49,040
Total		7,51,320

3. **Age Group 50-54:** (assuming that all 10 employees are just 50 years old)

Particulars	Computation	Present Value
₹1,80,000 p.a. for next 5 years	$1,80,000 \times 3.352$	6,03,360

Total Value Of Human Capital

Unskilled			Semi-skilled			Skilled			Total
Age	No.	PV of future earning	No.	PV of future earning	No.	PV of future earning	No.	PV of future earning	
30-39	100	$1,84,926 \times 100 = 1,84,92,600$	60	$2,52,504 \times 60 = 1,51,50,240$	40	$6,07,296 \times 40 = 2,42,91,840$	200	5,79,34,680	
40-49	50	$1,80,378 \times 50 = 90,18,900$	30	$2,90,592 \times 30 = 87,17,760$	20	$7,51,320 \times 20 = 1,50,26,400$	100	3,27,63,060	
50-54	30	$1,20,672 \times 30 = 36,20,160$	20	$2,01,120 \times 20 = 40,22,400$	10	$6,03,360 \times 10 = 60,33,600$	60	1,36,76,160	
Total	180	3,11,31,660	110	2,78,90,400	70	4,53,51,840	360	10,43,73,900	

Study Note – 8

VALUATION IN MERGERS AND ACQUISITIONS

Learning Objective: This chapter on Mergers and Acquisitions (M&A) will discuss on corporate strategy that may increase value for the acquirer by creating an important value driver known as Synergies (ways to increase profit/earnings through an acquisition), among other reasons. Synergies can arise from an M&A transaction for a variety of reasons, are discussed.

Section - I

Choose the correct answer from the given four alternatives.

1. A theory that explains why the total value from the combinations resulted from a merger is a greater than the sum of the values of the component companies operating independently is known as _____ theory,
 - a) agency
 - b) hubris
 - c) synergy
 - d) Banking
2. A method under which the value of an asset is based on calculating the costs avoided by the acquiring company when obtaining a pre-existing and fully functional asset is known as _____ Method.
 - a) Sunk Cost
 - b) Avoided Cost
 - c) Marginal Cost.
 - d) Incurred Cost
3. _____ is the present value of expected future cash flows that will result from the combined operations and additional benefits expected to accrue.
 - a) Discounted Cash Flow Value
 - b) Synergy Value
 - c) Value gap
 - d) Purchase price
4. If value of A Ltd. is 50, B Ltd. is 20 and on merger their combined value is 90 and A Ltd. receives premium on merger 12, the synergy for merger is (all amounts are in ₹ Lakhs)
 - a) 8
 - b) 20
 - c) 32
 - d) 38
5. In the context of an acquisition of a firm, which one of the following concepts of value is least relevant?
 - a) Synergy Value
 - b) Market value
 - c) Opportunity cost
 - d) Value Gap

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6. Shareholders of target companies are typically paid in
 - a) Government bonds held by the target company
 - b) Government bonds held by the acquiring company
 - c) Cash and / or shares of the acquiring company
 - d) None of the above
7. In defending against a hostile takeover, the strategy that involves the target firm creating securities that give their holders certain right that become effective when a takeover is attempted is called _____ strategy.
 - a) Shark repellent
 - b) Green mail
 - c) Poison pill
 - d) Golden parachute
8. A theory that explains why the total value from the combination resulted from a merger is greater than the sum of the value of the component companies operating independently is known as theory.
 - a) hubris
 - b) agency
 - c) operating
 - d) synergy
9. Spinoff involves division of company into wholly owned subsidiary ofcompany by distribution of all its shares of subsidiary company on pro-rata basis
 - a) subsidiary
 - b) holding
 - c) parent
 - d) public
10. Tender offer involves making a public offer for acquiring the shares of a target company with a view to acquiringin that company.
 - a) control
 - b) management control
 - c) ownership control
 - d) debt control

Answer: 1 c); 2 b); 3 b); 4 b); 5 c); 6 c); 7 c); 8 d); 9 c); 10 b);

Section – II

1. Explain the different forms of corporate restructuring.

Answer:

The different forms of corporate restructuring are summarized as follows:

A. Expansion

- **Amalgamation:** This involves fusion of one or more companies where the companies lose their individual identity and a new company comes into existence to take over the business of companies being liquidated. The merger of Brooke Bond India Ltd. and Lipton India Ltd. resulted in formation of a new company Brooke Bond Lipton India Ltd.

- **Absorption:** This involves fusion of a small company with a large company where the smaller company ceases to exist after the merger. The merger of Tata Oil Mills Ltd. (TOMCO) with Hindustan Lever Ltd. (HLL) is an example of absorption.
- **Tender offer:** This involves making a public offer for acquiring the shares of a target company with a view to acquire management control in that company. Takeover by Tata Tea of Consolidated Coffee Ltd. (CCL) is an example of tender offer where more than 50% of shareholders of CCL sold their holding to Tata Tea at the offered price which was more than the investment price.
- **Asset acquisition:** This involves buying assets of another company. The assets may be tangible assets like manufacturing units or intangible like brands. Hindustan Lever Limited buying brands of Lakme is an example of asset acquisition. In this process only working assets are taken over leaving behind all liabilities and human resources to the selling company.
- **Joint venture:** This involves two companies coming whose ownership is changed. DCM group and DAEWOO MOTORS entered into a joint venture to form DAEWOO Ltd. for manufacturing automobiles in India.

B. Contraction

There are generally the following types of DEMERGER:

- **Spinoff:** This type of demerger involves division of company into wholly owned subsidiary of parent company by distribution of all its shares of subsidiary company on Pro-rata basis. By this way, both the companies i.e. holding as well as subsidiary company exist and carry on business. For example, Kotak, Mahindra Finance Ltd. formed a subsidiary called Kotak Mahindra Capital Corporation, by spinning off its investment banking division. At time demerger also takes place by one company selling one of its line of activities and / or group of assets including brand if required.
- **Split ups:** This type of demerger involves the division of parent company into two or more separate companies where parent company ceases to exist after the demerger.
- **Equity carve out:** This is similar to spin offs, except that same part of shareholding of this subsidiary company is offered to public through a public issue and the parent company continues to enjoy control over the subsidiary company by holding controlling interest in it. This is also called unleashing of values.
Promoters of a company can also dilute their holding in a listed company through 'Offer for Sale' following the SEBI's OFS Regulation of, 2012. A non-listed company can also do this, e.g. Private Equity investors are brought in as equity partners during a distress or expansion phase for eventual exit after valuation of the company increases manifold.
- **Divestitures:** These are sale of segment of a company for cash or for securities to an outside party. Divestitures, involve some kind of contraction.
- **Asset sale:** This involves sale of tangible or intangible assets of a company to generate cash. A partial sell off, also called slump sale. It involves the sale of a business unit or plant of one firm to another. It is the mirror image of a purchase of a business unit or plant. From the seller's perspective, it is a form of contraction and from the buyer's point of view it is a form of expansion. For example, When Coromandal Fertilizers Limited sold its cement division to India Cement limited, the size of Coromandal Fertilizers contracted whereas the size of India Cements Limited expanded.

C. Corporate controls

- **Going unlisted:** This involves converting a listed company into a private company by buying back all the outstanding shares from the markets. Several companies like Castrol India and Phillips India, Essar Shipping, Essar Ports have done this in recent years. A well known example from the U.S. is that of Levi Strauss & Company.
- **Equity buyback:** This involves the company buying its own shares back from the market. This results in reduction in the equity capital of the company. This strengthens the promoter's or group of promoters' position by increasing his/ their stake in the equity of the company.
- **Anti takeover defences:** With a high value of hostile takeover activity in recent years, takeover defences both premature and reactive have been restored to by the companies.
- **Leveraged Buyouts:** This involves raising of borrowed funds from the market or institutions by the management to acquire a company on the strength of its assets. In such a deal the acquiring company pays-off to the shareholders of the acquire much less from its own internal source and leverages the process by borrowings.

2. Discuss the different types of mergers.

Answer:

Types of Mergers:

Generally, the following five different types of mergers are possible:

- Horizontal merger:** The two companies which have merged are in the same industry, normally the market share of the new consolidated company would be larger and it is possible that it may move closer to being a monopoly or a near monopoly. In common parlance when a large FMCG company acquires and merges with it a logistics management company by way of a cost reduction measure, essentially it is considered as a part of horizontal merger. It may or may not decide to take business from any other third party
- Vertical merger:** It means the merger of two companies which are in different field altogether, the coming together of two concerns may give rise to a situation similar to a monopoly. Under this group the examples could of an upstream company merging with downstream company, e. g., merger of a crude oil exploration company with an oil refining company.
- Reverse merger :** Where, in order to avail benefit to carry forward of losses which are available according to tax law only to the company which had incurred them, the profit making company is merged with companies having accumulated losses.
- Conglomerate merger:** Such mergers involved firms engaged in unrelated type of business operations. In other words, the business activities of acquirer and the target are not related to each other horizontally or vertically, i.e. producing the same or competitive products nor vertically having relationship of buyer and supplier.
- Co-generic merger:** In these mergers, the acquirer and the target companies are related through basic technologies, production processes or market. The acquired company represents an extension of product line, market participants or technologies of the acquirer. When a smart phone manufacturing company takes over a company manufacturing Tabs, it will be a considered as a co-generic merger as product groups are essentially same except the voice part.

3. What is amalgamation? Explain different types of amalgamation.

Answer

Amalgamation

Amalgamation is an arrangement or reconstruction. It is a legal process by which two or more companies are to be absorbed or blended with another. As a result, the amalgamating company loses its existence and its shareholders become shareholders of a new company or the amalgamated company. In case of amalgamation a new company may come into existence or an old company may survive while amalgamating company may lose its existence. There may be amalgamation by transfer of one or more undertakings to a new company or transfer of one or more undertaking to an existing company. Amalgamation signifies the transfers of all or some part of assets and liabilities of one or more than one existing company or two or more companies to a new company.

Types of Amalgamation

The Accounting Standard, AS-14, issued by the Institute of Chartered Accountants of India has defined the term amalgamation by classifying (i) Amalgamation in the nature of merger, and (ii) Amalgamation in the nature of purchase.

(a) Amalgamation in the nature of merger: As per AS-14, an amalgamation is called in the nature of merger if it satisfies all the following condition:

- All the assets and liabilities of the transferor company should become, after amalgamation; the assets and liabilities of the other company.
- Shareholders holding not less than 90% of the face value of the equity shares of the transferor company (other than the equity shares already held therein, immediately before the amalgamation, by the transferee company or its subsidiaries or their nominees) become equity shareholders of the transferee company by virtue of the amalgamation.
- The consideration for the amalgamation receivable by those equity shareholders of the transferor company who agree to become equity shareholders of the transferee company is discharged by the transferee company wholly by the issue of equity share in the transferee company, except that cash may be paid in respect of any fractional shares.
- The business of the transferor company is intended to be carried on, after the amalgamation, by the transferee company.
- No adjustment is intended to be made in the book values of the assets and liabilities of the transferor company when they are incorporated in the financial statements of the transferee company except to ensure uniformity of accounting policies.

Amalgamation in the nature of merger is an organic unification of two or more entities or undertaking or fusion of one with another. It is defined as an amalgamation which satisfies the above conditions.

(b) Amalgamation in the nature of purchase: Amalgamation in the nature of purchase is where one company's assets and liabilities are taken over by another and lump sum is paid by the latter to the former. It is defined as the one which does not satisfy any one or more of the conditions satisfied above.

As per Income Tax Act 1961, merger is defined as amalgamation under Sec. 2(1B) with the following three conditions to be satisfied.

- I. All the properties of amalgamating company(s) should vest with the amalgamated company after amalgamation.
- II. All the liabilities of the amalgamating company(s) should vest with the amalgamated company after amalgamation.

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- III. Shareholders holding not less than 75% in value or voting power in amalgamating company(s) should become shareholders of amalgamated companies after amalgamation.

Amalgamation does not mean acquisition of a company by purchasing its property and resulting in its winding up. According to Income tax Act, exchange of shares with 90% of shareholders of amalgamating company is required.

4. What do you mean by acquisition?

Answer:

Acquisition refers to the acquiring of ownership right in the properties and assets without any combination of companies. Thus in acquisition two or more companies may remain independent, separate legal entity, but there may be change in control of companies. Acquisition results when one company purchases the controlling interest in the share capital of another existing company in any of the following ways:

- (a) By controlling interest in the other company. By entering into an agreement with a person or persons holding shares of other company.
- (b) By subscribing new shares being issued by the other company.
- (c) By purchasing shares of the other company at a stock exchange, and
- (d) By making an offer to buy the shares of other company, to the existing shareholders of that company.

5. Explain the terms, demerger and reverse merger.

Answer:

Demerger

It has been defined as a split or division. As the name suggests, it denotes a situation opposite to that of merger. Demerger or spin-off, as called in US involves splitting up of conglomerate (multi-division) of company into separate companies.

This occurs in cases where dissimilar business are carried on within the same company, thus becoming unwieldy and cyclical almost resulting in a loss situation. Corporate restructuring in such situation in the form of demerger becomes inevitable. Merger of SG Chemical and Dyes Ltd. with Ambalal Sarabhai Enterprises Ltd. (ASE) has made ASE big conglomerate which had become unwieldy and cyclic, so demerger of ASE was done.

A part from core competencies being the main reason for demerging companies according to their nature of business, in some cases, restructuring in the form of demerger was undertaken for splitting up the family owned large business empires into smaller companies.

The historical demerger of DCM group where it split into four companies viz., DCM Ltd., DCM Shriram Industries Ltd., Shriram Industrial Enterprise Ltd. and DCM Shriram Consolidated Ltd. is one example of family units splitting through demergers. Such demergers are accordingly, more in the nature of family settlements and are affected through the courts order. In 2005 RIL demerged its telecom business to the then Reliance Infocomm Ltd. when two brothers split their ownership interests from RIL in the form of spinning-off businesses into separate companies.

Thus, demerger also occurs due to reasons almost the same as mergers i.e. the desire to perform better and strengthen efficiency, maximisation of synergy benefits business interest and longevity and to curb losses, wastage and competition. Undertakings demerge to delineate businesses and fix responsibility, liability and management so as to ensure improved results from each of the demerged unit.

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Demerged Company, according to Section (19AA) of Income Tax Act, 1961 means the company whose undertaking is transferred, pursuant to a demerger to a resulting company.

Resulting company, according to Section 2(47A) of Income Tax Act, 1961 means one or more company, (including a wholly owned subsidiary thereof) to which the undertaking of the demerged company is transferred in a demerger, and the resulting company in consideration of such transfer of undertaking issues shares to the shareholders of the demerged company and include any authority or body or local authority or public sector company or a company established, constituted or formed as a result of demerger.

Reverse Merger

Normally, a small company merges with large company or a sick company with healthy company. However, in some cases, reverse merger is done. When a healthy company merges with a sick or a small company is called reverse merger. This may be for various reasons. Some reasons for a reverse merger are:

The transferee company is a sick company and has carry forward losses and Transferor Company is profit making company. If Transferor Company merges with the sick transferee company, it gets advantage of setting-off carry forward losses without any conditions. If sick company merges with healthy company, many restrictions are applicable for allowing set off, the most important one is change of ownership at entity level.

In such cases, it is provided that on the date of merger, name of Transferee Company will be changed to that of Transferor Company. Thus, outside people even may not know that the transferor company with which they are dealing after merger is not the same as earlier one. One such approved in Shiva Texyarn Ltd.

6. Discuss the possible causes of different types of merger.

Answer:

An extensive appraisal of each merger scheme is done to patterns the causes of mergers. These hypothesized causes (motives) as defined in the mergers schemes and explanatory statement framed by the companies at the time of mergers can be conveniently categorized based on the type of merger. The possible causes of different type of merger schemes are as follows:

- (i) **Horizontal merger:** These involve mergers of two business companies operating and competing in the same kind of activity. They seek to consolidate operations of both companies. These are generally undertaken to:
 - (a) Achieve optimum size,
 - (b) Improve profitability,
 - (c) Carve out greater market share,
 - (d) Increase profit and profitability by deriving benefits from operating synergies,
 - (e) Reduce its administrative and overhead costs.
- (ii) **Vertical merger:** These are mergers between firms in different stages of industrial production in which a buyer and seller relationship exists. Vertical mergers are an integration undertaken either forward to come close to customers or backward to come close to raw materials suppliers. These mergers are generally endeavoured to:
 - (a) Increased profitability,
 - (b) Economic cost by eliminating avoidable sales tax and excise duty payments,
 - (c) Increased marketing power without violating Competition Law,
 - (d) Increased size, etc.

- (iii) **Conglomerate merger:** These are mergers between two or more companies having unrelated business. These transactions are not aimed at explicitly sharing resources, technologies, synergies or product. They do not have an impact on the acquisition of monopoly power and hence are favoured throughout the world. They are undertaken for diversification of business in other products, trade and for advantages in bringing separate enterprise under single control namely :
 - (a) Synergy arising in the form of economies of scale.
 - (b) Cost reduction as a result of integrated operation.
 - (c) Risk reduction by avoiding sales and profit instability.
 - (d) Achieve optimum size and carve out optimum share in the market.
- (iv) **Reverse mergers:** Reverse mergers involve mergers of profit making companies with companies having accumulated losses in order to:
 - (a) Claim tax savings on account of accumulated losses that increase profits.
 - (b) Set up merged asset base and shift to accelerate depreciation.
- (v) **Group company mergers:** These mergers are aimed at restructuring the diverse units of group companies to create a viable unit and making the company more controllable under reduced umbrella span. Such mergers are initiated with a view to affect consolidation in order to:
 - (a) Cut costs and achieve focus,
 - (b) Eliminate intra-group competition,
 - (c) Correct leverage imbalances and improve borrowing capacity, etc

7. What do you mean by diversification? Why does a firm want to diversify?

Answer:

Diversification

A commonly stated motive for mergers is to achieve risk reduction through product or business diversification. The extent, to which risk is reduced, depends upon the correlation between the earnings of the merging entities. While negative correlation brings greater reduction in risk, positive correlation brings lesser reduction in risk. If investors can diversify on their own by buying stocks of companies which propose to merge, they do not derive any benefits from the proposed merger. Any investor who wants to reduce risk by diversifying between two companies, say, ABC Company and PQR Company, may simply buy the stocks of these two companies and merge them into a portfolio. The merger of these companies is not necessary for him to enjoy the benefits of diversification. As a matter of fact, his 'home-made diversification' give him far greater flexibility. He can contribute the stocks of ABC Company and PQR Company in any proportion he likes as he is not confronted with a 'fixed' proportion that result from the merger.

Thus, Diversification into new areas and new products can also be a motive for a firm to merge another with it. A firm operating in North India, if merges with another firm operating primarily in South India, can definitely cover broader economic areas. Individually these firms could serve only a limited area. Moreover, products diversification resulting from merger can also help the new firm fighting the cyclical/seasonal fluctuations. For example, firm A has a product line with a particular cyclical variations and firm B deals in product line with counter cyclical variations. Individually, the earnings of the two firms may fluctuate in line with the cyclical variations. However, if they merge, the cyclically prone earnings of firm A would be set off by the counter cyclically prone earnings of firm B. Smoothing out the earnings of a firm over the different phases of a cycle tends to reduce the risk associated with the firm.

Through the diversification effects, merger can produce benefits to all firms by reducing the variability of firm's earnings. If firm A's income generally rises when B's income generally falls, and vice-a versa, the fluctuation of one will tend to set off the fluctuations of the other, thus producing a relatively level

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pattern of combined earnings. Indeed, there will be some diversification effect as long as the two firm's earnings are not perfectly correlated (both rising and falling together). This reduction in overall risk is particularly likely if the merged firms are in different lines of business.

A firm wants to diversify to achieve:

- Sales and growth with stability or lesser volatility in long run,
- Favourable growth developments,
- Favourable competition shifts,
- Benefits from technological changes, etc.

- (a) **External and Internal Growth:** A company may expand and/or diversify its markets internally or externally. If the company cannot grow internally due to lack of physical and managerial resources, it can grow externally by combining its operations with other companies through mergers and acquisitions. Mergers and acquisitions may help to accelerate the pace of a company's growth in a convenient and inexpensive manner.

For example, RPG Group had a turnover of only ₹ 80 crores in 1979. This has increased to about ₹ 5600 crores in 1996. This phenomenal growth was due to the acquisitions of several companies by the RPG Group. Some of the companies acquired are Asian Cables, Ceat, Calcutta Electricity Supply, etc. This kind of strategies to achieve growth is termed as inorganic growth strategy.

- (b) **Market Share:** A merger can increase the market share of the merged firm. The increased concentration or market share improves the profitability of the firm due to economies of scale.

The acquisition of Universal Luggage by Blow Plast is an example of limiting competition to increase market power. Before the merger, the two companies were competing fiercely with each other leading to a severe price war and increased marketing costs. As a result of the merger, Blow Plast has obtained a strong hold on the market and now operates under near monopoly situation. Yet another example is the acquisition of Tomco by Hindustan Lever. Hindustan Lever at the time of merger was expected to control one-third of three million ton soaps and detergents markets and thus, substantially reduce the threat of competition.

- (c) **Purchase of assets at bargain price:** Mergers may be explained by the opportunity to acquire assets, particularly land, mined rights, plant and equipment at lower cost than would be incurred if they were purchased or constructed at current market prices. If market prices of many stocks have been considerably below the replacement cost of the assets they represent, expanding firm considering constructing plants developing mines, or buying equipment.

- (d) **Increased external financial capability:** Many mergers, particularly those of relatively small firms into large ones, occur when the acquired firm simply cannot finance its operations. This situation is typical in a small growing firm with expanding financial requirements. The firm has exhausted its bank credit and has virtually no access to long term debt or equity markets. Sometimes the small firms have encountered operating difficulty and the bank has served notice that its loans will not be renewed. In this type of situation, a large firm with sufficient cash and credit to finance the requirements of the smaller one probably can obtain a good situation by making a merger proposal to the small firm. The only alternative the small firm may have is to try to interest two or more larger firms in proposing merger to introduce competition into their bidding for the acquisition.

- (e) **Increased managerial skills:** Occasionally, a firm will have good potential that it finds itself unable to develop fully because of deficiencies in certain areas of management or an absence of needed product or production technology. If the firm cannot hire the management or develop the technology it needs, it might combine with a compatible firm that has the needed managerial personnel or technical expertise. Any merger, regardless of the specific motive for it, should contribute to the maximization of owner's wealth.

- (f) **Reduction in tax liability:** Under Income Tax Act, there is a provision for set-off and carry forward of losses against its future earnings for calculating its tax liability. A loss making or sick company may not be in a position to earn sufficient profits in future to take advantage of the carry forward provision. If it combines with a profitable company, the combined company can utilize the carry forward loss and save taxes with the approval of government. In India, a profitable company is allowed to merge with a sick company to set-off against its profits the accumulated loss and unutilized depreciation of that company. A number of companies in India have merged to take advantage of this provision.
- (g) **Economies of Scale:** Economies of scale arise when increase in the volume of production leads to a reduction in the cost of production per unit. Merger may help to expand volume of production without a corresponding increase in fixed costs. Thus, fixed costs are either distributed over a large volume of production or some common costs are rationalised or fully avoided causing the unit cost of production to decline. For example, in a merged company needs one service function team/head like Secretarial, Procurement, Human Resource etc. Economies of scale may also arise from other indivisibilities such as production facilities, management functions and management resources and systems. This happens because a given function, facility or resource is utilized for a large scale of operation. For example, a given mix of plant and machinery can produce scale economies when its capacity utilization is increased. Economies will be maximized when it is optimally utilized. Similarly, economies in the use of the marketing function can be achieved by covering wider markets and customers using a given sales force and promotion and advertising efforts. Economies of scale may also be obtained from the optimum utilization of management resource and systems of planning, budgeting, reporting and control. A company establishes management systems by employing enough qualified professionals irrespective of its size. A combined firm with a large size can make the optimum use of the management resource and systems resulting in economies of scale.
- (h) **Vertical Integration:** Vertical integration is a combination of companies business with the business of a supplier or customer generally motivated by a pure desire:
- (a) To secure a source of supply for key materials or sources,
 - (b) To secure a distribution outlet or a major customer for the company's products,
 - (c) To improve profitability by expanding into high margin activities of suppliers and customers, etc.

Thus, vertical merger may take place to integrate forward or backward. Forward integration is where company merges to come close to its customers. A holiday tour operator might acquire chain of travel agents and use them to promote his own holiday rather than those of rival tour operators. So forward or downstream vertical integration involves takeover of customer business.

Tata Tea's acquisition of consolidated coffee which produces coffee beans and Asian Coffee, which possesses coffee beans, was also backward integration which helped reduce exchange inefficiencies by eliminating market transactions. The merger of Samtel Electron services (SED) with Samtel Color Ltd. (SCL) entailed backward integration of SED which manufactures electronic components required to make picture tubes with SCL, a leading maker of color picture tube.

8. Why Mergers & Acquisitions have gained importance in recent time?

Answer

Merger - It's the most talked about term today creating lot of excitement and speculative activity in the markets. But before Mergers & Acquisitions (M&A) activity speeds up, it has to actually pass through a long chain of procedures (both legal and financial), which at times delays the deal.

With the liberalization of the Indian economy in 1991, restrictions on Mergers and Acquisitions have been lowered. The process has further been simplified in the Companies Act, 2013 and also by introducing several business friendly regulatory provisions by RBI and FEMA, FDI for outbound and inbound M&As involving off-shore companies. The numbers of Mergers and Acquisitions have increased many times in the last decade compared to the slack period of 1970-80s when legal hurdles trimmed the M&A growth. To put things in perspective, from 15 mergers in 1998, the number crossed to over 280 in FY01. With a downturn in the capital markets, valuations have come down to historic lows. It's high time that the consolidation game speeds up.

In simple terms, a merger means blending of two or more existing undertakings into one, consequent to which each undertaking would lose their separate identity. The most common reasons for mergers are, operating synergies, market expansion, diversification, growth, consolidation of production capacities and tax savings. However, these are just some of the illustrations and not the exhaustive benefits.

Again, before the idea of Merger and Acquisition crystallizes, the firm needs to understand its own capabilities and industry position. It also needs to know the same about the other firms it seeks to tie up with, to get a real benefit from a merger.

Globalization has increased the competitive pressure in the markets. In a highly challenging environment a strong reason for merger and acquisition is a desire to survive. Thus apart from growth, the survival factor has off late, spurred the merger and acquisition activity worldwide.

The present study gives some insight as to why the companies are going for merger and acquisition and what are the legal, tax and financial aspects governing them. The study also deals with other aspects such as types of merger, motives, reasons, and successful consolidation in merger, recent trend in merger and acquisition activity. Lastly few case studies involving the merger and acquisition have been taken.

Mergers, acquisitions and restructuring have become a major force in the financial and economic environment all over the world. Essentially an American phenomenon till the middle of 1970s, they have become a dominant global business theme at present. On Indian scene too corporate are seriously making at mergers, acquisitions which has become order of the day.

Mergers and acquisitions (M&A) and corporate restructuring are a big part of the corporate finance world. Every day, Wall Street investment bankers arrange M&A transactions, which bring separate companies together to form larger ones. When they're not creating big companies from smaller ones, corporate finance deals do the reverse and break up companies through spin-offs, carve-outs or tracking stocks.

Not surprisingly, these actions often make the news. Deals can be worth hundreds of millions, or even billions, of dollars. They can dictate the fortunes of the companies involved for years to come. For a CEO, leading an M&A can represent the highlight of a whole career. And it is no wonder we hear about so many of these transactions; they happen all the time. Next time you flip open the newspaper's business section, odds are good that at least one headline will announce some kind of M&A transaction. Sure, M&A deals grab headlines, but what does this all mean to investors, it discusses the forces that drive companies to buy or merge with others, or to split-off or sell parts of their own businesses. Once you know the different ways in which these deals are executed, you'll have a better idea of whether you should cheer or weep when a company you own buys another company - or is bought by one. You will also be aware of the tax consequences for companies and for investors.

9. State the factors that favour external growth and diversification through Mergers and Acquisitions.

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Answer:

- (i) Some goals and objectives may be achieved more speedily through an external acquisition.
- (ii) The cost of building an organization internally may exceed cost of an acquisition.
- (iii) There may be fewer risks, lower costs, or shorter time requirements involved in achieving an economically feasible market share by the external route.
- (iv) The firm may not be utilizing their assets or arrangement as effectively as they could be utilized by the acquiring firm.
- (v) The firm may be able to use securities in obtaining other companies, where as it might not be able to finance the acquisition of equivalent assets and capabilities internally.
- (vi) There may be tax advantages.
- (vii) There may be opportunities to complement capabilities of other firms.

10. State the merits and demerits of Merger and Acquisitions

Answer:

Gains		Pains	
(i)	Financial Returns/Profitability	(i)	Expenses / Drain on Profitability
(ii)	Aligned Org Structure.	(ii)	Time and resource required to manager/transition.
(iii)	New approaches to conducting work.	(iii)	Reduced work productivity and quality.
(iv)	Motivated and capable talent.	(iv)	Unintended consequences for employee's attitudes and behaviour.
(v)	Desired culture.	(v)	Culture clash.
(vi)	Cost Savings.	(vi)	Concerns of stakeholders.

11. State the major theories of Mergers & Acquisitions

Answer:

The following theories of mergers and acquisitions are discussed below:

- (i) **Synergy or Efficiency:** In this theory, the total value from the combination is greater than the sum of the values of the component companies operating independently.
- (ii) **Hubris:** The result of the winner's curse, causing bidders to overpay. It is possible that value is unchanged.
- (iii) **Agency:** The total value here is decreased as a result of mistakes or managers who put their own preferences above the well-being of the company.

12. State Commonly used bases to compute the Exchange Ratio

Answer:

Aspect	Earnings Per share (EPS)	Market Price per share (MPS)	Book Value per share (BVS)
Computation		MPS of Selling Co./ MPS of Buying Co.	BVS of Selling Co. / BVS of Buying Co.
Suitability	When there are no differential risks associated with the two companies entering into Merger.	When the shares of the acquiring and the target Firm are actively traded in the market	If accounting policies are to be reflected in the determination of Exchange Ratio.

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Demerits	1. Difference in growth rate of earnings of two companies will not be highlighted.	1. When the trading is thin, market prices may not be a reliable measure.	Exchange ratio determined under this method does not reflect the purchasing power of money, and are highly different from true economic values.
	2. Gains in earnings arising out of merger are not considered to determine Exchange Ratio.	2. Market prices may be manipulated by vested interest and the Exchange Ratio determined may not reflect the true position.	

13. Explain the motives for Mergers and Acquisitions

Answer:

Mergers and acquisitions are strategic decisions leading to the maximization of a company's growth by enhancing its production and marketing operations. They have become popular in the recent times because of the enhanced competition, breaking of trade barriers, free flow of capital across countries and globalization of business as a number of economies are being deregulated and integrated with other economies. A number of motives are attributed for the occurrence of mergers and acquisitions.

- (i) **Synergies through Consolidation:** Synergy implies a situation where the combined firm is more valuable than the sum of the individual combining firms. It is defined as 'two plus two equal to five' ($2 + 2 = 5$) phenomenon. Synergy refers to benefits other than those related to economies of scale. Operating economies are one form of synergy benefits. But apart from operating economies, synergy may also arise from enhanced managerial capabilities, creativity, innovativeness, R&D and market coverage capacity due to the complementary nature of resources and skills and a widened horizon of opportunities.

An undervalued firm will be a target for acquisition by other firms. However, the fundamental motive for the acquiring firm to takeover a target firm may be the desire to increase the wealth of the shareholders of the acquiring firm. This is possible only if the value of the new firm is expected to be more than the sum of individual value of the target firm and the acquiring firm. For example, if A Ltd. and B Ltd. decide to merge into AB Ltd. then the merger is beneficial if

$$V(AB) > V(A) + V(B)$$

Where

$V(AB)$ = Value of the merged entity

$V(A)$ = Independent value of company A

$V(B)$ = Independent value of company B

Igor Ansoff (1998) classified four different types of synergies. These are:

- (a) **Operating synergy:** The key to the existence of synergy is that the target firm controls a specialized resource that becomes more valuable when combined with the bidding firm's resources. The sources of synergy of specialized resources will vary depending upon the merger. In case of horizontal merger, the synergy comes from some form of economies of scale which reduce the cost or from increase market power which increases profit margins and sales. There are several ways in which the merger may generate operating economies.

The firm might be able to reduce the cost of production by eliminating some fixed costs. The research and development expenditures will also be substantially reduced in the new set up by

eliminating similar research efforts and repetition of work already done by the target firm. The management expenses may also come down substantially as a result of corporate reconstruction. Certain major examples are Tata Indica deriving technology advantage from Jaguar Land Rover acquisition as well as using the same distribution channel in western countries for selling exported Indica cars and imported JLR cars through its own channel. R&D benefits getting generated due to SunPharma acquiring Ranbaxy will be for mutual advantage besides cost savings from convergence.

The selling, marketing and advertisement department can be streamlined. The marketing economies may be produced through savings in advertising (by reducing the need to attract each other's customers), and also from the advantage of offering a more complete product line (if the merged firms produce different but complementary goods), since a wider product line may provide larger sales per unit of sales efforts and per sales person. When a firm having strength in one functional area acquires another firm with strength in a different functional area, synergy may be gained by exploiting the strength in these areas. A firm with a good distribution network may acquire a firm with a promising product line, and thereby can gain by combining these two strength. The argument is that both firms will be better off after the merger. A major saving may arise from the consolidation of departments involved with financial activities e.g., accounting, credit monitoring, billing, purchasing etc.

Thus, when two firms combine their resources and efforts, they will be able to produce better results than they were producing as separate entities because of saving various types of operating costs. These resultant economies are known as synergistic operating economies.

In a vertical merger, a firm may either combine with its supplier of input (backward integration) and/or with its customers (forward integration). Such merger facilitates better coordination and administration of the different stages of business stages of business operations-purchasing, manufacturing and marketing – eliminates the need for bargaining (with suppliers and/or customers), and minimizes uncertainty of supply of inputs and demand for product and saves costs of communication.

An example of a merger resulting in operating economies is the merger of Sundaram Clayton Ltd. (SCL) with TVS-Suzuki Ltd. (TSL). By this merger, TSL became the second largest producer of two – wheelers after Bajaj. The main objective motivation for the takeover was TSL's need to tide over its different market situation through increased volume of production. It needed a large manufacturing base to reduce its production costs. Large amount of funds would have been required for creating additional production capacity. SCL also needed to upgrade its technology and increase its production. SCL's and TSL's plants were closely located which added to their advantages. The combined company has also been enabled to share the common R&D facilities.

(b) **Financial synergy:** Financial synergy refers to increase in the value of the firm that accrues to the combined firm from financial factors. There are many ways in which a merger can result into financial synergy and benefit. A merger may help in:

- Eliminating financial constraint
- Deployment surplus cash
- Enhancing debt capacity
- Lowering the financial costs
- Better credit worthiness

Financial Constraint: A company may be constrained to grow through internal development due to shortage of funds. The company can grow externally by acquiring another company by the exchange of shares and thus, release the financing constraint.

Deployment of Surplus Cash: A different situation may be faced by a cash rich company. It may not have enough internal opportunities to invest its surplus cash. It may either distribute its surplus cash to its shareholders or use it to acquire some other company. The shareholders may not really benefit much if surplus cash is returned to them since they would have to pay tax at ordinary income tax rate. But if a Company can return cash to shareholders either by payment of Dividend or through buy back of shares at the current appreciated value, then the dividend distribution tax will be paid by the company and no capital gains will be paid by the shareholders if holding is for more than one year. Their wealth may increase through an increase in the market value of their shares if surplus cash is used to acquire another company. If they sell their shares, they would pay tax at a lower, capital gains tax rate. The company would also be enabled to keep surplus funds and grow through acquisition.

Debt Capacity: A merger of two companies, with fluctuating, but negatively correlated, cash flows, can bring stability of cash flows of the combined company. The stability of cash flows reduces the risk of insolvency and enhances the capacity of the new entity to service a larger amount of debt. The increased borrowing allows a higher interest tax shield which adds to the shareholders wealth.

Financing Cost: The enhanced debt capacity of the merged firm reduces its cost of capital. Since the probability of insolvency is reduced due to financial stability and increased protection to lenders, the merged firm should be able to borrow at a lower rate of interest. This advantage may, however, be taken off partially or completely by increase in the shareholders risk on account of providing better protection to lenders.

Another aspect of the financing costs is issue costs. A merged firm is able to realize economies of scale in flotation and transaction costs related to an issue of capital. Issue costs are saved when the merged firm makes a larger security issue.

Better credit worthiness: This helps the company to purchase the goods on credit, obtain bank loan and raise capital in the market easily.

RP Goenka's Ceat Tyres sold off its type cord division to Shriram Fibers Ltd. in 1996 and also transferred its fiber glass division to FGL Ltd., another group company to achieve financial synergies.

(c) Managerial synergy:

One of the potential gains of merger is an increase in managerial effectiveness. This may occur if the existing management team, which is performing poorly, is replaced by a more effective management team. Often a firm, plagued with managerial inadequacies, can gain immensely from the superior management that is likely to emerge as a sequel to the merger. Another allied benefit of a merger may be in the form of greater congruence between the interests of the managers and the shareholders. In present day scenario banks consider the managerial abilities and reliability factor as one of the considerations for adding margin spread over base rate or marginal rate of lending to fix the rate of interest to be charged to a company. Hence higher the dependency factor lower the rate of interest on borrowings.

A common argument for creating a favourable environment for mergers is that it imposes a certain discipline on the management. If lacklustre performance renders a firm more vulnerable to potential acquisition, existing managers will strive continually to improve their performance.

(d) Sales synergy:

These synergies occurs when merged organization can benefit from common distribution channels, sales administration, advertising, sales promotion and warehousing.

The Industrial Credit and Investment Corporation of India Ltd. (ICICI) acquired Tobacco Company, ITC Classic and Anagram Finance to obtain quick access to a well dispersed distribution network.

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14. Explain the methods of financing an acquisition.

Answer:

The two main methods of financing an acquisition are cash and share exchange.

- (1) **Cash:** This method is generally considered suitable for relatively small acquisitions. It has two advantages: (i) the buyer retains total control as the shareholders in the selling company are completely bought out, and (ii) the value of the bid is known and the process is simple.

Illustration:

Company A		Company B
Market price per share	₹ 75	₹15
No. of shares	1,00,000	60,000
Market Value of the company	₹ 75,00,000	₹ 9,00,000

Assume Company A intends to pay ₹ 12,00,000/- cash for Company B.

If the share price does not anticipate a merger:

The share price in the market is expected to accurately reflect the true value of the company.
 The cost to the bidder Company A = Payment - The market value of Company B
 = ₹ 12 lakhs – ₹9 lakhs
 = ₹ 3 lakhs.

Company A is paying ₹ 3 lakhs for the identified benefits of the merger.

If the share price includes a speculation element of ₹ 2 per share:
 The cost to Company A = ₹ 3,00,000 + (60,000 × ₹ 2)
 = ₹ 3,00,000 + ₹ 1,20,000
 = ₹4,20,000/-

Worth of Company B = (₹15 – ₹2) × 60,000
 = ₹13 × 60,000
 = ₹7,80,000/-

This can also be expressed as: ₹12,00,000 – ₹4,20,000 = ₹ 7,80,000

(2) Share Exchange

The method of payment in large transactions is predominantly stock for stock. The advantage of this method is that the acquirer does not part with cash and does not increase the financial risk by raising new debt. The disadvantage is that the acquirer's shareholders will have to share future prosperity with those of the acquired company and also loses the benefits from tax shield on interest which it would have derived.

Such settlement of an acquisition transaction through equity share of the acquirer is also technically called as 'Equity as the Currency of the Deal'

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Illustration:

Suppose Company A wished to offer shares in Company A to the shareholders of Company B instead of cash:

Amount to be paid to shareholders of Company B = ₹12,00,000

Market price of shares of Company A = ₹ 75

No. of shares to be offered = ₹12,00,000 / ₹75 = 16,000

Now, shareholders of Company B will own part of Company A, and will benefit from any future gains of the merged enterprise.

Their share in the merged enterprise = $16,000 / (1,00,000 + 16,000) = 13.8\%$

Further, now suppose that the benefits of the merger has been identified by Company A to have a present value of ₹ 4,00,000

The value of the merged entity = ₹75,00,000 + (₹ 9,00,000 + ₹4,00,000) = ₹ 88,00,000

True cost of merger to the shareholders of Company A:

	Company A	Company B
Proportion of ownership in merged enterprise	86.2%	13.8%
Market Value: Total = ₹ 88,00,000	75,85,600	12,14,400
No. of shares currently in issue	100,000	60,000
Market price per share	₹ 75.86	₹ 20.24

The above gives the value of shares in the company before the merger is completed, based on estimates of what the company will be worth after the merger.

The valuation of each company also recognizes the split of the expected benefits which will accrue to the combined entity once the merger has taken place.

The true cost can be calculated as given below:

60,000 shares in Company B @ ₹ 20.24	₹12,14,400
Less: Current market value	₹9,00,000
Benefits being paid to shareholders of Company B	₹3,14,400

15. State the participants in the Merger and Acquisition process.

Answer:

There are many professionals who play an essential role in the successful completion of a deal.

(a) **Investment Bankers:** Investment bankers are always at the forefront of the acquisition process. They offer strategic and tactical advice, screen potential buyers and sellers, make initial contact with a seller and buyer and provide negotiation support, valuation and deal structuring. Investment bankers in addition providing investment advisory services also provide various types of due diligence services as discussed above.

(b) **Lawyers:** The legal framework surrounding a typical transaction has become so complicated that no one individual can have sufficient expertise to address all the issues. So, legal teams consist of more than a dozen lawyers each of whom represents a specialised aspect of the law.

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- (c) **Accountants:** Accountants perform the role of auditors by reviewing the target's financial statements and operations through a series of interviews with senior and middle level managers. These services are generally provided by Accounting Advisory Group of professional accounting firms like a Big4.
- (d) **Valuation Experts:** They build models that incorporate various assumptions such as costs or revenues growth rate.
- (e) **Institutional Investors:** Institutional investors can announce how they intend to vote on a matter and advertise their position in order to seek support and have more influence.
- (f) **Arbitrageurs:** Arbitrageurs provide market liquidity during transactions. With the number of merger arbitrageurs increasing, they are becoming more proactive in trying to anticipate takeover situations. Their objective is to identify the target before the potential acquirer is required by law to announce its intentions.

16. **Acquiring company is considering the acquisition of Target Company in a stock- for- stock transaction in which target Company would receive ₹90 for each share of its common stock. The Acquiring company does not expect any change in its price/ earnings ratio multiple after the merger and chooses to value the target company conservatively by assuming no earnings growth due to synergy.**

Calculate:

- (i) The purchase price premium
- (ii) The exchange ratio
- (iii) The number of new shares issued by the acquiring company.
- (iv) Post-merger EPS of the combined firms
- (v) Pre-merger EPS of the Acquiring company
- (vi) Pre-merger P/E ratio
- (vii) Post-merger share price
- (viii) Post-merger equity ownership distribution.

The following additional information is available:

Particulars	Acquiring	Target
Earnings	₹2,50,000	₹ 72,500
Number of shares	1,10,000	20,000
Market Price per Share	₹50	₹60

Also, Comment on your results.

Answer:

- (i) Purchase price premium = Offer price for Target company stock/Target company Market price per share = $90/60 = 1.5$
- (ii) Exchange ratio = Price per share offered for Target Company/Market Price per share for the acquiring company = $90/50 = 1.8$
Acquiring company issues 1.8 shares of stock for each of Target Company's stock.
- (iii) New shares issued by acquiring company = shares of Target Company x Exchange ratio = $20,000 \times 1.8 = 36,000$.
- (iv) Post-merger EPS of the combined companies = Combined earning/ total number of share.
Combined earnings = $(2,50,000 + 72,500) = ₹3,22,500$

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Total shares outstanding of the new entity
 $= 1,10,000 + 36,000 = 1,46,000$
 $= ₹3,22,500 \div 1,46,000 = ₹2.209$

(v) Pre-merger EPS of the acquiring company
 $= \text{earnings} / \text{Number of shares}$
 $= 2,50,000 / 1,10,000 = ₹2.273$

(vi) Pre-merger P/E = Pre-merger market price per share / Pre-merger earnings per share
 $= 50 / 2.273 = 22.00$

(vii) Post-merger share price = Post-merger EPS x Pre-merger P/E
 $= 2.209 \times 22.00 = ₹48.60$ (as compared to ₹50 Pre-merger)

(viii) Post-merger Equity Ownership Distribution
 Target Company = Number of new shares / Total number of shares
 $= 36,000 / 1,46,000 = 0.2466$ or 24.66%
 Acquiring company = $100 - 24.66 = 75.34\%$

Comment – The acquisition results in a ₹1.40 reduction in the market price of the acquiring company due to a 0.064 decline in the EPS of the combined companies. Whether the acquisition is a poor decision depends upon what happens to the earnings would have in the absence of the acquisition, the acquisition may contribute to the market value of the acquiring company.

17. Two firms RAJJAN and REKHA Corporation operate independently and have the following financial statements:

Particulars	RAJJAN	REKHA
Revenues	8,00,000	4,00,000
Cost of Goods Sold (COGS)	6,00,000	2,40,000
EBIT	2,00,000	1,60,000
Expected growth rate	6%	8%
Cost of capital	10%	12%

Both firms are in steady state, with capital spending offset by depreciation. No working capital is required, and both firms face a tax rate of 40%. Combining the two firms will create economies of scale in the form of shared distribution and advertising cost, which will reduce the cost of goods sold from 70% of revenues to 65% of revenues. Assume that the firm has no debt capital.

Estimate

- The value of the two firms before the merger
- The value of the combined firm with synergy effect

Answer:

- Value of the Firms before the Merger

Calculation of Free Cash Flow to each of the Firm
 Free cash flow to RAJJAN = EBIT (1 – tax rate)
 $= 2,00,000 (1 - 0.4) = ₹1,20,000$

Free cash flow to REKHA = EBIT (1 – tax rate)
 $= 1,60,000 (1 - 0.4) = ₹96,000$

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Value of the two firms independently

Value of RAJJAN = $[1,20,000 (1.06)] / (0.10 - 0.06) = ₹31,80,000$

Value of REKHA = $[96,000 (1.08)] / (0.12 - 0.08) = ₹25,92,000$

In the absence of synergy the combined firm value is:

Combined Firm Value with No Synergy = $31,80,000 + 25,92,000 = ₹57,72,000$

(ii) Value of the Firm with Synergy

On combining the two firm the cost of goods sold is reduced firm 70% to 65% of revenues. The revenue of the combined firm = $8,00,000 + 4,00,000 = ₹12,00,000$

Cost of goods sold = 65% of revenues

= $0.65 \times 12,00,000 = ₹7,80,000$

Weighted average cost of capital for the combined firm

= $10\% [31,80,000 / 57,72,000] + 12\% [25,92,000 / 57,72,000]$

= $0.0551 + 0.0539 = 0.109$

Or 11% approximately

Weighted average expected growth rate for the combined firm

= $6\% [31,80,000 / 57,72,000] + 8\% [25,92,000 / 57,72,000]$

= $0.033 + 0.0359 = 0.0689$

Or 7% approximately

Particulars	Firm with no synergy	Firm with synergy
Revenues	12,00,000	12,00,000
Cost of Goods Sold (COGS)	8,40,000	7,80,000
EBIT	3,60,000	4,20,000
Growth rate	7%	7%
Cost of capital	11%	11%
FCF = EBIT (1 - T)	2,16,000	2,52,000

Value of the Firm without Synergy

= $[2,16,000 (1.07)] / 0.11 - 0.07 = ₹57,78,000$

Value of the firm with Synergy

= $[2,52,000 (1.07)] / 0.11 - 0.07 = ₹67,41,000.$

18. The following information is relating to Fortune India Ltd. having two division Pharma division and FMCG division. Paid up share capital of Fortune India Ltd. is consisting of 3,000 lakhs equity shares of ₹1 each. Fortune India Ltd. decided to de-merge Pharma Division as Fortune Pharma Ltd. w.e.f. 1.4.2016. Details of Fortune India Ltd. as on 31.3.2016 and of Fortune Pharma Ltd. as on 1.4.2016 are given below:

Particulars	Fortune Pharma Ltd. (₹) in lakh	Fortune India Ltd. (₹) in lakh
Outside Liabilities		
Secured Loans	400	3,000
Unsecured Loan	2,400	800
Current Liabilities & Provision	1,300	21,200
Assets		
Fixed Assets	7,740	20,400
Investments	7,600	12,300
Current Assets	8,800	30,200
Loan & Advances	900	7,300
Deferred tax / Misc. exp.	60	(200)

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Board of directors of the company have decided to issue necessary equity shares of Fortune Pharma Ltd. of ₹1 each, without any consideration to the shareholders of Fortune India Ltd. For that purpose following points are to be considered:

- Transfer of Liabilities and Assets at Book value.
- Estimated profit for the year 2016-17 is ₹11,400 lakh for Fortune India Ltd. and ₹1,470 lakh for Fortune Pharma Ltd.
- Estimated Market price of Fortune Pharma Ltd. is ₹ 24.50 per share.
- Average P/E ratio of FMCG sector is 42 and Pharma sector is 25, which is to be expected for both the companies.

Calculate:

- The Ratio in which shares of Fortune Pharma are to be issued to the shareholders of Fortune India Ltd.
- Expected Market price of Fortune India Ltd.
- Book value per share of both the Co's after demerger.

Solution:

Shareholder's fund

	Fortune India Ltd.	Fortune Pharma Ltd.	Fortune India (FMCG) Ltd.
Assets	70,000	25,100	44,900
Outside Liabilities	25,000	4,100	20,900
Net worth	45,000	21,000	24,000

- Calculation of shares of Fortune Pharma Ltd. to be issued to shareholders of Fortune India Ltd.:

Fortune Pharma Ltd.	
Estimated Profit (₹ in lakhs)	1470
Estimated market price (₹)	24.50
Estimated P/E	25
Estimated EPS (₹) (24.50 ÷ 25)	0.98
No. of shares (lakhs) (1470 ÷ 0.98)	1500

Hence, Ratio is 1 shares of Fortune Pharma Ltd. for 2 shares of Fortune India Ltd.

- Expected market price of Fortune India Ltd.

Fortune India (FMCG) Ltd.	
Estimated Profit (₹ in lakhs)	11,400
No. of equity share (in lakhs)	3,000
Estimated EPS (₹)	3.8
Estimated P/E	42
Estimated market price (₹)	159.6

- Book value per share

	Fortune Pharma Ltd.	Fortune India (FMCG) Ltd.
Net worth (₹ in lakhs)	21,000	24,000
No. of shares (in lakhs)	1,500	3,000
Book value of shares (₹)	14	8

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19. A Ltd. is considering the acquisition of B Ltd. with stock. Relevant financial information is given below:

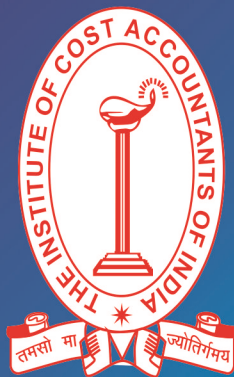
Particulars	A Ltd.	B Ltd.
Present earnings	₹ 7.5 lakhs	₹ 2.5 lakhs
Equity (No. of shares)	4.0 lakhs	2.0 lakhs
EPS	₹ 1.875	₹ 1.25
P/E ratio	10	5

Answer the following question:

- What is the market price of each company?
- What is the market capitalization of each company?
- If the P/E of A Ltd. changes to 7.5, what is the market price of A Ltd?
- Does market value of A Ltd. change?
- What would be the exchange ratio based on Market Price? (Take revised Price of A Ltd.)

Solution:

- $P/E = \text{Market Price} / \text{EPS}$. Therefore we have, $\text{Market price} = P/E \times \text{EPS}$
 A Ltd.'s Market Price = $10 \times 1.875 = ₹18.75$
 B Ltd.'s Market Price = $5 \times 1.25 = ₹ 6.25$
- Market Capitalization (same as market value or in short referred as market Cap)
 = Number of outstanding shares \times market Price
 A Ltd.'s Market cap = $4.0 \text{ lakhs} \times ₹18.75 = ₹75 \text{ Lakhs}$
 B Ltd.'s market cap = $2.0 \text{ lakhs} \times ₹6.25 = ₹12.5 \text{ Lakhs}$
- If the P/E of A Ltd. changes to 7.5, then the market price is given by
 = $7.5 \times ₹1.875 = ₹14.0625$
- Yes. The market value decreases. i.e. = A Ltd.'s market Value = $4.0 \text{ lakhs} \times ₹14.0625 = ₹56.25 \text{ Lakhs}$.
- General Formula for exchange ratio = $\text{MPS of Target Firm} / \text{MPS of acquiring Firm} = 6.25 / 14.0625 = 0.44$.



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