

ANALYTICAL PROCEDURES

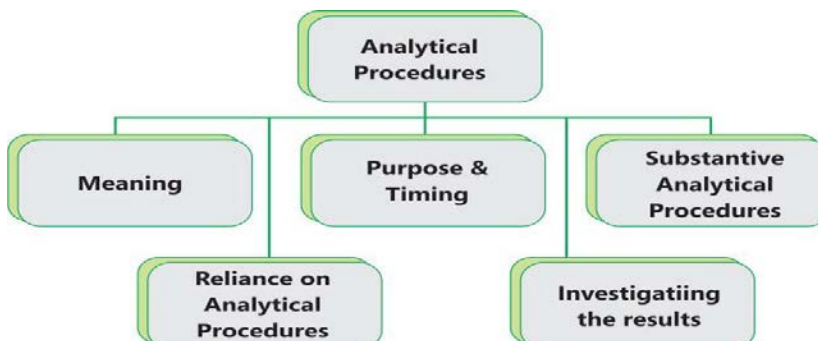


LEARNING OUTCOMES

After studying this chapter, you will be able to:

- ❑ Understand the meaning of analytical procedures as per Standards on Auditing.
- ❑ State the purposes and timing of analytical procedures.
- ❑ Deal with the auditor's use of analytical procedures as substantive procedures ("substantive analytical procedures").
- ❑ Identifying risk of material misstatement through preliminary Analytical review procedures.
- ❑ Properly designing, documenting and evaluating the results of substantive analytic review procedures.

CHAPTER OVERVIEW





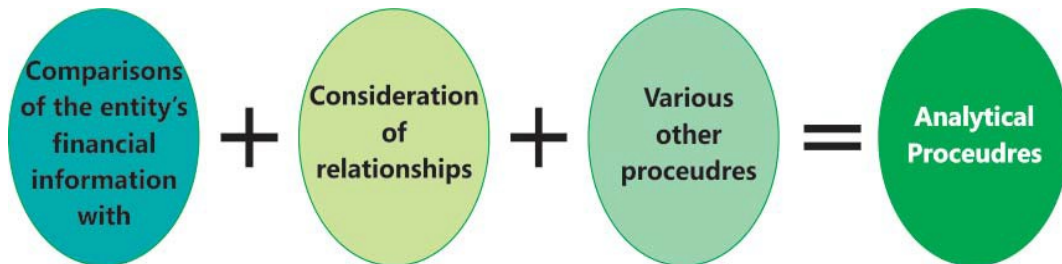
1. MEANING OF ANALYTICAL PROCEDURES

Since routine checks cannot be depended upon to disclose all the mistakes or manipulation that may exist in accounts, certain other procedures also have to be applied like trend and ratio analysis in addition to reasonable tests. These collectively are known as overall tests. With the passage of tests, analytical procedures have acquired lot of significance as substantive audit procedure. SA-520 on Analytical Procedures discusses the application of analytical procedures during an audit.



Meaning of Analytical Procedures. As per the Standard on Auditing (SA) 520 “Analytical Procedures”, the term “analytical procedures” means evaluations of financial information through analysis of plausible relationships among both financial and non-financial data. Analytical procedures also encompass such investigation as is necessary of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount.

Thus, analytical procedures include the consideration of comparisons of the entity’s financial information with as well as consideration of relationships.



Examples of Analytical Procedures having consideration of comparisons of the entity’s financial information with are:

- ◆ Comparable information for prior periods.
- ◆ Anticipated results of the entity, such as budgets or forecasts, or expectations of the auditor, such as an estimation of depreciation.
- ◆ Similar industry information, such as a comparison of the entity’s ratio of sales to accounts receivable with industry averages or with other entities of comparable size in the same industry.

Examples of Analytical Procedures having consideration of relationships are:

- ◆ Among elements of financial information that would be expected to conform to a predictable pattern based on the entity's experience, such as gross margin percentages.
- ◆ Between financial information and relevant non-financial information, such as payroll costs to number of employees.

ILLUSTRATION

Particulars	Client		Industry	
	2015-16	2016-17	2015-16	2016-17
Year	2015-16	2016-17	2015-16	2016-17
Inventory Turnover	2.8	2.9	3.1	2.8
Gross Margin	22.5%	22.7%	23.6%	22.2%

Various methods may be used to perform analytical procedures. These methods range from performing simple comparisons to performing complex analyses using advanced statistical techniques. Analytical procedures may be applied to consolidated financial statements, components and individual elements of information.

Thus, we can say that Analytical Procedures may be segregated into these major types as comparison of client and industry data, comparison of client data with similar prior period data, comparison of client data with client-determined expected results, comparison of client data with auditor-determined expected results and comparison of client data with expected results, using non financial data.



2. PURPOSE AND TIMING OF ANALYTICAL PROCEDURES

2.1 Purpose of Analytical Procedures

Analytical procedures use comparisons and relationships to assess whether account balances or other data appear reasonable.

Analytical procedures are used for the following purposes:

- (i) To obtain relevant and reliable audit evidence when using substantive analytical procedures; and
- (ii) To design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion as to whether the

financial statements are consistent with the auditor's understanding of the entity.

For instance, establishing the relationship that exists between certain balances included in the Balance Sheet and the Statement of Profit and Loss and comparing them with those that existed between the same set of balances in the previous year, reconciling the physical balances of assets with the relevant financial record; obtaining of account from the bankers, account receivables and account payables and reconciling with relevant balances in books of account; confirming amounts of outstanding income and expenses by preparing reconciliation statements, etc. These are helpful in the detection of unusual state of affairs and mistakes in accounts.

Example

In XYZ Ltd., after applying analytical procedures as comparison of the gross profit ratio with that of the previous year, it is discovered that there has been fall in the ratio. Therefore, it became necessary for the auditor to make further enquiries as it may be due to pilferage of inventories/ misappropriation of a part of the sale proceeds/ a change in the cost of sales without a corresponding increase in the sales price.

On verifying the balances of **sundry account receivables** by obtaining the confirmation of their statements of account, it will be possible for the auditor to find out whether the discrepancy in the balance of an account receivable is due to the failure to debit his account with the cost of goods supplied to him or is the result of non-adjustment of a remittance received from him.

Also whether in the case of **account payable**, the discrepancy is due to failure to afford him credit for one or more consignments of goods supplied by him or failure to debit him with an amount of remittance.

In case of **inventories of raw materials and stores** at the end of the year any excesses or shortages therein shall be detected. The investigation of their causes might disclose that the shortages were the result of a misappropriation of inventory or that the excess were due to requisitions having been entered before the inventories were issued.

By reconciling the **amounts of interest and dividends** collected with the amounts which had accrued due and that which are outstanding for payment, the mistake, if any, in the adjustment of such an income would be detected.

The overall tests can be extended for making **inter-firm and intra-firm comparison** of trading results.

Example

If balances included in the Statement of Profit and Loss of an entity are compared with those contained in the Statement of Profit and Loss for the same period of another entity engaged in the same trade and working under similar circumstances, it would be possible to find out the cause of the variation in the rate of profitability that exists.

Similarly, it would also be possible **to compare the balances** on the Statement of Profit and Loss with that of the previous period, it would be possible to find out the reasons for increase or decrease in the amount of profits of those years. By setting up certain expenses ratios on the basis of balances included in the Statement of Profit and Loss, for the year under audit, comparing them with the same ratios for the previous year, it is possible to ascertain the extent of increase or decrease in various items of expenditure in relation to sales and that of trading profit in relation to sales. If differences are found to be material, the auditor would ascertain the reasons thereof and assess whether the accounts have been manipulated to inflate or suppress profits.



An abnormal fall in the cost of manufacture or that in the **administrative cost**, apart from economy in expenses, there could be no provision or less provision for expenses incurred in the year. When it is suspected, the auditor should compare the entries in the outstanding book with those in the previous year. He must also check the vouchers for one month immediately before the close of the following years. To verify that none of the expenses in the accounts under audit have been charged to the accounts of the following years.

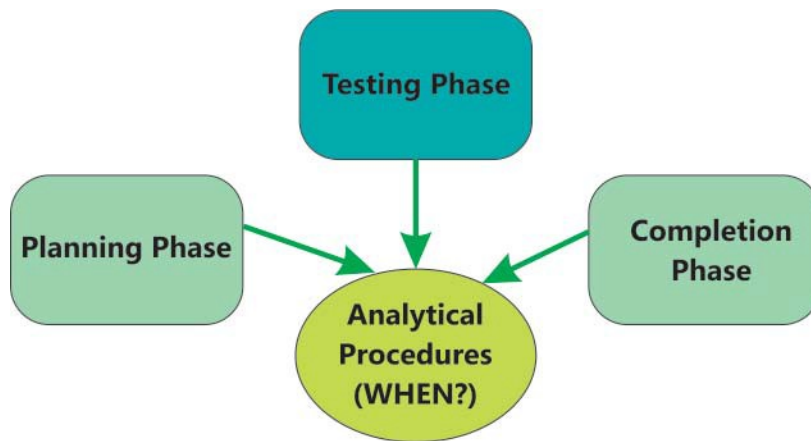
Often it is possible to independently verify the correctness of some of the items of expenses included in the Statement of Profit and Loss. **For instance**, the cost of importing goods which are subjected to an ad-valorem duty at uniform rate can be verified from the amount of duty paid. Similarly, a quantity of sugar sold by sugar mill can be verified independently from the amount of excise duty paid. Similarly, the amount of any income or expenses which has a direct relationship with the amount of profits or that of sales can be verified independently, *e.g.*, commission paid to a manager calculated on the basis of net profits, commission paid to a selling agent as percentage of sales, etc. Such calculation of ratios, trends and comparisons is also termed as analytical review.

Thus, it is important to note that Analytical procedures may help identify the existence of unusual transactions or events, and amounts, ratios, and trends that

might indicate matters that have audit implications. Unusual or unexpected relationships that are identified may assist the auditor in identifying risks of material misstatement, especially risks of material misstatement due to fraud.

2.2 Timing of Analytical Procedures

Analytical Procedures are required in the planning phase and it is often done during the testing phase. In addition these are also required during the completion phase.



2.3 Analytical Procedures in Planning the Audit

In the planning stage, analytical procedures assist the auditor in understanding the client's business and in identifying areas of potential risk by indicating aspects of and developments in the entity's business of which he was previously unaware. This information will assist the auditor in determining the nature, timing and extent of his other audit procedures. Analytical procedures in planning the audit use both financial data and non-financial information, such as number of employees, square feet of selling space, volume of goods produced and similar information.

3. SUBSTANTIVE ANALYTICAL PROCEDURES

The auditor's substantive procedures at the assertion level may be tests of details, substantive analytical procedures, or a combination of both. The decision about which audit procedures to perform, including whether to use substantive analytical procedures, is based on the auditor's judgment about the expected effectiveness and efficiency of the available audit procedures to reduce audit risk at the assertion level to an acceptably low level.

The auditor may inquire of management as to the availability and reliability of information needed to apply substantive analytical procedures, and the results of

any such analytical procedures performed by the entity. It may be effective to use analytical data prepared by management, provided the auditor is satisfied that such data is properly prepared.

3.1 Factors to be considered for Substantive Audit Procedures

The auditor should consider the following factors for Substantive Audit Procedures:

Availability of Data – The availability of reliable and relevant data will facilitate effective procedures.

Disaggregation – The degree of disaggregation in available data can directly affect the degree of its usefulness in detecting misstatements

Account Type – Substantive analytical procedures are more useful for certain types of accounts than for others. Income statement accounts tend to be more predictable because they reflect accumulated transactions over a period, whereas balance sheet accounts represent the net effect of transactions at a point in time or are subject to greater management judgment.

Example

We can analyze data to understand the relationship to another account and through this, disaggregate the transactions flowing to and from the balance sheet account (e.g., sales and cash receipts flowing through trade receivables), or to compare ratios over time as this enhances our ability to obtain audit evidence for balance sheet accounts.

Source – Some classes of transactions tend to be more predictable because they consist of numerous, similar transactions, (e.g., through routine processes). Whereas the transactions recorded by non-routine and estimation SCOTs are often subject to management judgment and therefore more difficult to predict.

Predictability – Substantive analytical procedures are more appropriate when an account balance or relationships between items of data are predictable (e.g., between sales and cost of sales or between trade receivables and cash receipts). A predictable relationship is one that may reasonably be expected to exist and continue over time.

Nature of Assertion – Substantive analytical procedures may be more effective in providing evidence for some assertions (e.g., completeness or valuation) than for others (e.g., rights and obligations). Predictive analytical procedures using data analytics can be used to address completeness, valuation/measurement and occurrence.

Inherent Risk or “What Can Go Wrong” – When we are designing audit procedures to address an inherent risk or “what can go wrong”, we consider the nature of the risk of material misstatement in order to determine if a substantive analytical procedure can be used to obtain audit evidence. When inherent risk is higher, we may design tests of details to address the higher inherent risk. When significant risks have been identified, audit evidence obtained solely from substantive analytical procedures is unlikely to be sufficient.

Example

When side agreements with respect to revenue recognition have been identified as a significant or fraud risk, it is unlikely that an analysis of sales compared to cash receipts or cost of sales would be appropriate to respond to that risk.

3.2 Techniques Available as Substantive Analytical Procedures

The design of a substantive analytical procedure is limited only by the availability of reliable data and the experience and creativity of the audit team. Substantive analytical procedures generally take one of the following forms:

Trend analysis – A commonly used technique is the comparison of current data with the prior period balance or with a trend in two or more prior period balances. We evaluate whether the current balance of an account moves in line with the trend established with previous balances for that account, or based on an understanding of factors that may cause the account to change.

Ratio analysis – Ratio analysis is useful for analysing asset and liability accounts as well as revenue and expense accounts. An individual balance sheet account is difficult to predict on its own, but its relationship to another account is often more predictable (e.g., the trade receivables balance related to sales). Ratios can also be compared over time or to the ratios of separate entities within the group, or with the ratios of other companies in the same industry.

Example

Financial ratios may include:

Trade receivables or inventory turnover

Freight expense as a percentage of sales revenue

Reasonableness tests – Unlike trend analysis, this analytical procedure does not rely on events of prior periods, but upon non-financial data for the audit period under consideration (e.g., occupancy rates to estimate rental income or interest rates to estimate interest income or expense). These tests are generally more

applicable to income statement accounts and certain accrual or prepayment accounts.

Structural modelling – A modelling tool constructs a statistical model from financial and/or non-financial data of prior accounting periods to predict current account balances (e.g., linear regression).

3.3 Analytical Procedures used as Substantive Tests

When designing and performing substantive analytical procedures, either alone or in combination with tests of details, as substantive procedures in accordance with SA 330, the auditor shall:

- (i) Determine the suitability of particular substantive analytical procedures for given assertions, taking account of the assessed risks of material misstatement and tests of details, if any, for these assertions;
- (ii) Evaluate the reliability of data from which the auditor's expectation of recorded amounts or ratios is developed, taking account of source, comparability, and nature and relevance of information available, and controls over preparation;
- (iii) Develop an expectation of recorded amounts or ratios and evaluate whether the expectation is sufficiently precise to identify a misstatement that, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated; and
- (iv) Determine the amount of any difference of recorded amounts from expected values that is acceptable without further investigation.

4. SUITABILITY OF PARTICULAR ANALYTICAL PROCEDURES FOR GIVEN ASSERTIONS

Substantive analytical procedures are generally more applicable to large volumes of transactions that tend to be predictable over time. The application of planned analytical procedures is based on the expectation that relationships among data exist and continue in the absence of known conditions to the contrary. However, the suitability of a particular analytical procedure will depend upon the auditor's assessment of how effective it will be in detecting a misstatement that, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated.

In some cases, even an unsophisticated predictive model may be effective as an

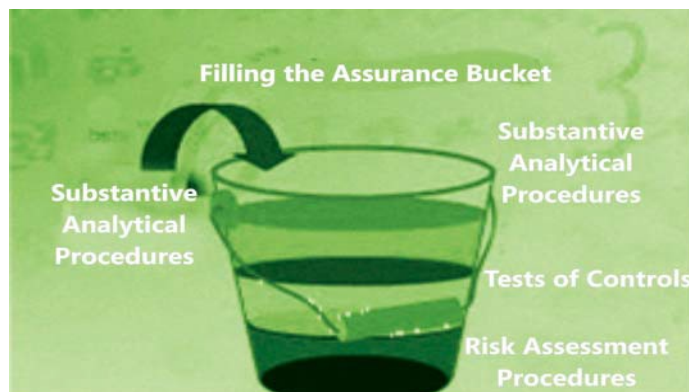
analytical procedure.

Example

If an entity has a known number of employees at fixed rates of pay throughout the period, it may be possible for the auditor to use this data to estimate the total payroll costs for the period with a high degree of accuracy, thereby providing audit evidence for a significant item in the financial statements and reducing the need to perform tests of details on the payroll. The use of widely recognized trade ratios (such as profit margins for different types of retail entities) can often be used effectively in substantive analytical procedures to provide evidence to support the reasonableness of recorded amounts.

Different types of analytical procedures provide different levels of assurance. Analytical procedures involving, for example, the prediction of total rental income on a building divided into apartments, taking the rental rates, the number of apartments and vacancy rates into consideration, can provide persuasive evidence and may eliminate the need for further verification by means of tests of details, provided the elements are appropriately verified. In contrast, calculation and comparison of gross margin percentages as a means of confirming a revenue figure may provide less persuasive evidence, but may provide useful corroboration if used in combination with other audit procedures.

The determination of the suitability of particular substantive analytical procedure is influenced by the nature of the assertion and the auditor's assessment of the risk of material misstatement. **For example, if controls over sales order processing are weak, the auditor may place more reliance on tests of details rather than on substantive analytical procedures for assertions related to receivables.**



Particular substantive analytical procedures may also be considered suitable when tests of details are performed on the same assertion. **For example, when obtaining audit evidence regarding the valuation assertion for accounts**

receivable balances, the auditor may apply analytical procedures to an aging of customers' accounts in addition to performing tests of details on subsequent cash receipts to determine the collectability of the receivables.

5. EXTENT OF RELIANCE ON ANALYTICAL PROCEDURES

The reliability of data is influenced by its source and nature and is dependent on the circumstances under which it is obtained. Accordingly, the following are relevant when determining whether data is reliable for purposes of designing substantive analytical procedures:

- (i) Source of the information available. **For example**, information may be more reliable when it is obtained from independent sources outside the entity;
- (ii) Comparability of the information available. **For example**, broad industry data may need to be supplemented to be comparable to that of an entity that produces and sells specialised products;
- (iii) Nature and relevance of the information available. **For example**, whether budgets have been established as results to be expected rather than as goals to be achieved; and
- (iv) Controls over the preparation of the information that are designed to ensure its completeness, accuracy and validity. **For example**, controls over the preparation, review and maintenance of budgets.

The auditor may consider testing the operating effectiveness of controls, if any, over the entity's preparation of information used by the auditor in performing substantive analytical procedures in response to assessed risks. When such controls are effective, the auditor generally has greater confidence in the reliability of the information and, therefore, in the results of analytical procedures. The operating effectiveness of controls over non-financial information may often be tested in conjunction with other tests of controls. For example, in establishing controls over the processing of sales invoices, an entity may include controls over the recording of unit sales. In these circumstances, the auditor may test the operating effectiveness of controls over the recording of unit sales in conjunction with tests of the operating effectiveness of controls over the processing of sales invoices. Alternatively, the auditor may consider whether the information was subjected to audit testing. SA 500 establishes requirements and provides guidance in determining the audit procedures to be performed on the information to be used for substantive analytical procedures.



6. RISK OF MATERIAL MISSTATEMENTS

Matters relevant to the auditor's evaluation of whether the expectation can be developed sufficiently precisely to identify a misstatement that, when aggregated with other misstatements, may cause the financial statements to be materially misstated, include:

(i) The accuracy with which the expected results of substantive analytical procedures can be predicted.

For example, the auditor may expect greater consistency in comparing gross profit margins from one period to another than in comparing discretionary expenses, such as research or advertising.

(ii) The degree to which information can be disaggregated.

For example, substantive analytical procedures may be more effective when applied to financial information on individual sections of an operation or to financial statements of components of a diversified entity, than when applied to the financial statements of the entity as a whole.

(iii) The availability of the information, both financial and non-financial.

For example, the auditor may consider whether financial information, such as budgets or forecasts, and non-financial information, such as the number of units produced or sold, is available to design substantive analytical procedures. If the information is available, the auditor may also consider the reliability of the information.



7. INVESTIGATING RESULTS OF ANALYTICAL PROCEDURES

If analytical procedures performed in accordance with SA 520 identify fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount, the auditor shall investigate such differences by:

(i) Inquiring of management and obtaining appropriate audit evidence relevant to management's responses: Audit evidence relevant to management's responses may be obtained by evaluating those responses taking into account the auditor's understanding of the entity and its environment, and with other audit evidence obtained during the course of the audit.

(ii) **Performing other audit procedures as necessary in the circumstances:**

The need to perform other audit procedures may arise when, for example, management is unable to provide an explanation, or the explanation, together with the audit evidence obtained relevant to management's response, is not considered adequate.

8. ANALYTICAL PROCEDURES THAT ASSIST WHEN FORMING AN OVERALL CONCLUSION

The conclusions drawn from the results of analytical procedures designed and performed in accordance with, are intended to corroborate conclusions formed during the audit of individual components or elements of the financial statements. This assists the auditor to draw reasonable conclusions on which to base the auditor's opinion. **Students may note that Analytical Procedures assisting for forming an overall conclusion will be discussed in details at Final level.**

9. CONSIDERATIONS SPECIFIC TO PUBLIC SECTOR ENTITIES

The relationships between individual financial statements items traditionally considered in the audit of business entities may not always be relevant in the audit of governments or other non-business public sector entities; for example, in many public sector entities there may be little direct relationship between revenue and expenditure. In addition, because expenditure on the acquisition of assets may not be capitalized, there may be no relationship between expenditures on, for example, inventories and fixed assets and the amount of those assets reported in the financial statements. Also, industry data or statistics for comparative purposes may not be available in the public sector. However, other relationships may be relevant, for example, variations in the cost per kilometer of road construction or the number of vehicles acquired compared with vehicles retired.

SUMMARY

As per "SA 520 Analytical Procedures", the term "analytical procedures" means evaluations of financial information through analysis of plausible relationships among both financial and non-financial data.

Analytical procedures use comparisons and relationships to assess whether account balances or other data appear reasonable. Analytical Procedures are required in the planning phase, testing phase and during the completion phase.

These Analytical procedures are used to obtain relevant and reliable audit evidence when using substantive analytical procedures; and to design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion as to whether the financial statements are consistent with the auditor's understanding of the entity.

The auditor's substantive procedures at the assertion level may be tests of details, substantive analytical procedures, or a combination of both.

The reliability of data is influenced by its source and nature and is dependent on the circumstances under which it is obtained.

Matters relevant to the auditor's evaluation of whether the expectation can be developed sufficiently precisely to identify a misstatement that, when aggregated with other misstatements, may cause the financial statements to be materially misstated.

If analytical procedures performed in accordance with SA 520 identify fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount, the auditor shall investigate such differences by inquiring with management or by performing audit procedures.

The conclusions drawn from the results of analytical procedures designed and performed are intended to corroborate conclusions formed during the audit of individual components or elements of the financial statements. This assists the auditor to draw reasonable conclusions on which to base the auditor's opinion.

TEST YOUR KNOWLEDGE

MCQs

- (i) What are analytical procedures?
 - (a) Substantive tests designed to assess control risk
 - (b) Substantive tests designed to evaluate the validity of management's representation letter
 - (c) Substantive tests designed to study relationships between financial and non-financial data
 - (d) All of the above
2. Which of the following is not an analytical procedure?
 - (a) Tracing of purchases recurred in the purchase book to purchase invoices.

- (b) ... Comparing aggregate wages paid to number of employees
 - (c) Comparing the actual costs with standard costs
 - (d) All of them are analytical procedures
3. Analytical procedures issued in the planning stage of an audit, generally:
- (a) help to determine the nature, timing and extent of other audit procedures
 - (b) direct attention to potential risk areas
 - (c) indicate important aspects of business
 - (d) All of the above
4. The basic assumption underlying the use of analytical procedures is:
- (a) It helps the auditor to study relationship among elements of financial information
 - (b) Relationship among data exist and continue in the absence of known condition to the contrary
 - (c) Analytical procedures will not be able to detect unusual relationships
 - (d) None of the above
5. What is the primary objective of analytical procedures used in the overall review stage of an audit?
- (a) To help to corroborate the conclusions drawn from individual components of financial statements
 - (b) To reduce specific detection risk
 - (c) To direct attention to potential risk areas
 - (d) To satisfy doubts when questions arise about a client's ability to continue

Correct/Incorrect

State with reasons (in short) whether the following statement is correct or incorrect:

1. As per the Standard on Auditing (SA) 520 "Analytical Procedures" 'the term "analytical procedures" means evaluations of financial information through analysis of plausible relationships among financial data only.

2. Auditor can depend on routine checks to disclose all the mistakes or manipulation that may exist in accounts.
3. Only purpose of analytical procedures is to obtain relevant and reliable audit evidence when using substantive analytical procedures.
4. Analytical Procedures are required in the planning phase only.
5. Substantive analytical procedures are generally less applicable to large volumes of transactions that tend to be predictable over time.

Theoretical Questions

1. Define Analytical Procedures.
2. What are the factors that determine the extent of reliance that the auditor places on results of analytical procedures? Explain with reference to SA-520 on "Analytical procedures".

ANSWERS/SOLUTIONS

Answers to MCQs

1. (c) 2. (a) 3. (d) 4. (b) 5. (a)

Answers to Correct/Incorrect

1. **Incorrect.** As per the Standard on Auditing (SA) 520 "Analytical Procedures" the term "analytical procedures" means evaluations of financial information through analysis of plausible relationships among both financial and non-financial data.
2. **Incorrect.** Routine checks cannot be depended upon to disclose all the mistakes or manipulation that may exist in accounts, certain other procedures also have to be applied like trend and ratio analysis in addition to reasonable tests.
3. **Incorrect.** Analytical procedures use comparisons and relationships to assess whether account balances or other data appear reasonable. Analytical procedures are used for the following purposes:
 - (i) To obtain relevant and reliable audit evidence when using substantive analytical procedures; and
 - (ii) To design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion as to whether

... the financial statements are consistent with the auditor's understanding of the entity.

4. **Incorrect.** Analytical Procedures are required in the planning phase and it is often done during the testing phase. In addition these are also required during the completion phase.
5. **Incorrect.** Substantive analytical procedures are generally more applicable to large volumes of transactions that tend to be predictable over time.

Answers to Theoretical Questions

1. **Meaning of Analytical Procedures:** As per the Standard on Auditing (SA) 520 "Analytical Procedures" 'the term "analytical procedures" means evaluations of financial information through analysis of plausible relationships among both financial and non-financial data. Analytical procedures also encompass such investigation as is necessary of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount.
Thus, analytical procedures include the consideration of comparisons of the entity's financial information with as well as consideration of relationships.
2. **Extent of Reliance on Analytical Procedures (SA-520): Refer Para 5**