

PAPER – 2 : STRATEGIC FINANCIAL MANAGEMENT

Question No.1 is compulsory.

Candidates are also required to answer any **five** questions out of the remaining **six** questions.

Wherever necessary, suitable assumptions should be made and indicated in the answer by the candidate.

Working notes should form part of the respective answer.

Question 1

- (a) SS Company is considering the replacement of its existing machine with a new machine. The Purchase price of the New machine is ₹ 26 Lakhs and its expected Life is 8 years. The company follows straight-line method of depreciation on the original investment (scrap value is not considered for the purpose of depreciation). The other expenses to be incurred for the New Machine are as under:

- (i) Installation Charges ₹ 9,000
- (ii) Fees paid to the consultant for his advice to buy New Machine ₹ 6,000.
- (iii) Additional Working Capital required ₹ 17,000. (will be released after 8 years)

The written down value of the existing machine is ₹ 76,000, and its Cash Salvage Value is ₹ 12,500. The dismantling of this machine would cost ₹ 4,500. The Annual Earnings (before tax but after depreciation) from the New Machine would amount to ₹ 3,15,000. Income tax rate is 35%. The Company's required Rate of Return is 13%.

You are required to advise on the viability of the proposal.

$$PVIF (13\%, 8) = 0.376$$

$$PVIFA (13\%, 8) = 4.80$$

(5 Marks)

- (b) On April 1, 2019, Kasi has a portfolio consisting of four securities as shown below:

| Security | A | K | S | P |
|---------------|--------|----------|---------|----------|
| Market Price | ₹ 48.5 | ₹ 332.68 | ₹ 13.99 | ₹ 292.82 |
| No. of Shares | 673 | 480 | 721 | 358 |
| β Value | 0.74 | 1.28 | 0.54 | 0.46 |

Cost of Capital is 16% p.a. compounded continuously. Kasi fears a fall in prices of shares in future. Accordingly, he approaches you for the advice to protect the interest of his Portfolio.

You can make use of the following information:

- (i) The current NIFTY Value is 9380.
- (ii) NIFTY Futures can be traded in units of 25 only.

(iii) Futures for September are currently quoted at 9540 and Futures for October are being quoted at 9820.

You are required to calculate:

The Beta of his Portfolio.

Theoretical Value of Futures for contracts expiring in September & October.

Given ($e^{0.067} = 1.0693$, $e^{0.08} = 1.0833$, $e^{0.093} = 1.0975$)

3. The number of NIFTY Contract that he would have to sell, if he desires to hedge 150% of the Portfolio until October. **(5 Marks)**

(c) The following particulars relating to Vishnu Fund Schemes:

| Particulars | Value ₹ in Crores |
|--|-------------------|
| 1. Investment in Shares (at cost) | |
| a. Pharmaceuticals companies | 79 |
| b. Construction Industries | 31 |
| c. Service Sector Companies | 56 |
| d. IT Companies | 34 |
| E. Real Estate Companies | 10 |
| 2. Investment in Bonds (Fixed Income) | |
| a. Listed Bonds (8000, 14% Bonds of ₹ 15,000 each) | 12 |
| b. Unlisted Bonds | 7 |
| 3. No. of Units outstanding (crores) | 4.2 |
| 4. Expenses Payable | 3.5 |
| 5. Cash and Cash equivalents | 1.5 |
| 6. Market expectations on listed bonds | 8.842% |

Particulars relating to each sector are as follows:

| Sector | Index on Purchase date | Index on Valuation date |
|--------------------------|------------------------|-------------------------|
| Pharmaceutical companies | 260 | 465 |
| Construction Industries | 210 | 450 |
| Service Sector Companies | 275 | 480 |
| IT Companies | 240 | 495 |
| Real Estate Companies | 255 | 410 |

The fund has incurred the following expenses:

Consultancy and Management fees ₹ 480 Lakhs

Office Expenses ₹ 150 Lakhs

Advertisement Expenses ₹ 38 Lakhs

You are required to calculate the following:

- (i) Net Asset Value of the fund
 - (ii) Net Asset Value per unit
 - (iii) If the period of consideration is 2 years, and the fund has distributed ₹ 3 per unit per year as cash dividend, ascertain the Net return (Annualized).
 - (iv) Ascertain the Expenses ratio. **(5 Marks)**
- (d) DSE Ltd. is an export oriented business in Kolkata. DSE Ltd. invoices in customers currency. Its receipts of US \$ 3,00,000 is due on July 1st, 2019.

Market information as at April 1st 2019

| Exchange Rates | | Currency Futures | | Contract Size = ₹ 6,40,000/- |
|------------------|--------|------------------|--------|------------------------------|
| US \$/₹ | | US \$/₹ | | |
| Spot | 0.0154 | April | 0.0155 | |
| 1 Month Forward | 0.0150 | July | 0.0151 | |
| 3 Months Forward | 0.0147 | | | |

| Initial Margin | | Interest Rates in India |
|----------------|----------|-------------------------|
| April | ₹ 13,000 | 9% |
| July | ₹ 24,000 | 8.50% |

On July, the spot rate US \$/₹ is 0.0146 and currency future rate is 0.0147 Comment which of the following methods would be most advantageous for DSE Ltd.

- (i) Using forward contract.
- (ii) Using currency futures
- (iii) Not hedging currency risks.

It may be assumed that variation in margin would be settled on the maturity of the futures contract. **(5 Marks)**

Answer

(a) Working Notes:

1. **Computation of Annual Depreciation-**

| Particulars | ₹ |
|----------------|-----------|
| Purchase Price | 26,00,000 |

| | |
|---|-----------|
| Add:1. Installation Charges | 9,000 |
| 2. Fees Paid to Consultant for Advice | 6,000 |
| Total Cost of New Machine | 26,15,000 |
| Useful Life | 8 Years |
| Annual Depreciation (Total Cost/No. of Years) | 3,26,875 |

2. **Computation of Annual Cash Savings-**

| Particulars | ₹ |
|---------------------------------|----------|
| Annual Earnings | 3,15,000 |
| Less-Tax @35% | 1,10,250 |
| Earning after Tax | 2,04,750 |
| Add-Depreciation on New Machine | 3,26,875 |
| Annual Cash Savings | 5,31,625 |

3. **Tax effect on sale of Old Machine-**

| Particulars | ₹ |
|--|--------|
| Proceeds of Sale | 12,500 |
| Less: Cost of Removal | 4,500 |
| Net Proceeds | 8,000 |
| Less: WDV | 76,000 |
| Net Loss due to Sale | 68,000 |
| Tax savings due to Loss on Sale @35% | 23,800 |
| Total Cash Inflow due to Sale (₹ 8,000+₹ 23,800) | 31,800 |

4. **Computation of Net Present Value**

| Particulars | Period | Cash Flow (₹) | PVF @13% | PV (₹) |
|---|--------|---------------|----------|-----------|
| (a) Annual Cash inflow after Tax | 1-8 | 5,31,625 | 4.8 | 25,51,800 |
| (b) Net Salvage Value of Existing Machine | 0 | 31,800 | 1.0 | 31,800 |
| (c) Working Capital Realized | 8 | 17,000 | 0.376 | 6,392 |
| Present Value of Cash Inflows | | | | 25,89,992 |
| Less: 1. Initial Investment | 0 | 26,15,000 | 1.0 | 26,15,000 |
| 2. Initial Working Capital | 0 | 17,000 | 1.0 | 17,000 |
| NPV of the Proposal | | | | (42,008) |

Decision: Since NPV of the project is negative it is not viable.

(b) (1) Beta of the Portfolio

| Security | Market Price | No. of Shares | Value | β | Value x β |
|----------|--------------|---------------|-------------|---------|-----------------|
| A | 48.50 | 673 | 32,640.50 | 0.74 | 24,153.97 |
| K | 332.68 | 480 | 1,59,686.40 | 1.28 | 2,04,398.59 |
| S | 13.99 | 721 | 10,086.79 | 0.54 | 5,446.87 |
| P | 292.82 | 358 | 1,04,829.56 | 0.46 | 48,221.60 |
| | | | 3,07,243.25 | | 2,82,221.03 |

$$\text{Portfolio Beta} = \frac{\text{Rs. } 2,82,221.03}{\text{Rs. } 3,07,243.25} = 0.9186 \text{ say } 0.92$$

(2) Theoretical Value of Future Contract Expiring in September and October

$$F = Se^{rt}$$

$$F_{\text{Sep}} = 9380 \times e^{0.16 \times (6/12)} = 9380 \times e^{0.08}$$

According to the price of the September Contract

$$9380 \times 1.0833 = ₹ 10,161.35$$

Price of the October Contract

$$F_{\text{Oct}} = 9380 \times e^{0.16 \times (7/12)} = 9380 \times e^{0.093}$$

$$= 9380 \times 1.0975 = ₹ 10,294.55$$

(3) No. of Nifty Contract to be sold to hedge 150% of Portfolio

Value of Portfolio = ₹ 3,07,243.25

150% of Portfolio = ₹ 3,07,243.25 x 1.50 = ₹ 4,60,864.88

$$\text{No. of Contracts to Hedge} = \frac{₹ 4,60,864.88}{9820 \times 25} \times 0.92 = 1.73 \text{ contracts say } 2 \text{ contracts}$$

(c) (i) Calculation of NAV of the Fund

| | | | Crore ₹ |
|----|-----------------------------|-----------------------------|---------|
| 1. | Value of Shares | | |
| | a. Pharmaceutical Companies | $79 \times \frac{465}{260}$ | 141.288 |
| | b. Construction Companies | $31 \times \frac{450}{210}$ | 66.429 |

| | | | |
|----|-----------------------------|------------------------------|---------|
| | c. Service Sector Companies | $56 \times \frac{480}{275}$ | 97.745 |
| | d. IT Companies | $34 \times \frac{495}{240}$ | 70.125 |
| | e. Pharmaceutical Companies | $10 \times \frac{410}{255}$ | 16.078 |
| 2. | Investment in Bonds | | |
| | a. Listed Bonds | $\frac{14}{8.842} \times 12$ | 19.00 |
| | b. Unlisted Bonds | | 7.000 |
| 3. | Cash and Cash Equivalents | | 1.50 |
| | | | 419.165 |
| | Less: Expense Payable | | 3.500 |
| | NAV of the Fund | | 415.665 |

(ii) NAV of the Fund Per Unit

| | |
|--|-----------------|
| NAV of the Fund | ₹ 415.665 crore |
| Number of Units | 4.20 crore |
| NAV Per Unit (₹ 415.665 crore/ 4.20 crore) | ₹ 98.97 |

(iii) Net Return

| | | |
|------------------------------|--|-------------|
| Initial Cost Per Unit | | |
| Investment in Shares | ₹ 210 crore | |
| Bonds | ₹ 19 crore | ₹ 229 crore |
| Number of Units | | 4.20 crore |
| Cost Per Unit | | ₹ 54.52 |
| <i>Return</i> | | |
| Capital Gain | (₹ 98.97 – ₹ 54.52) | ₹ 44.45 |
| Dividend | ₹ 3 x 2 | ₹ 6.00 |
| | | ₹ 50.45 |
| Annualised Return | $\frac{50.45}{54.52} \times \frac{1}{2}$ | 46.27% |

(d)

| | |
|--|----------------------|
| (i) Receipts using a forward contract (3,00,000/0.0147) | = ₹ 2,04,08,163 |
| (ii) Receipts using currency futures | |
| The number of contracts needed is (3,00,000/0.0151)/6,40,000 = 31.04 say 31 | |
| Initial margin payable is 31 x ₹ 24,000 = ₹ 7,44,000 | |
| On July 1 Close at 0.0147 | |
| Receipts = US\$3,00,000/0.0146 | = ₹ 2,05,47,945 |
| Variation Margin = [(0.0151 – 0.0147) x 31 x 640000/-]/0.0146 | |
| OR (0.0004x31x 640000)/0.0146 = 7936/0.0146 | <u>5,43,562</u> |
| | 2,10,91,507 |
| Less: Interest Cost – 7,44,000 x 0.085 x 3/12 | <u>15,810</u> |
| Net Receipts | <u>₹ 2,10,75,697</u> |
| iii) No hedge | |
| US\$ 3,00,000/0.0146 | ₹ 2,05,47,945 |

The most advantageous option would have been to hedge with futures.

Question 2

- (a) Equity of KGF Ltd. (KGFL) is ₹ 410 Crores, its debt, is worth ₹ 170 Crores. Printer Division segments value is attributable to 74%, which has an Asset Beta (β_p) of 1.45, balance value is applied on Spares and Consumables Division, which has an Asset Beta (β_{sc}) of 1.20 KGFL Debt beta (β_D) is 0.24.

You are required to calculate:

- (i) Equity Beta (β_E),
 - (ii) Ascertain Equity Beta (β_E), if KGF Ltd. decides to change its Debt Equity position by raising further debt and buying back of equity to have its Debt Equity Ratio at 1.90. Assume that the present Debt Beta (β_{D1}) is 0.35 and any further funds raised by way of Debt will have a Beta (β_{D2}) of 0.40.
 - (iii) Whether the new Equity Beta (β_E) justifies increase in the value of equity on account of leverage? **(8 Marks)**
- (b) The closing price of LX Ltd. is ₹ 24 per share as on 31st March, 2019 on NSE Ltd. The Price Earnings Ratio was 6. It was found that an amount of ₹ 24 Lakhs as income and an extra ordinary loss of ₹ 9 lakhs were included in the books of accounts. The existing

operations except for the extraordinary items are expected to continue in future. Further the company has launched a new product during the year with the following expectations:

| | (₹ in Lakhs) |
|---------------|--------------|
| Sales | 150 |
| Material Cost | 40 |
| Labour Cost | 34 |
| Fixed Cost | 24 |

The company has 500,000 equity shares of ₹ 10 each and 100,000 9% Preference Shares of ₹ 100 each. The Price Earnings Ratio is 6 times. Post tax cost of capital is 10 per cent per annum. Tax rate is 34 per cent.

You are required to determine:

- (i) Existing Profit from old operations
- (ii) The value of business

(8 Marks)

Answer

(a) (i) Equity Beta

To calculate Equity Beta first we shall calculate Weighted Average of Asset Beta as follows:

$$= 1.45 \times 0.74 + 1.20 \times 0.26$$

$$= 1.073 + 0.312 = 1.385$$

Now we shall compute Equity Beta using the following formula:

$$\beta_{\text{Asset}} = \beta_{\text{Equity}} \left[\frac{E}{E + D(1 - t)} \right] + \beta_{\text{Debt}} \left[\frac{D(1 - t)}{E + D(1 - t)} \right]$$

Accordingly,

$$1.385 = \beta_{\text{Equity}} \left[\frac{410}{410 + 170} \right] + \beta_{\text{Debt}} \left[\frac{170}{410 + 170} \right]$$

$$1.385 = \beta_{\text{Equity}} \left[\frac{410}{580} \right] + 0.24 \left[\frac{170}{580} \right]$$

$$\beta_{\text{Equity}} = 1.86$$

(ii) Equity Beta on change in Capital Structure

Amount of Debt to be raised:

| Particulars | Value |
|--|-------------|
| Total Value of Firm (Equity ₹ 410 cr + Debt ₹ 170 cr) | ₹ 580 Cr |
| Desired Debt Equity Ratio | 1.90 : 1.00 |
| Desired Debt Level = $\frac{\text{Total Value} \times \text{Debt Ratio}}{\text{Debt Ratio} + \text{Equity Ratio}}$ | ₹ 380 Cr |
| Less: Value of Existing Debt | (₹ 170 Cr) |
| Value of Debt to be Raised | ₹ 210 Cr |

$$\begin{aligned} \text{Equity after Repurchase} &= \text{Total value of Firm} - \text{Desired Debt Value} \\ &= ₹ 580 \text{ Cr} - ₹ 380 \text{ Cr} \\ &= ₹ 200 \text{ Cr} \end{aligned}$$

Weighted Average Beta of KGFL:

| Source of Finance | Investment (₹ Cr) | Weight | Beta of the Division | Weighted Beta |
|-------------------|-------------------|------------------------------|----------------------|-------------------------|
| Equity | 200 | 0.345 | $\beta_{(E=X)}$ | 0.345x |
| Debt – 1 | 170 | 0.293 | 0.35 | 0.103 |
| Debt – 2 | 210 | 0.362 | 0.40 | 0.145 |
| | 580 | Weighted Average Beta | | 0.248 + (0.345x) |

$$\begin{aligned} \beta_{\text{KGFL}} &= 0.248 + 0.345x \\ 1.385 &= 0.248 + 0.345x \\ 0.345x &= 1.385 - 0.248 \\ X &= 1.137/0.345 = 3.296 \\ \beta_{\text{KGFL}} &= 3.296 \end{aligned}$$

(iii) Yes, it justifies the increase as it leads to increase in the Value of Equity due to increase in Beta.

(b)

| | |
|------------------------|----------|
| Price Earnings Ratio | 6 |
| Market Price Per Share | 24 |
| EPS | 4 |
| Number of Shares | 5,00,000 |

| | | |
|---|----------------------------|-----------------------------------|
| Profit After Pref. Dividend | | ₹ 20,00,000 |
| Pref. Dividend | | ₹ 9,00,000 |
| Profit After Tax | | ₹ 29,00,000 |
| Profit before tax | $\frac{29,00,000}{1-0.34}$ | ₹ 43,93,939 |
| Less: Extraordinary income | | ₹ 24,00,000 |
| Add: Extraordinary losses | | ₹ 9,00,000 |
| Existing Profit from Old Operations | | ₹ 28,93,939 |
| <i>Profit from new product</i> | (₹ Lakhs) | |
| Sales | 150 | |
| Less: Material costs | 40 | |
| Labour costs | 34 | |
| Fixed costs | <u>24</u> | (98) |
| | | ₹ 52,00,000 |
| | | ₹ 80,93,939 |
| Less: Taxes @ 34% | | ₹ 27,51,939 |
| Future Maintainable Profit after taxes | | ₹ 53,42,000 |
| Relevant Capitalisation Factor | | 0.10 |
| Value of Business (₹ 53,42,000/0.10) | | ₹ 5,34,20,000 or ₹ 5.342 crore |

Question 3

- (a) *IM is an American firm having its subsidiary in Japan and JI is a Japanese firm having its subsidiary in USA: They face the following interest rates*

| | IM | JI |
|-------------------|------------|------------|
| USD Floating rate | LIBOR+0.5% | LIBOR+2.5% |
| JPY Fixed rate | 4% | 4.25% |

IM wishes to borrow USD at floating rate and JI JY at fixed rate. The amount required by both the companies is same at the current Exchange Rate. A financial institution requires 75 basis points as commission for arranging Swap. The companies agree to share the benefit/ loss equally.

You are required to find out

- (i) *Whether a beneficial swap can be arranged ?*
(ii) *What rate of interest for both IM and JI ?*

(8 Marks)

- (b) An investor is considering purchasing the equity shares of LX Ltd., whose current market price (CMP) is 150. The company is proposing a dividend of ₹ 6 for the next year. LX is expected to grow @ 18 per cent per annum for the next four years. The growth will decline linearly to 14 per cent per annum after first four years. Thereafter, it will stabilize at 14 per cent per annum infinitely. The required rate of return is 18 per cent per annum.

You are required to determine:

- (i) The intrinsic value of one share
 (ii) Whether it is worth to purchase the share at this price

| <i>t</i> | 1 | 2 | 3 | 4 | 5* | 6* | 7* | 8* |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| PVIF (18, <i>t</i>) | 0.847 | 0.718 | 0.609 | 0.516 | 0.437 | 0.370 | 0.314 | 0.266 |

(8 Marks)

* Wrongly got printed as 4, 5, 6 and 7 respectively.

Answer

- (a) (i) IM has overall strong position and hence is in a comparative advantageous position in both rates. However, it has a comparative advantage in floating-rate market.

The differential between the U.S. dollar floating rates is 2.00% per annum, and the differential between the JPY fixed rates is 0.25% per annum. The difference between the differentials is 1.75% per annum. The total potential gain to all parties from the swap is therefore 1.75% per annum, or 175 basis points. If the financial intermediary requires 75 basis points, each of IM and JI can be made 50 basis points better off.

- (ii) Since the Net Benefit of 100 Basis Points to be shared equally among IM and JI interest rate for them shall be as follows:

IM

| | |
|-------------------------|--------------|
| Borrowing from Market | LIBOR + 0.5% |
| Less: Benefit from Swap | 0.5% |
| Net Interest | LIBOR |

JI

| | |
|-------------------------|-------|
| Borrowing from Market | 4.25% |
| Less: Benefit from Swap | 0.5% |
| Net Interest | 3.75% |

- (b) $D_1 = ₹ 6$
 $D_2 = ₹ 6 (1.18) = ₹ 7.08$
 $D_3 = ₹ 6 (1.18)^2 = ₹ 8.35$

$$D_4 = ₹ 6 (1.18)^3 = ₹ 9.86$$

$$D_5 = ₹ 9.86 (1.17) = ₹ 11.54$$

$$D_6 = ₹ 9.86 (1.17)(1.16) = ₹ 13.38$$

$$D_7 = ₹ 9.86 (1.17)(1.16)(1.15) = ₹ 15.39$$

$$D_8 = ₹ 9.86 (1.17)(1.16)(1.15)(1.14) = ₹ 17.54$$

$$P = \frac{D_1}{(1+k_e)} + \frac{D_2}{(1+k_e)^2} + \frac{D_3}{(1+k_e)^3} + \frac{D_4}{(1+k_e)^4} + \frac{D_5}{(1+k_e)^5} + \frac{D_6}{(1+k_e)^6} + \frac{D_7}{(1+k_e)^7} + \frac{TV}{(1+k_e)^7}$$

$$TV = \frac{D_8}{k_e - g} = \frac{17.54}{0.18 - 0.14} = ₹ 438.50$$

$$P = \frac{6.00}{(1+0.18)} + \frac{7.08}{(1+0.18)^2} + \frac{8.35}{(1+0.18)^3} + \frac{9.86}{(1+0.18)^4} + \frac{11.54}{(1+0.18)^5} + \frac{13.38}{(1+0.18)^6} + \frac{15.39}{(1+0.18)^7} + \frac{438.50}{(1+0.18)^7}$$

$$= 6.00 \times 0.847 + 7.08 \times 0.718 + 8.35 \times 0.609 + 9.86 \times 0.516 + 11.54 \times 0.437 + 13.38 \times 0.370 + 15.39 \times 0.314 + 438.50 \times 0.314$$

$$= ₹ 172.85$$

Since the Intrinsic Value of share is ₹ 172.85 while it is selling at ₹ 150 hence it is under-priced and better to acquire it.

Question 4

- (a) KGF Bank's Sydney branch has surplus funds of USD \$ 7,00,000 for a period of 2 months. Cost of funds to the bank is 6% p.a. They propose to invest these funds in Sydney, New York or Tokyo and obtain the best yield, without any exchange risk to the bank. The Following rates of interest are available at the three centres for investment of domestic funds there for a period of 2 Months.

| | |
|----------|-----------|
| Sydney | 7.5% p.a. |
| New York | 8% p.a. |
| Tokyo | 4% p.a. |

The market rates in Australia for US Dollars and Yen are as under:

Sydney on New York:

| | |
|----------|---------------|
| Spot | 0.7100/0.7300 |
| 1 Months | 10/20 |
| 2 Months | 25/30 |

Sydney on Tokyo:

| | |
|----------|-----------------|
| Spot | 79.0900/79.2000 |
| 1 Months | 40/30 |
| 2 Months | 55/50 |

At which centre, will the investment be made & what will be the net gain to the bank on the invested funds? **(8 Marks)**

(b) M/s Shanti Lal Ltd. is in the business of manufacturing products. Company decided to install a Machine under considering buying (or) leasing option. The machine is subjected to Straight-Line method of depreciation. M/s Shanti Lal Ltd. can raise a debt at 16% payable in 4 Equal Annual Installments of ₹ 1,68,589 each, at the beginning of the year. In case of leasing, the Company would require to pay an annual Rent at the end of the year @ 30% of Cost of Machine for 4 years. The company is in 45% Tax bracket. The salvage value is estimated at ₹ 12,412 at the end of the 4 years.

Advise which of the Financing options Shanti Lal Ltd. should exercise and why ?

| <i>n</i> | 1 | 2 | 3 | 4 |
|-----------------------|-------|-------|-------|-------|
| PVIF (8.8, <i>n</i>) | 0.919 | 0.845 | 0.776 | 0.714 |
| PVIF (16, <i>n</i>) | 0.862 | 0.743 | 0.640 | 0.552 |

(8 Marks)

Answer

(a) (i) **If investment is made at Sydney**

| | |
|---|---------------------|
| Convert US\$ 7,00,000 at Spot Rate (7,00,000/0.7300) | = A\$ 9,58,904 |
| Add: A\$ Interest for 2 months on A\$ 9,58,904 @ 7.5% | = <u>A\$ 11,986</u> |
| | = A\$ 9,70,890 |

| | |
|--------------------------|----------------------|
| Less: Amount Invested | \$ 7,00,000 |
| Interest accrued thereon | <u>\$ 7,000</u> |
| | = <u>\$ 7,07,000</u> |

Equivalent amount of £ required to pay the above sum ($\$ 7,07,000/0.7125^*$) = A\$ 9,92,281

Arbitrage Loss = A\$ 21,391

Or Equivalent Amount in US\$(21391×0.7125) = \$ 15,241

(ii) **If investment is made at New York**

| | |
|---|---------------|
| Gain \$ 7,00,000 (8% - 6%) x 2/12 | = \$ 2,333.33 |
| Or Equivalent amount in £ 3 months ($\$ 2,333/ 0.7330$) | = A\$ 3,183 |

(iii) If investment is made at Tokyo

| | |
|---|------------------------|
| Convert US\$ 700,000 at Spot Rate (Cross Rate) 79.0900/0.7300 | = ¥ 108.34 |
| Yen equivalent US\$ 700,000 | = ¥ 7,58,38,000 |
| Add: Interest for 2 months @ 4% | = ¥ 5,05,587 |
| | <u>= ¥ 7,63,43,587</u> |

| | |
|---|----------------|
| 3 month Forward Rate of selling ¥ (1/79.1950) | = A\$ 0.0126 |
| Sell ¥ in Forward Market ¥ 7,63,43,587 x A\$ 0.0126 | = A\$ 9,61,929 |
| Less: Amount invested and interest thereon | = A\$ 9,92,281 |
| Arbitrage Loss | = A\$ 30,352 |
| Or Equivalent Loss in \$(30352×0.7125) | = \$ 21,626 |

Out of three options the profit is in case of investment is made in New York. Hence it should be opted.

* Due to conservative outlook.

(b)**CALCULATION OF COST OF THE MACHINE**

| Beginning of Year | Cl. Balance at the beginning | Installment | Interest | Principal component |
|-------------------|------------------------------|-------------|----------|---------------------|
| 4 | 0 | 1,68,589 | 23,254 | 1,45,335 |
| 3 | 1,45,335 | 1,68,589 | 43,300 | 1,25,289 |
| 2 | 2,70,624 | 1,68,589 | 60,581 | 1,08,008 |
| 1 | 3,78,632 | 1,68,589 | 0 | 1,68,589 |
| | | Total | | 5,47,221 |

Cost of the machine is ₹ 5,47,221

Alternatively it can be computed as follows:

$$\text{Annual Payment} = \frac{\text{Cost of Machine}}{\text{PVAF}(16\%, 0 - 3)}$$

$$1,68,589 = \frac{\text{Cost of Machine}}{3.245}$$

Cost of Machine = ₹ 5,47,071

| Year | Total Payment | Interest | Principal component | Principal Outstanding |
|------|---------------|----------|---------------------|-----------------------|
| 0 | 1,68,589 | 0 | 1,68,589 | 3,78,482 |
| 1 | 1,68,589 | 60,557 | 1,08,032 | 2,70,450 |
| 2 | 1,68,589 | 43,272 | 1,25,317 | 1,45,133 |

| | | | | |
|-------|----------|---------|-----------------|----|
| 3 | 1,68,589 | 23,456* | <u>1,45,133</u> | -- |
| Total | | | <u>5,47,071</u> | |

* Balancing Figure

Buying Option

$$\text{Depreciation p.a.} = \frac{\text{₹}5,47,071 - \text{₹}12,412}{4} = \frac{\text{₹}5,34,659}{4}$$

$$\text{Depreciation p.a.} = \text{₹} 1,33,665$$

Tax Saving on interest & Depreciation

| Year | Interest (₹) | Dep. (₹) | Total (₹) | Tax Saving (₹) |
|------|--------------|----------|-----------|----------------|
| 1 | 60,557 | 1,33,665 | 1,94,222 | 87,400 |
| 2 | 43,272 | 1,33,665 | 1,76,937 | 79,622 |
| 3 | 23,456 | 1,33,665 | 1,57,121 | 70,704 |
| 4 | 0 | 1,33,665 | 1,33,665 | 60,149 |

P.V. of Outflow

| Year | Installment (₹) | Tax Saving (₹) | Net outflow (₹) | PV @8.4% | P.V. (₹) |
|------|-----------------|----------------|-----------------|----------|-----------------|
| 0 | 1,68,589 | 0 | 1,68,589 | 1.000 | 1,68,589 |
| 1 | 1,68,589 | 87,400 | 81,189 | 0.919 | 74,613 |
| 2 | 1,68,589 | 79,622 | 88,967 | 0.845 | 75,177 |
| 3 | 1,68,589 | 70,704 | 97,885 | 0.776 | 75,959 |
| 4 | -- | 60,149 | (60,149) | 0.714 | (42,946) |
| | Salvage Value | | (12,412) | 0.714 | <u>(8,862)</u> |
| | P.V. of Outflow | | | | <u>3,42,530</u> |

Leasing Option

Lease Rent 30% of ₹ 5,47,071 i.e. ₹ 1,64,121

Lease Rent payable at the end of the year

| Year | Lease Rental (₹) | Tax Saving (₹) | Net outflow (₹) | PV @ 8.4% | PV (₹) |
|------|------------------|----------------|-----------------|-----------|----------|
| 1-4 | 1,64,121 | 73,855 | 90,266 | 3.254 | 2,93,726 |

Decision – The company is advised to opt for leasing as the total PV of cash outflow is lower in this option.

Question 5

- (a) Ms. Preeti, a school teacher, after retirement has built up a portfolio of ₹ 1,20,000 which is as follow:

| Stock | No. of shares | Market price per share (₹) | Beta |
|----------|---------------|----------------------------|------|
| ABC Ltd. | 1000 | 50 | 0.9 |
| DEF Ltd. | 500 | 20 | 1.0 |
| GHI Ltd. | 800 | 25 | 1.5 |
| JKL Ltd. | 200 | 200 | 1.2 |

Her portfolio consultant Sri Vijay has advised her to bring down the, beta to 0.8. You are required to compute:

- (i) Present portfolio beta
(ii) How much risk free investment should be bought in, to reduce the beta to 0.8 ?

(8 Marks)

- (b) R Ltd. and S Ltd. operating in same industry are not experiencing any rapid growth but providing a steady stream of earnings. R Ltd.'s management is interested in acquisition of S. Ltd. due to its excess plant capacity. Share of S Ltd. is trading in market at ₹ 3.20 each. Other data relating to S Ltd. is as follows:

Balance Sheet of S Ltd.

| Liabilities | Amount (₹) | Assets | Amount (₹) |
|--|--------------------|-----------------------------|--------------------|
| Current Liabilities | 1,59,80,000 | Current Assets | 2,48,75,000 |
| Long Term Liabilities | 1,28,00,000 | Other Assets | 94,00,000 |
| Reserve & Surplus | 2,79,95,000 | Property Plants & Equipment | 3,45,00,000 |
| Share Capital (80 Lakhs shares of ₹ 1.5 each) | 1,20,00,000 | | |
| Total | 6,87,75,000 | Total | 6,87,75,000 |

| Particulars | R Ltd. (₹) | S Ltd. (₹) | Combined Entity (₹) |
|----------------------------------|------------|------------|---------------------|
| Profit after Tax | 86,50,000 | 49,72,000 | 1,21,85,000 |
| Residual Net Cash Flows per year | 90,10,000 | 54,87,000 | 1,85,00,000 |
| Required return on equity | 13.75% | 13.05% | 12.5% |

You are required to compute the following:

- (i) Minimum price per share S Ltd. should accept from R Ltd.

- (ii) Maximum price per share R Ltd. shall be willing to offer to S Ltd.
- (iii) Floor Value of per share of S Ltd., whether it shall play any role in decision for its acquisition by R Ltd. **(8 Marks)**

Answer

(a)

| Security | No. of shares (1) | Market Price of Per Share (2) | (1) × (2) | % to total (w) | β (x) | wx |
|----------|-------------------|-------------------------------|---------------|----------------|-------|--------------|
| ABC | 1000 | 50 | 50000 | 0.4167 | 0.9 | 0.375 |
| DEF | 500 | 20 | 10000 | 0.0833 | 1 | 0.083 |
| GHI | 800 | 25 | 20000 | 0.1667 | 1.5 | 0.250 |
| JKL | 200 | 200 | <u>40000</u> | 0.3333 | 1.2 | <u>0.400</u> |
| | | | <u>120000</u> | 1 | | <u>1.108</u> |

- (i) Portfolio beta 1.108
 - (ii) Required Beta 0.8
- It should become $(0.8 / 1.108)$ 72.2 % of present portfolio
- If ₹ 1,20,000 is 72.20%, the total portfolio should be
- ₹ 1,20,000 × 100/72.20 or ₹ 1,66,205
- Additional investment in zero risk should be (₹ 1,66,205 – ₹ 1,20,000) = ₹ 46,205

Revised Portfolio will be

| Security | No. of shares (1) | Market Price of Per Share (2) | (1) × (2) | % to total (w) | β (x) | wx |
|-----------------|-------------------|-------------------------------|-----------|----------------|-------|-------|
| ABC | 1000 | 50 | 50000 | 0.3008 | 0.9 | 0.271 |
| DEF | 500 | 20 | 10000 | 0.0602 | 1 | 0.060 |
| GHI | 800 | 25 | 20000 | 0.1203 | 1.5 | 0.180 |
| JKL | 200 | 200 | 40000 | 0.2407 | 1.2 | 0.289 |
| Risk free asset | -- | -- | 46205 | 0.2780 | 0 | 0 |
| | | | 166205 | 1 | | 0.800 |

(b) (i) Calculation of Minimum price per share S Ltd. should accept from R Ltd.

$$\text{Value of S Ltd.} = \frac{\text{Residual Cash Flow}}{K_e - g} = \frac{54,87,000}{0.1305 - 0} = ₹ 4,20,45,977$$

$$\text{Value per share of S Ltd.} = \frac{4,20,45,977}{80,00,000} = ₹ 5.26$$

$$\text{Book Value of per share of S Ltd.} = \frac{3,99,95,000}{80,00,000} = ₹ 4.99 \text{ or } ₹ 5$$

Therefore, the minimum price per share S Ltd. should accept from R Ltd. is ₹ 5 (current book value)

(ii) Calculation of Maximum price per share R Ltd. shall be willing to offer to S Ltd.

$$\text{Value of R Ltd.} = \frac{\text{Residual Cash Flow}}{\text{Ke-g}} = \frac{90,10,000}{0.1375-0} = ₹ 6,55,27,273$$

$$\text{Value of Combined entity} = \frac{1,85,00,000}{0.125-0} = ₹ 14,80,00,000$$

$$\begin{aligned} \text{Value of synergy} &= \text{Value of Combined entity} - \text{Individual values of R Ltd. and S Ltd.} \\ &= ₹ 14,80,00,000 - (₹ 4,20,45,977 + ₹ 6,55,27,273) \\ &= ₹ 4,04,26,750 \end{aligned}$$

Maximum price per share R Ltd. shall be willing to offer to S Ltd. shall be computed as follows:

$$\begin{aligned} &= \frac{\text{Value of S Ltd. as per Residual cash flows} + \text{Synergy benefits}}{\text{No. of Shares}} \\ &= \frac{4,20,45,977 + 4,04,26,750}{80,00,000} = ₹ 10.31 \end{aligned}$$

(iii) Floor value of per share of S Ltd shall be ₹ 3.20 (current market price) and it shall not play any role in decision for the acquisition of S Ltd. as it is lower than its current book value.

Question 6

(a) XL Ltd., who is dealing in computer software, is having credit sales of ₹ 2,10,00,000 with average receivables of ₹ 35,00,000. Bad debts are 0.9% on sales. With an eye to save time on collection of receivables XL Ltd. is considering a proposal to appoint a Factor. The following information is available:

| Particulars | Recourse | Non-Recourse |
|---|----------|--------------|
| Average reduction in collection of receivables (Days) | 30 | 30 |

| | | |
|---------------------------------|---|--------|
| Reduction in Bad Debts by | 0.30% | 0.30% |
| Saving in Administration cost ₹ | 40,000 | 40,000 |
| Advance | 80% | 80% |
| Interest on advance | 2 % p.a. higher than current OD interest of 7% p.a. | |
| Factor fee | 0.60% | 1.25% |

Assume 360 days in a year.

You are required to evaluate the proposal.

(8 Marks)

- (b) A mutual fund has two schemes i.e. Dividend plan (Plan-A) and Bonus plan (Plan-B). The face value of the unit is ₹ 10. On 01/04/2016 Mr. Anand invested ₹ 5,00,000 each in Plan-A and Plan-B when the NAV was ₹ 46.00 and ₹ 43.50 respectively, Both the Plans matured on 31/03/2019.

Particulars of dividend and bonus declared over the period are as follows:

| Date | Dividend (%) | Bonus ratio | Net Assets Value (₹) | |
|------------|--------------|-------------|----------------------|----------|
| | | | Plan – A | Plan – B |
| 30-06-2016 | 15% | | 46.80 | 44.00 |
| 31-08-2016 | | 1:6 | 47.20 | 45.40 |
| 31-03-2017 | 10% | | 48.00 | 46.60 |
| 17-09-2017 | | 1:8 | 48.40 | 47.00 |
| 21-11-2017 | 14% | | 49.60 | 47.20 |
| 25-02-2018 | 15% | | 50.00 | 47.80 |
| 31-03-2018 | | 1:10 | 50.50 | 48.80 |
| 30-06-2018 | 12% | | 51.80 | 49.00 |
| 31-03-2019 | | | 52.40 | 50.00 |

You are required to calculate the Effective Yield Per annum in respect of the above two plans.

(8 Marks)

* Wrongly got printed as respective.

Answer

(a) Working Notes-

(₹ in Lakhs)

Reduction in Trade Receivable under Factoring Agreement

Current Trade Receivable 35.00

Revised Receivable (210 x 30/360) 17.50

17.50

(i) Calculation of Benefit with Recourse Factoring

| | |
|--|---------------|
| Finance cost saving = 17.50×0.07 | 1.2250 |
| Bad Debt Saving | 0.6300 |
| Administration Cost Saving | <u>0.4000</u> |
| Total Saving | 2.2550 |
| Less: Factoring Fee | 1.2600 |
| Additional Interest in Advance ($17.50 \times 0.80 \times 2\%$) | <u>0.2800</u> |
| | <u>0.7150</u> |

(ii) Calculation of Benefit with Non-Recourse Factoring

| | |
|--|---------------|
| Finance cost saving = 17.50×0.07 | 1.2250 |
| Bad Debt Saving | 1.8900 |
| Administration Cost Saving | <u>0.4000</u> |
| Total Saving | 3.5150 |
| Less: Factoring Fee | 2.6250 |
| Additional Interest in Advance ($17.50 \times 0.80 \times 2\%$) | <u>0.2800</u> |
| | <u>0.6100</u> |

Decision: It is viable to accept the Recourse Factoring proposal.

(b) Plan – A

Unit acquired = $5,00,000/46.00 = 10869.57$

| Date | Units held | Dividend | | Reinvestment Rate | New Units | Total Units |
|------------|---------------------------|----------|----------------------|----------------------|--------------|----------------------|
| | | % | Amount | | | |
| 01.04.2016 | -- | -- | -- | -- | -- | 10869.57 |
| 30.06.2016 | 10869.57 | 15 | 16304.36 | 46.80 | 348.38 | 11217.95 |
| 31.03.2017 | 11217.95 | 10 | 11217.95 | 48.00 | 233.71 | 11451.66 |
| 21.11.2017 | 11451.66 | 14 | 16032.32 | 49.60 | 323.23 | 11774.89 |
| 25.02.2018 | 11774.89 | 15 | 17662.34 | 50.00 | 353.25 | 12128.14 |
| 30.06.2018 | 12128.14 | 12 | 14553.77 | 51.80 | 280.96 | 12409.10 |
| 31.03.2019 | Maturity Value | | (₹ 52.40 X 12409.10) | | | ₹ 6,50,236.84 |
| | Less: Cost of Acquisition | | | | | <u>₹ 5,00,000.00</u> |
| | Total Gain | | | | | <u>₹ 1,50,236.84</u> |

∴ Effective Yield = (1,50,236.84 / 5,00,000) X (1/3) = 10.02%

Alternatively, it can be computed by using the IRR method as follows:

NPV at 8% = -5,00,000 + 5,16,179 = 16,179

NPV at 12% = -5,00,000 + 4,62,826 = -37,174

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} (\text{HR} - \text{LR}) = 8\% + \frac{16179}{53353} \times 4\% = 9.21\%$$

Plan – B

| Date | Particulars | Calculation Working | No. of Units | NAV (₹) |
|----------|------------------|----------------------|----------------|--------------------|
| 1.04.16 | Investment | ₹ 5,00,000/43.50 = | 11494.25 | 43.50 |
| 31.08.16 | Bonus | 11494.25/6 = | <u>1915.71</u> | 47.20 |
| | | | 13409.96 | |
| 17.09.17 | " | 13409.96/8 = | <u>1676.24</u> | 47.00 |
| | | | 15086.20 | |
| 31.03.18 | " | 15086.20/10 = | <u>1508.62</u> | 48.80 |
| | | | 16594.82 | |
| 31.03.19 | Maturity Value | 16594.82 x ₹ 50.00 = | | 8,29,741.00 |
| | Less: Investment | | | <u>5,00,000.00</u> |
| | Gain | | | <u>3,29,741.00</u> |

∴ Effective Yield = (3,29,741.00 / 5,00,000) X (1/3) = 21.98%

Alternatively, it can be computed by using the IRR method as follows:

NPV at 20% = -5,00,000 + 4,80,174 = - 19,825

NPV at 18% = -5,00,000 + 5,05,006 = 5,006

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} (\text{HR} - \text{LR})$$

$$= 18\% + \frac{5006}{5006+19825} \times 2\% = 18.40\%$$

Question 7

Write short notes on any **four** of the following:

- (a) Limitations of Credit Rating
- (b) Exposure Netting

- (c) Explain carve out, and its difference from spin off
- (d) Explain briefly Debt/Assets Securitisation, and its process.
- (e) What makes an organization sustainable? State the specific steps. **(4 x4 = 16 Marks)**

Answer

- (a) Credit rating is a very important indicator for prudence but it suffers from certain limitations. Some of the limitations are:
- (i) **Conflict of Interest** – The rating agency collects fees from the entity it rates leading to a conflict of interest. Since the rating market is very competitive, there is a distant possibility of such conflict entering into the rating system.
 - (ii) **Industry Specific rather than Company Specific** – Downgrades are linked to industry rather than company performance. Agencies give importance to macro aspects and not to micro ones; overreact to existing conditions which come from optimistic / pessimistic views arising out of up / down turns. At times, value judgments are not ruled out.
 - (iii) **Rating Changes** – Ratings given to instruments can change over a period of time. They have to be kept under constant watch. Downgrading of an instrument may not be timely enough to keep investors educated over such matters.
 - (iv) **Corporate Governance Issues** – Special attention is paid to:
 - (a) Rating agencies getting more of their revenues from a single service or group.
 - (b) Rating agencies enjoying a dominant market position. They may engage in aggressive competitive practices by refusing to rate a collateralized / securitized instrument or compel an issuer to pay for services rendered.
 - (c) Greater transparency in the rating process viz. in the disclosure of assumptions leading to a specific public rating.
 - (v) **Basis of Rating** – Ratings are based on 'point of time' concept rather than on 'period of time' concept and thus do not provide a dynamic assessment. Investors relying on the credit rating of a debt instrument may not be aware that the rating pertaining to that instrument might be out dated and obsolete.
 - (vi) **Cost Benefit Analysis** – Since rating is mandatory, it becomes essential for entities to get themselves rated without carrying out cost benefit analysis. Rating should be left optional and the corporate should be free to decide that in the event of self-rating, nothing has been left out.
- (b) Exposure Netting refers to offsetting exposures in one currency with Exposures in the same or another currency, where exchange rates are expected to move in such a way that losses or gains on the first exposed position should be offset by gains or losses on the second currency.

The objective of the exercise is to offset the likely loss in one exposure by likely gain in another. This is a manner of hedging foreign exchange exposure though different from forward and option contracts. This method is similar to portfolio approach in handling systematic risk.

Despite the difficulties in managing currency risk, corporate can now take some concrete steps towards implementing risk mitigating measures, which will reduce both actual and future exposures. For years now, banking transactions have been based on the principle of netting, where only the difference of the summed transactions between the parties is actually transferred. This is called settlement netting. Strictly speaking in banking terms, this is known as settlement risk. Exposure netting occurs where outstanding positions are netted against one another in the event of counter party default.

- (c) Equity Curve out can be defined as partial spin off in which a company creates its own new subsidiary and subsequently bring out its IPO. It should be however noted that parent company retains its control and only a part of new shares are issued to public.

On the other hand in Spin off parent company does not receive any cash as shares of subsidiary company are issued to existing shareholder in the form of dividend. Thus, shareholders in new company remain the same but not in case of Equity curve out.

- (d) Debt Securitisation is a method of recycling of funds. This method is mostly used by finance companies to raise funds against financial assets such as loan receivables, mortgage backed receivables, credit card balances, hire purchase debtors, lease receivables, trade debtors, etc. and thus beneficial to such financial intermediaries to support the lending volumes. Thus, assets generating steady cash flows are packaged together and against this assets pool market securities can be issued. Investors are usually cash-rich institutional investors like mutual funds and insurance companies.

The process can be classified in the following three functions:

1. **The origination function-** A borrower seeks a loan from finance company, bank, housing company or a financial institution. On the basis of credit worthiness repayment schedule is structured over the life of the loan.
2. **The pooling function-** Many similar loans or receivables are clubbed together to create an underlying pool of assets. This pool is transferred in favour of a SPV (Special Purpose Vehicle), which acts as a trustee for the investor. Once the assets are transferred they are held in the organizers portfolios.
3. **The securitisation function-** It is the SPV's job to structure and issue the securities on the basis of asset pool. The securities carry coupon and an expected maturity, which can be asset base on mortgage based. These are generally sold to investors through merchant bankers. The investors interested in this type of securities are generally institutional investors like mutual fund, insurance companies etc. The originator usually keeps the spread available (i.e. difference) between yield from secured asset and interest paid to investors.

Generally, the process of securitisation is without recourse is. the investor bears the credit risk of default and the issuer is under an obligation to pay to investors only if the cash flows are received by issuer from the collateral.

- (e) The concept of sustainable growth can be helpful for planning healthy corporate growth. This concept forces managers to consider the financial consequences of sales increases and to set sales growth goals that are consistent with the operating and financial policies of the firm. Often, a conflict can arise if growth objectives are not consistent with the value of the organization's sustainable growth. Question concerning right distribution of resources may take a difficult shape if we take into consideration the rightness not for the current stakeholders but for the future stakeholders also.

Sustainable growth is important to enterprise long-term development. Too fast or too slow growth will go against enterprise growth and development, so financial should play important role in enterprise development, adopt suitable financial policy initiative to make sure enterprise growth speed close to sustainable growth ratio and have sustainable healthy development.

Sustainable growth models assume that the business wants to:

- (1) maintain a target capital structure without issuing new equity;
- (2) maintain a target dividend payment ratio; and
- (3) increase sales as rapidly as market conditions allow.

Since the asset to beginning of period equity ratio is constant and the firm's only source of new equity is retained earnings, sales and assets cannot grow any faster than the retained earnings plus the additional debt that the retained earnings can support. The sustainable growth rate is consistent with the observed evidence that most corporations are reluctant to issue new equity. If, however, the firm is willing to issue additional equity, there is in principle no financial constraint on its growth rate.