

## PROFESSIONAL PROGRAMME EXAMINATION

JUNE 2009

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

Time allowed : 3 hours

Maximum marks : 100

- NOTE :** 1. Answer FIVE questions including Question No.1 which is compulsory. All working notes should be shown distinctly.
2. Tables showing the present value of Re.1 and the present value of an annuity of Re.1 for 15 years are annexed.

#### Question 1

Comment on **any four** of the following :

- (i) Failure of a firm is technical if it is unable to meet its current obligations.
  - (ii) In addition to transaction motive, more motives force corporate to hold inventory.
  - (iii) CAPM is a tool to workout cost of equity.
  - (iv) 'Counter party risk' is faced in forward transactions.
  - (v) The function of treasury management is concerned with both macro and micro facets of the economy.
- (5 marks each)

#### Answer 1(i)

Failure of a firm is technical if it is unable to meet its current obligations. The failure could be temporary and might be remediable. When liabilities exceed assets i.e. the net worth becomes negative, bankruptcy as commonly understood, arises. The technical bankruptcy can be ascertained by comparing current assets and current liabilities i.e. working out current or/and quick ratios. If the amount of current assets is not sufficient to meet the current liabilities, it is known as technical failure of firm. However, this type of failure is related to short term only and firm can recover from such situation in long-term.

#### Answer 1(ii)

A company may hold inventory with transaction motives in order to facilitate the smooth & uninterrupted production and sales operations. The other motives that force corporate to hold inventory are as follows:

- 1. *Precautionary motives* – To guard against the risk of unpredictable changes in demand and supply forces, short supply, lengthy processes involved in imports etc.
- 2. *Speculative motive* – To gain advantage in terms of quantity discounts connected with bulk purchases or anticipated price rises.

#### Answer 1(iii)

#### CAPM – Capital Asset Pricing Model

CAMP helps to work out required rate of return required by investors in the form of

equity investment. It establishes a linear relationship between the required rate of return of a security and its  $\beta$ .

$$R_i = R_f + (\beta_i)(R_m - R_f)$$

$\beta_i$  = Beta of Security

$R_f$  = Risk free rate of return

$R_m$  = Market rate of return

The  $R_i$  calculated as above is the required rate of return of equity investors and it may be called as the cost of equity.

This  $R_i$  can be used to find out the price of the share which depends on Dividend and  $R_i$ , and can be calculated as follows:

$$P_0 = \frac{D_1}{K_e - G}$$

$D_1$  = Dividend expected in next year

$K_e$  =  $R_i$

$G$  = Growth rate in dividend

#### Answer 1(iv)

Yes, Counter Party risk means that there is an ever present risk of the other party not being able to honour its commitment. Counter party risk arises

- (i) From the variation in the quantity of goods, place of delivery, price or
- (ii) When one of the parties of forward contract goes bankrupt.

There is a counterparty risk in forward transactions because these transactions are bilateral and not exchange traded. Both the parties are subject to the risk of default by the other party.

#### Answer 1(v)

Treasury management is concerned with both macro and micro facets of the economy. At the macro level, the inflows and outflows of cash, credit and other financial instruments are the functions of the government and the business sectors. These inflows are arranged by them as borrowing from the public. The micro units utilize these inflows and build up their capacities for production of output. These leads to establishment of a production system which logically leads us to the natural consequence, i.e. the establishment of distribution and consumption systems. Once the production, distribution and consumption systems are in place at the micro level, the generation of surpluses at the units begins. These surpluses are channeled back into the macro system as outflows from the micro system. The inflows are the taxes paid to the government and repayment of loans made to the banks and financial institutions. These inflows into the macro level have to be managed by the treasury managers at the macro level.

**Question 2**

(a) The following financial data relates to XYZ Ltd. :

| Year | Earnings<br>Per Share<br>(Rs.) | Dividend<br>Per Share<br>(Rs.) | Share Price<br>(Rs.) |
|------|--------------------------------|--------------------------------|----------------------|
| 2004 | 42                             | 17                             | 252                  |
| 2005 | 46                             | 18                             | 184                  |
| 2006 | 51                             | 20                             | 255                  |
| 2007 | 55                             | 22                             | 275                  |
| 2008 | 62                             | 25                             | 372                  |

A firm of market analysts which specialises in the industry in which XYZ Ltd. operates has recently re-evaluated the company's future prospects. The analysts estimate that XYZ Ltd.'s earnings and dividend will grow at 25% for the next three years. Thereafter, earnings are likely to increase at a lower rate of 10%. If this reduction in earnings growth occurs, the analysts consider that the dividend payout ratio will be increased to 50%.

XYZ Ltd. is all equity financed and has 10 lakh ordinary shares in issue. The tax rate of 33% is not expected to change in the foreseeable future. Calculate the estimated share price; and the P/E ratio by using dividend valuation model. For this purpose, you can assume a constant post-tax cost of capital of 18%.

(12 marks)

(b) An investor buys a NIFTY futures contract for Rs.2,80,000 (lot size 200 futures). On the settlement date, the NIFTY closes at 1,378. Find out his profit or loss, if he pays Rs.1,000 as brokerage. What would be the amount of profit or loss, if he has sold the futures contract ?

(4 marks)

(c) Ankush Ltd. has a plan to raise an amount of Rs.50 crore for a period of 3 months, 6 months from now. The current rate of interest is 9% but it may rise in 6 months time. The company wants to hedge itself against the increase in interest rate. Bank of India has quoted a forward rate agreement (FRA) at 9.1% per annum.

Find out the effect of FRA and actual interest cost to Ankush Ltd., if the actual rate after 6 months happens to be 9.5% or 8.5%.

(4 marks)

**Answer 2(a)**

(i) Dividend valuation model :  $P_0 = \frac{\text{Dividend}_1}{K_e - g}$

**Projection of Dividends**

| Year | EPS    | DPS   | PV <sub>1</sub> @ 18% | Discounted DPS |
|------|--------|-------|-----------------------|----------------|
| 2009 | 77.50  | 31.25 | 0.8475                | 26.48          |
| 2010 | 96.88  | 39.06 | 0.7182                | 28.05          |
| 2011 | 121.10 | 48.82 | 0.6086                | 29.71          |
|      |        |       |                       | 84.24          |

Dividend for year 2012:

$$D_{2012} = \text{Rs. } 121.10 \times 1.10 \times 50\% = \text{Rs. } 66.60$$

Therefore, the perpetuity value, assuming 10% growth rate:

$$P_{2011} = \frac{66.60}{0.18 - 0.10} = \text{Rs. } 832.50$$

|                                                  |               |
|--------------------------------------------------|---------------|
| Today's price of share :                         | Rs.           |
| PV of Dividend of 2009 to 2011                   | 84.24         |
| Add. PV of $P_{2011}$ ( $832.50 \times 0.6086$ ) | 506.66        |
|                                                  | <u>590.90</u> |

(ii) P/E Ratio

$$\begin{aligned} \text{P/E Ratio} &= \text{PV of } P_{2011} / \text{EPS}_0 \\ &= 590.90 / 62 = 9.53 \end{aligned}$$

### Answer 2(b)

- (a) In this case, the total value is Rs.2,80,000 and lot is 200, So, the NIFTY Futures on the transaction date is 1400 (i.e. 2,80,000/200). Now on the settlement date, the NIFTY is 1378 therefore, it has reduced by 22 points. The loss to the investor is—

$$\begin{aligned} \text{Loss} &= (1400 - 1378) \times 200 + 1000 \\ &= 4400 + 1000 \\ &= 5400 \end{aligned}$$

In case, he has sold the futures contract, his profit would have been—

$$\begin{aligned} \text{Profit} &= (1400 - 1378) \times 200 - \text{Rs. } 1000 \\ &= 4400 - 1000 = 3400 \end{aligned}$$

**Assumption : The brokerage of Rs.1000 would be payable in both the cases.**

### Answer 2(c)

**If actual rate is 9.5%.**

In this case, the bank, shall pay a differential of 0.4% (9.5%-9.1%). The cash flow is—

$$\text{Cash Flow} = 50 \text{ Crores} \times 0.4\% \times 0.25 = \text{Rs. } 5,00,000$$

This amount is paid up front to Ankush Ltd., which can invest it @9.5% for 3 months period at 6 months from now. Total accumulation is—

$$\text{Total amount} = \text{Rs. } 5,00,000 \times \left(1 + \frac{0.095}{4}\right) = \text{Rs. } 5,11,875$$

At the end of the borrowing period Ankush Ltd. will pay interest @9.5% on Rs.50 Crores

$$\begin{aligned}\text{Interest} &= \text{Rs. 50 Crores} \times 0.095 \times .25 \\ &= \text{Rs. 1,18,75,000}\end{aligned}$$

$$\text{Net Cost to XYZ} = \text{Rs. 1,18,75,000} - \text{Rs. 5,11,875} = \text{Rs. 1,13,63,125}$$

This is 9.1% of the total borrowing for a period of 3 months. So, by entering into Forward Rate Agreement (FRA), Ankush Ltd. has restricted its cost at 9.1% p.a.

**If actual rate is 8.5%**

If the rate is 8.5%. Ankush Ltd. will be required to pay up front 0.6% to the bank i.e. the amount of Rs.7,50,000. On the due date, interest on Rs.50 Crores is payable @8.5% i.e. Rs.1,06,25,000. The total cost to Ankush Ltd. is Rs.1,13,75,000 which is 9.1% of total funds. It may be noted that the amount of Rs.7,50,000 is to be borrowed at 8.5% p.a. for a period of 3 months. This will be paid to the bank. The borrowing of Rs.7,50,000 will be repaid as Rs.7,65,938 after 3 months inclusive of interest.

**Question 3**

- (a) *The management of Laxmi Ltd. has called for a statement showing the working capital needed to finance a level of activity of 6,00,000 units of output for the year 2009. The cost structure for the company's product for the abovementioned level is given as under :*

|                      | <i>Cost Per Unit<br/>(Rs.)</i> |
|----------------------|--------------------------------|
| <i>Raw materials</i> | <i>20</i>                      |
| <i>Direct labour</i> | <i>5</i>                       |
| <i>Overheads</i>     | <i>15</i>                      |
| <i>Total costs</i>   | <i>40</i>                      |
| <i>Profit</i>        | <i>10</i>                      |
| <i>Selling price</i> | <i>50</i>                      |

*Past trends indicate that raw materials are in stock on an average for three months.*

*Work-in-progress will approximate to half a month's production. Finished goods remain in warehouse on an average for two months. Suppliers of materials extend one month's credit.*

*Two months' credit is normally allowed to debtors. A minimum cash balance of Rs.1,00,000 is expected to be maintained. The production pattern is assumed to be even during the year.*

*You are required to prepare the statement of working capital determination.*

*(12 marks)*

- (b) You sold Hong Kong \$1,00,00,000 value spot to your customer at Rs.5.70/HK \$ and covered yourself in London market on the same day, when the exchange rates were :

US \$1=HK \$7.5880 and HK \$7.5920.

Local inter-bank market rates for US\$ were –

Spot US \$1=Rs.42.70 and Rs.42.85.

Calculate — (i) cover rate; and (ii) ascertain profit or loss in transaction. Ignore taxation. (4 marks)

- (c) “Discounted cash flow is very close to economic value added.” Comment. (4 marks)

### Answer 3(a)

#### Statement showing Working Capital Determination

| Item          | Cost per Unit (Rs.) | Amount for 600000 Units of output (Rs.) |
|---------------|---------------------|-----------------------------------------|
| Raw Materials | 20.00               | 1,20,00,000                             |
| Direct labour | 5.00                | 30,00,000                               |
| Overheads     | 15.00               | 90,00,000                               |
| Total Cost    | 40.00               | 2,40,00,000                             |
| Profit        | 10.00               | 60,00,000                               |
| Sales         | 50.00               | 3,00,00,000                             |

#### Calculation of Working Capital Requirement –

|                                                        |   |             |
|--------------------------------------------------------|---|-------------|
| (i) Raw Materials                                      |   |             |
| (Stock for three months) – Rs.3/12 x 1,20,00,000)      | = | 30,00,000   |
| (ii) Work-in-progress ½ months productions             |   |             |
| (1/2 month total cost = 1/24 x 2,40,00,000)            | = | 10,00,000   |
| (iii) Finished good remain in warehouse for two months |   |             |
| (2/12 x 2,40,00,000)                                   | = | 40,00,000   |
| Total Inventory                                        | = | 80,00,000   |
| Debtors – 2 months sales (on cost basis)               |   |             |
| 2/12 x 2,40,00,000                                     | = | 40,00,000   |
| Cash Balance (minimum)                                 | = | 1,00,000    |
| Total Current Assets                                   |   | 1,21,00,000 |
| (-) Creditors = (1/12 x 1,20,00,000)                   | = | 10,00,000   |
| Required Working Capital                               | = | 1,11,00,000 |

Note : Debtors can also be calculated on Sales Basis.

**Answer 3(b)**

In this case, the cover rate can be calculated as the Cross Rate between Rs. and HK \$ in the London market. The cross rates in the London Market can be stated as follows:

$$\begin{aligned}
 \frac{\text{Rs.}}{\text{HK\$}} &= \frac{\text{Rs.}}{\$} \times \frac{\$}{\text{HK\$}} \\
 &= \frac{\text{Rs.}}{\$} \times \frac{1}{\text{HK\$} / \$} \\
 &= 42.85 \times \frac{1}{7.5880} \\
 &= \text{Rs.} 5.64707
 \end{aligned}$$

As the rate in London is less, the HK\$ can be bought in London and the Profit is:

$$\begin{aligned}
 \text{Profit} &= 1,00,00,000 \times (5.70 - 5.64707) \\
 &= \text{Rs. } 5,29,300
 \end{aligned}$$

**Answer 3(c)**

Discounted cash flow is very close to economic value-added (EVA), with the discount rate being the cost of capital.

There are two key components to EVA. The net operating profit after tax (NOPAT) and the capital charge, which is the amount of capital times the cost of capital. In other words, it is the total pool of profits available to provide cash return to those who provided capital to the firm. The capital charge is the product of the cost of capital times the capital tied up in the investment. In other words, the capital charge is the cash flow required to compensate investors for the riskiness of the business given the amount of capital invested. On the one hand, the cost of capital is the minimum rate of return on capital required to compensate debt and equity investors for bearing risk-a cut-off rate to create value and capital is the amount of cash invested in the business, net of depreciation. In formula form,

$$\text{EVA} = (\text{Operating Profit}) - (\text{A Capital Charge})$$

$$\text{EVA} = \text{NOPAT} - (\text{Cost of Capital} \times \text{Capital})$$

**Question 4**

*Distinguish between **any four** of the following :*

- (i) *'Financing of current assets' and 'financing of fixed assets'.*
- (ii) *'Financial derivatives' and 'commodity derivatives'.*
- (iii) *'Interest rate parity' and 'purchasing power parity'.*
- (iv) *'Capital structure' and 'financial structure'.*
- (v) *'Liquidity management' and 'treasury management'. (5 marks each)*

**Answer 4(i)****‘Financing of Current Assets’ and ‘Financing of Fixed Assets’**

The more of the funds of a business are invested in working capital, lesser is the return in term of profitability and less amount is available for investing in long-term assets such as plant and machinery, etc. Therefore, the corporate enterprise has to minimize investment in working capital and to concentrate on investment of resources in fixed assets.

Fixed assets financing is different from current assets financing. In fixed assets investment is made in building, plant and machinery which remains blocked over a period of time and generates funds through the help of working capital at a percentage higher than the return on investment in current assets. Working capital financing or current assets financing is done by raising short-term loans or cash credits limits but fixed assets financing is done by raising long-term loans or equity.

**Answer 4(ii)****‘Financial Derivatives’ and ‘Commodity Derivatives’**

Derivative contracts can be entered into for different types of commodities such as sugar, jute, pepper, gur castorseeds etc. In India, futures contracts in commodities are available at different commodities exchanges. MCX, NMCEX and NCDEX offer futures contracts in several agricultural commodities and metals.

On the other hand, the derivative in currencies, gilt-edged securities, shares, shares indices, etc. are known as financial derivatives. These are transacted at different exchanges all over the world. Financial derivatives can be broadly classified into currency derivatives, interest rate derivatives and stock and stock index derivatives. In India, Stock Index Futures, Stock Index Options, Stock Options and Stock Futures can be traded at BSE or NSE. Interest rate Derivatives have also been allowed by the Government.

**Answer 4(iii)****‘Interest Rate Parity’ and ‘Purchasing Power Parity’**

*Interest Rate Parity*: According to interest rate parity principle, the forward premium (or discount) on currency of a country vis-à-vis the currency of another country will be exactly offset by the interest rate differential between the countries. The currency of the country with lower interest rate is quoted at a forward premium and vice versa.

*Purchasing Power Parity*: According to the Purchasing Power Parity (PPP) Principle, the currency of a country will depreciate vis-à-vis the currency of another country on the basis of differential in the rates of inflation between them. The rate of depreciation in the currency of a country would roughly be equal to the excess inflation rate in the country over the other country.

**Answer 4(iv)****‘Capital Structure’ and ‘Financial Structure’**

- Capital structure relates to long term capital sources for creation of long term assets. Financial structure involves creation of both long term and short term sources.

- Capital structure is the core element of the financial structure. Capital structure can exist without the current liabilities and in such cases, capital structure shall be equal to the financial structure. But we can not have a situation where the firm has only current liabilities and no long term capital.
- Components of the capital structure may be used to build up the level of current assets but the current liabilities should not be used to finance acquisition of fixed assets. This would result in an asset liability mismatch.

#### Answer 4(v)

#### 'Liquidity Management' and 'Treasury Management'

Liquidity management ensures that the right amount of cash is available, at the right time and in the right place, is firmly positioned as a pivotal task for every treasurer. Liquidity management is in fact a part of the treasury management. Over the past few years, many treasurers have made substantial progress towards increasing the visibility of their cash flow and centralizing cash within countries or regions. However, liquidity management and particularly cash flow forecasting remain the greatest challenges facing treasurers. With credit more expensive and elusive for many companies, it is now imperative to tackle these challenges effectively. Liquidity management of a financial institution or bank or company is some how different to that of other trading units. The process starts with tapping of funds at lower rate in shape of deposits/borrowing and ends with investing the same in higher rate to earn profit out of business with a margin of small portion of cash-in-hand kept to meet day to day operation.

#### Question 5

- (a) *Sumati Ltd. is considering three finance plans. Total investments required is Rs. 2,00,000.*

| <i>Plan</i> | <i>Equity</i> | <i>Debt</i> | <i>Preference Shares</i> |
|-------------|---------------|-------------|--------------------------|
| <i>A</i>    | <i>100%</i>   | <i>—</i>    | <i>—</i>                 |
| <i>B</i>    | <i>50%</i>    | <i>50%</i>  | <i>—</i>                 |
| <i>C</i>    | <i>50%</i>    | <i>—</i>    | <i>50%</i>               |

*Cost of debt : 8%*

*Cost of preference shares : 8%*

*Tax rate : 30%.*

*Equity shares of face value of Rs. 10 each will be issued at a premium of Rs. 10 per share.*

*Expected EBIT is Rs.80,000.*

*You are required to calculate for each finance plan —*

- (i) Earnings per share (EPS); and*
  - (ii) EBIT range among the EPS equivalency point. (6 marks each)*
- (b) *Rosa Chemicals Ltd. has outstanding 1,20,000 shares selling at Rs. 20 per share. The company hopes to make a net income of Rs.3,50,000 during the year ending 31st March, 2009. The company is thinking of paying a dividend of Rs. 2*

per share at the end of current year. The capitalisation rate for risk class of this firm has been estimated to be 15%. Assuming no taxes, answer the questions listed below on the basis of the Modigliani Miller dividend valuation model :

- (i) What will be the price of share at the end of 31st March, 2009, if – (a) the dividend is paid; and (b) the dividend is not paid ? (6 marks)
- (ii) How many new shares the company must issue if the dividend is paid and company needs Rs.9,50,000 for an approved investment expenditure during the year ? (2 marks)

**Answer 5(a)**

**(i) Computation of EPS of Sumati Ltd. under Plan A, B and C**

| Plan                                 | A     | B     | C     |
|--------------------------------------|-------|-------|-------|
| EBIT                                 | 80000 | 80000 | 80000 |
| Less : Interest                      | —     | 8000  | —     |
| PBT                                  | 80000 | 72000 | 80000 |
| Less : Tax (.30)                     | 24000 | 21600 | 24000 |
| PAT                                  | 56000 | 50400 | 56000 |
| Less : Dividend on Preference shares | —     | —     | 8000  |
| = Earnings for equity                | 56000 | 50400 | 48000 |
| No. of equity shares                 | 10000 | 5000  | 5000  |
| EPS                                  | 5.6   | 10.08 | 9.6   |

**(ii) EBIT Range**

Plan A & B

$$\frac{(EBIT - 0)(1 - 0.30)}{10,000} = \frac{(EBIT - 8000)(1 - 0.30)}{5,000}$$

∴ EBIT = Rs. 16,000

EPS in both cases would be Rs. 1.12

Plan B & C

EBIT can not be calculated

Plan A & C

$$\frac{(EBIT - 0)(1 - 0.30)}{10,000} = \frac{[(EBIT - 0)(1 - 0.30)] - 8000}{5,000}$$

∴ EBIT = Rs.22,857

EPS in both cases would be Rs. 1.60

**Answer 5(b)**

(i) (a) Price of the share if the dividend is paid-

$$P_0 =$$

$$20 = \frac{2 + P_1}{1 + 0.15}$$

$$20(1 + 0.15) = (2 + P_1)$$

$$P_1 = 23 - 2 = 21$$

(b) Price of the share if dividend is not paid-

$$20 = \frac{0 + P_1}{1 + 0.15}$$

$$20 = \frac{0 + P_1}{1.15}$$

$$P_1 = 20(1.15)$$

$$P_1 = 23$$

Rs. 9,50,000 – (Rs. 3,50,000 – Rs. 1,10,000) = Rs. 6,90,000

$$\frac{Rs. 9,50,000}{(1 + K_e)^{21}} = \frac{Rs. 3,50,000}{(1 + K_e)^{21}} - \frac{Rs. 1,10,000}{(1 + K_e)^{21}}$$

$$\Delta N = I - (E - ND_1) / P_1$$

$$N =$$

$$= \frac{9,50,000 - 1,10,000}{21}$$

$$= 8,40,000 / 21 = 40,000 \text{ Shares}$$

**Question 6**

An iron ore company is considering investing in a new processing facility. The company extracts ore from an open pit mine. During a year, 1,00,000 tons of ore is extracted. If the output from the extraction process is sold immediately upon removal of dirt, rocks and other impurities, a price of Rs. 1,000 per ton of ore can be obtained. The company has estimated that its extraction costs amount to 70% of the net realisable value of the ore.

As an alternative to selling all the ore at Rs. 1,000 per ton, it is possible to process further 25% of the output. The additional cash cost of further processing would be Rs. 100 per ton. The processed ore would yield 80% final output and can be sold at Rs. 1,350 per ton.

For additional processing the company would have to install equipments costing Rs. 100 lakh. The equipment is expected to have a useful life of 5 years with no salvage value. The company follows the straight line method of depreciation. Additional

*working capital requirement is estimated at Rs. 10 lakh. The company's cut-off rate for such investments is 15%. Assume corporate tax rate 30% (including surcharge and education cess).*

*Should the company install the equipment for further processing of the iron ore ?*  
(20 marks)

**Answer 6**

| <i>Cash Outflows</i>         | <i>(Rs.)</i>       |
|------------------------------|--------------------|
| Cost of equipment            | 1,00,00,000        |
| + Additional working capital | 10,00,000          |
|                              | <u>1,10,00,000</u> |

*Cash Inflows (operating) years (1-5)*

| <i>Particulars</i>                  | <i>Amount (Rs.)</i> |
|-------------------------------------|---------------------|
| Incremental revenue (350 x 20,000)  | 70,00,000           |
| (-) Incremental Costs -             |                     |
| Processing costs(100 x 25,000 tons) | 25,00,000           |
| Depreciation (1,00,00,000 / 5)      | <u>20,00,000</u>    |
| Earnings before taxes               | 25,00,000           |
| (-) Taxes @ 30%                     | <u>7,50,000</u>     |
|                                     | 17,50,000           |
| + Depreciation                      | <u>20,00,000</u>    |
| Earnings / Cash Flow After Tax      | <u>37,50,000</u>    |

**NPV**

| <i>Particulars</i> | <i>Year</i>          | <i>Amount (Rs.)</i> | <i>PVF at 15%</i> | <i>Total PV (Rs)</i> |
|--------------------|----------------------|---------------------|-------------------|----------------------|
| Cash outflows      | t = 0                | (1,10,00,000)       | 1.000             | (1,10,00,000)        |
| Operating CFAT     | t = 1-5<br>(Annuity) | 37,50,000           | 3.3522            | 1,25,70,750          |
| Recovery of WC     | t = 5                | 10,00,000           | 0.4972            | <u>4,97,200</u>      |
|                    | NPV                  |                     |                   | <u>20,67,950</u>     |

*Recommendations* - The company is advised to install the equipment for further processing of Ore, as it promises a positive Net Present Value.

**Question 7**

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

- (i) *Participating preference shares*
- (ii) *Credit investigation factors*
- (iii) *Transfer pricing*
- (iv) *Risks in forex market*
- (v) *Financial distress.*

(5 marks each)

**Answer 7(i)****Participating preference shares**

Preference shareholders are entitled to a fixed dividend which has been indicated as part of the terms of issue, even in a year in which the company has made huge profits. Subject to provision in the terms of issue these shares can be entitled to participate in the surplus profits left, after payment of dividend to the preference and the equity shareholders to the extent provided therein. So, participative preference share may be entitled, in a particular year, to two dividends i.e. first their fixed dividends and second, their additional dividend out of surplus profit.

**Answer 7(ii)****Credit investigation factors**

Factors influencing the nature of further credit investigations are—

- Types of customers, i.e. new or existing
- The customer business line & related issues involved in his business
- The nature of the product, i.e. perishable or seasonal
- Company's credit policies & practices.

Company maintain separate file for each customer, and compile the information & reports of the same. Credit investigation involves cost. However, as it assists the firm in reducing bad debt losses, the credit investigation should be carried on as long as its savings exceed cost.

**Answer 7(iii)****Transfer Pricing**

Transfer Pricing: It is a rate at which goods and services are transferred through intra-firm transactions. It can be applied to transactions between the parent firm and its subsidiaries or between strong currency and weak currency subsidiaries. Subject to the demands of competition, a parent may charge higher prices to its weak currency subsidiary, thereby increasing its own profit and reducing that of the subsidiary. The taxable income of the subsidiary comes down. Recovering higher level of operating charges from the subsidiaries also serves the same purpose.

**Answer 7(iv)****Risks in forex market**

- (i) Credit risk arising out of lending to a foreign borrower whose credit rating is not known for certainty.
- (ii) Exchange Rate risk of trading in a currency whose stability and strength is known to fluctuate.
- (iii) Country risk involved in dealing in the currency of a country whose political and economic stability is uncertain.
- (iv) Solvency risks due to mismatch between current assets and liabilities of dealers and resultant default in meeting forward commitments.

**Answer 7(v)****Financial distress**

Generally the affairs of a firm should be managed in such a way that the total risk – business as well as financial – borne by equity holders is minimized and is manageable, otherwise, the firm would obviously face difficulties. If cash inflow is inadequate, the firm will face difficulties in payment of interest and repayment of principal. If the situation continues long enough, the firm would find itself in a situation called financial distress. It may have to sell its assets to discharge its obligations to outsiders at prices below their economic values i.e. resort to distress sale. So when the sale proceeds are inadequate to meet outside liabilities, the firm is said to have failed or become bankrupt or (after due processes of law are gone through) insolvent.

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## PROFESSIONAL PROGRAMME EXAMINATION

DECEMBER 2009

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

*Time allowed : 3 hours*

*Maximum marks : 100*

- NOTE :** 1. *Answer FIVE questions including Question No.1 which is compulsory. All working notes should be shown distinctly.*
2. *Tables showing the present value of Re.1 and the present value of an annuity of Re.1 for 15 years are annexed.*

#### Question 1

*Comment on any four of the following :*

- (i) *Financial sector acts as conduit for the transfer of financial resources from net savers to net borrowers.*
  - (ii) *Under capital rationing, the standard net present value (NPV) decision rule no longer holds true.*
  - (iii) *Most businesses need cash funds to meet contingencies.*
  - (iv) *Apart from the retention of profits and capitalising the accumulated earnings, the bonus shares serve several other objectives.*
  - (v) *Foreign exchange risk can be managed both internally and externally.*
- (5 marks each)*

#### Answer 1(i)

In any economy, the financial sector plays a major role in the mobilization and allocation of savings. Financial institutions, instruments and markets which constitute the financial sector act as conduit for the transfer of financial resources from net savers to net borrowers, i.e. from those who spend less than they earn to those who spend more than they earn. The Financial sector performs this basic economic function of intermediation essentially through four transformation mechanisms :

- (i) *Liability-asset transformation (i.e., accepting deposits as a liability and converting them into assets such as loans );*
- (ii) *Size-transformation (i.e., providing large loans on the basis of numerous small deposits);*
- (iii) *Maturity transformation (i.e. offering savers alternate forms of deposits according to their liquidity preferences while providing borrowers with loans of desired maturities); and*
- (iv) *Risk transformation (i.e. distributing risks through diversification which substantially reduces risks for savers which would prevail while directly in the absence of financial intermediation).*

**Answer 1(ii)**

The term capital rationing refers to the situation where the funds available to a firm are limited. The implicit assumption with in the NPV decision rule does not hold true i.e. a firm cannot accept all positive NPV projects because of shortage of capital. Capital rationing is of two types - Hard and Soft, characterized by sources of capital expenditure constraints. Hard capital rationing occurs when constraints is externally imposed while soft rationing occurs, when constraints are imposed internally by management. As in the capital rationing NPV decision rule does not hold true, so it has to be modified. In single period rationing condition, the simple NPV decision rule is replaced by Feasibility set approach or Benefit cost ratio analysis and in multi-period capital rationing the optimal solution is obtained through linear programming.

**Answer 1(iii)**

This motive of holding cash takes into account the element of uncertainty associated with any form of business. The uncertainty can result in prolongation of the working capital operating cycle or even its disruption. It is possible that cost of raw materials or components might go up or the time taken for conversion of raw materials into finished goods might increase. For such contingencies, some amount of cash is kept by every firm. The motive of holding cash for contingencies is based on the need to maintain sufficient cash to act as a cushion to buffer against unexpected events. One never knows about the happening of natural calamities or sudden increase in cost of raw materials or any other factor such as strike, lock-out etc. Such events may seriously interrupt even the best planned financial plans and thus temporarily make the cash budget ineffective and non-existent. Therefore, the business should maintain larger cash balance than required for day to day transactions in order to avoid unforeseen situation arising because of insufficient cash.

**Answer 1(iv)**

The basic idea behind issue of bonus shares is the objective of retention of profits and capitalizing the accumulated earning for financing, from internal sources, the cost of company's expansion, modernization or diversification scheme. Issue of bonus shares does not affect the liquidity position of the company. The company issues bonus shares to serve the following ends :

- (a) to enhance the prosperity of the company by conserving the cash outflows;
- (b) increase in equity shares through bonus issue reduces the rate of dividend; Usually high rate of dividend may attract adverse notice to the general public or authorities towards profiteering;
- (c) to transfer the formal ownership of surplus and reserves to equity holders by issuing bonus shares;
- (d) with broad based equity structure, a company can better bargain the debt to balance its capital structure and increase earnings on equity shares through financing leverage;
- (e) creating liquidity and marketability of the equity shares by scaling down the market price of the shares.

**Answer 1(v)**

There are a number of techniques that can be used for internal hedging the exchange rate risk. It is easier to hedge transaction and translation risks internally than to hedge economic risk, due to difficulties associated with quantification of economic risks and long time periods over which exposure to economic risk occurs. The main internal techniques are matching, netting, leading and lagging and invoicing in the domestic currency but the degree to which firms hedge their exposures internally is often limited.

The foreign exchange risk can also be managed by external techniques. The most important methods are forward contracts futures and borrowing and lending in money market. Now a days a number of alternatives are available in the form of derivative instruments including, swaps and options.

**Question 2**

- (a) *Mona Machines Ltd. has provided you the following information for the year 2008:*

|                                                                                      |            |                                      |
|--------------------------------------------------------------------------------------|------------|--------------------------------------|
| <i>Production for the year</i>                                                       | <i>...</i> | <i>69,000 units</i>                  |
| <i>Finished goods in store</i>                                                       | <i>...</i> | <i>Average 3 months</i>              |
| <i>Raw materials in store</i>                                                        | <i>...</i> | <i>Average 2 months' consumption</i> |
| <i>Work-in-progress (assume 50% completion stage with full material consumption)</i> | <i>...</i> | <i>Average 1 month</i>               |
| <i>Credit allowed by creditors</i>                                                   | <i>...</i> | <i>Average 2 months</i>              |
| <i>Credit given to debtors (assume at selling price)</i>                             | <i>...</i> | <i>Average 3 months</i>              |
| <i>Selling price per unit</i>                                                        | <i>...</i> | <i>Rs. 50</i>                        |
| <i>Raw material cost</i>                                                             | <i>...</i> | <i>50% of selling price</i>          |
| <i>Direct wages</i>                                                                  | <i>...</i> | <i>10% of selling price</i>          |
| <i>Overheads</i>                                                                     | <i>...</i> | <i>20% of selling price</i>          |

*Company keeps Rs. 1,00,000 in cash. There is regular production and sale cycle, and wages and overheads accrue evenly. Wages are paid in the next month of accrual. Material is introduced in the beginning of production cycle.*

*You are required to calculate working capital requirement of Mona Machines Ltd. (10 marks)*

- (b) *Silver Oak Ltd., an Indian company, is mainly engaged in international trade with US and UK. It is currently 1st January. It will have to make a payment of \$7,29,794 in the coming six months time. The company is presently considering the various alternatives in order to hedge its transactional exposure through its London office. The following information is available :*

*Exchange Rates :*

\$/£ Spot rate : 1.5617 - 1.5773

6-month \$ forward rate : 1.5455 - 1.5609

|                           |               |                |
|---------------------------|---------------|----------------|
| <i>Money Market Rates</i> | <i>Borrow</i> | <i>Deposit</i> |
|                           | (%)           | (%)            |

|                  |   |     |
|------------------|---|-----|
| <i>US Dollar</i> | 6 | 4.5 |
|------------------|---|-----|

|                 |   |     |
|-----------------|---|-----|
| <i>Sterling</i> | 7 | 5.5 |
|-----------------|---|-----|

*Foreign currency option prices (Cents per £ for contract size £12,500) :*

|                       |                           |                          |
|-----------------------|---------------------------|--------------------------|
| <i>Exercise Price</i> | <i>Call Option (June)</i> | <i>Put Option (June)</i> |
|-----------------------|---------------------------|--------------------------|

|                 |     |     |
|-----------------|-----|-----|
| <i>\$1.70/£</i> | 3.7 | 9.6 |
|-----------------|-----|-----|

*Suggest which of the following hedging option is the most suitable for Silver Oak Ltd. :*

(i) *Forward exchange contract*

(ii) *Money market*

(iii) *Currency option.* (6 marks)

- (c) *Monark Ltd. is considering two alternative financial plans to start a new project. In Plan-I, it is likely to issue equity shares of Rs.16 lakh and 13% preference capital of Rs.4 lakh. In Plan-II, the company will issue equity shares of Rs.8 lakh, 13% preference capital of Rs.4 lakh, and 15% debentures of Rs.8 lakh. The face value of equity shares in both plans is Rs.10. Tax rate is 30%.*

*You are required to determine level of EBIT at which the EPS would be same under both the plans.* (4 marks)

**Answer 2(a)****Computation of Net working capital of Mona Machines Limited**

| <i>Nature of asset/liability</i> | <i>Basis of calculation</i>                             | <i>Amount (Rs.)</i> |
|----------------------------------|---------------------------------------------------------|---------------------|
| <b>(A) Current Assets</b>        |                                                         |                     |
| (i) Raw Material Stock           | Average 2 months $\frac{69,000 \times 25 \times 2}{12}$ | 2,87,500            |
| (ii) Work-in-progress            | Average 1 month                                         |                     |
| (a) Raw material                 | $\frac{69,000 \times 25 \times 1}{12}$                  | 1,43,750            |
| (b) Wages (50% completion)       | $\frac{69,000 \times 5 \times 1}{12 \times 2}$          | 14,375              |
| (c) Overheads                    |                                                         |                     |
| (50% completion )                | $\frac{69,000 \times 10 \times 1}{12 \times 2}$         | 28,750              |
| (iii) Finished goods stock       | Average 3 months $\frac{69,000 \times 40 \times 3}{12}$ | 6,90,000            |

| <i>Nature of asset/liability</i>       | <i>Basis of calculation</i>                             | <i>Amount (Rs.)</i> |
|----------------------------------------|---------------------------------------------------------|---------------------|
| (iv) Sundry debtors (at selling price) | Average 3 months $\frac{69,000 \times 50 \times 3}{12}$ | 8,62,500            |
| (v) Cash balance                       | Actual                                                  | 1,00,000            |
|                                        | Total Current Assets.... (A)                            | <b>21,26,875</b>    |
| (B) Current Liabilities                |                                                         |                     |
| (i) Creditors for materials            | Average 2 months $\frac{69,000 \times 25 \times 2}{12}$ | 2,87,500            |
| (ii) Creditors for wages               | Average 1 month $\frac{69,000 \times 5 \times 1}{12}$   | 28,750              |
|                                        | Total Current Liabilities .....(B)                      | <b>3,16,250</b>     |
| (c) Net working capital (A - B)        |                                                         | <b>18,10,625</b>    |

**Answer 2(b)**(i) *Using Forward Exchange Contract*

$$\text{\$ } 729794 / 1.5455 = \text{\pounds } 472206$$

(ii) *Using Money Market*

Silver Oak Ltd. must make a deposit now

Six months dollar deposit rate :  $4.5/2 = 2.25\%$

$$Z \times 1.0225 = \text{\$ } 729794$$

$$Z = \frac{\text{\$ } 729794}{1.0225} = \text{\$ } 7,13,735$$

Hence amount required to be deposited @ 4.5% = \$ 713735

Cost of buying \$ 713735 at current spot rate is  $713735 / 1.5617 = \text{\pounds } 457024$

Six months sterling borrowing rate =  $7/2 = 3.5\%$

Interest for six months on £ 457024 =  $(\text{\pounds } 457024 \times 0.035) = \text{\pounds } 15996$

Total Cost = £ 457024 + £ 15996 = £ 473020

(iii) *Using Currency option*

$$\text{Each contract will deliver} = 1.7 \times 12500 = \text{\$ } 21250$$

$$\text{No. of put option contract required} = 729794 / 21250 = 34.34 \text{ or } 34$$

$$\text{Cost of total contracts} = 0.096 \times 12500 \times 34 = \text{\$ } 40800$$

$$\text{Sterling cost of option} = 40800 / 1.5617 = \text{\pounds } 26,125$$

$$\text{Sterling required} = 34 \times \text{\pounds } 12500 = \text{\pounds } 425000 \text{ to buy } \$ 722500 \text{ @ } \$ 1.70$$

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$$\text{Shortfall} = 729794 - 722500 = 7294$$

$$\text{Cost of sterling using forward rate} = 7294/1.5455 = 4720 \text{ £}$$

$$\text{Total cost using option} = 26125 + 425000 + 4720 = \text{£ } 455845$$

Therefore currency options are the cheapest mode of hedging transaction exposure.

### Answer 2(c)

Point of indifference is that point where the EPS would be the same. Point of Indiff

$$\begin{aligned} &= \frac{(1-t)\text{EBIT} - P_1}{N_1} = \frac{(1-t)\text{EBIT} - P_2}{N_2} \\ &= \frac{(1-0.3)(\text{EBIT} - 52,000)}{1,60,000} = \frac{[(1-0.3)(\text{EBIT} - 1,20,000) - 52,000]}{80,000} \\ &= .7\text{EBIT} - 52,000 = 2[(.7\text{EBIT} - 84,000) - 52,000] \\ &= .7\text{EBIT} - 52,000 = 1.4\text{EBIT} - 1,68,000 - 1,04,000 \\ &= .7\text{EBIT} - 1.4\text{EBIT} = -1,68,000 - 1,04,000 + 52,000 \\ &= -.7\text{EBIT} = -2,20,000 \\ &= \text{EBIT} = \frac{-2,20,000}{-.7} = 3,14,286 \end{aligned}$$

At the Rs. 3,14,286 of EBIT the EPS of both companies will same at Rs. 1.05.

### Question 3

- (a) *Vaibhav Ltd. is engaged in manufacturing of machines used in construction. It is considering the possibility of purchasing from a supplier a component it now makes. A supplier has agreed to supply the component in the required quantities at a unit price of Rs. 18. The transportation and insurance charges are Re.1 per unit.*

*Presently, the company produces the component from a single raw material in economic lots of 3,000 units at a cost of Rs.4 per unit. The average annual demand is 40,000 units. The annual holding cost for company is Re.0.50 per unit and it has set a minimum stock level of 800 units. The direct labour costs of the component are Rs. 12 per unit. The company also hires a machine at a rate of Rs.400 per month on which the components are produced. Suggest whether the company should produce or procure the component. (14 marks)*

- (b) *Two companies Rita Ltd. and Gita Ltd. are considering to enter into a swap agreement with each other. Their corresponding borrowing rates are as follows:*

| Name of Company | Floating Rate | Fixed Rate |
|-----------------|---------------|------------|
| Rita Ltd.       | LIBOR         | 11%        |
| Gita Ltd.       | LIBOR + 0.3%  | 12.5%      |

Rita Ltd. requires a floating rate loan of £8 million while Gita Ltd. requires a fixed rate loan of £8 million.

- (i) Show which company had advantage in floating rate loans and which company has a comparative advantage in fixed loans.
- (ii) If Rita Ltd. and Gita Ltd. engage in a swap agreement and the benefits of the swap are equally split, at what rate will Rita Ltd. be able to obtain floating finance and Gita Ltd. be able to obtain fixed rate finance ?

Ignore bank charges.

(6 marks)

**Answer 3(a)**

Ordering cost can be obtained on the basis of EOQ equation =  $EOQ = \sqrt{\frac{2AO}{C}}$

Let the ordering cost equal to M, so

$$EOQ = \frac{2AM}{C} \text{ or } 3000 = \sqrt{\frac{2 \times 40,000 \times M}{0.50}}$$

$$3000^2 = \frac{80,000 M}{0.50}$$

$$\text{OR } 3000 \times 3000 \times 0.50 = 80,000 M$$

$$M = \frac{45,00,000}{80,000} = \text{Rs. } 56.25$$

Ordering cost = Rs. 56.25

$$\begin{aligned} \text{Average Stock level} &= \text{Minimum Stock} + \frac{1}{2} \text{EOQ} \\ &= 800 + \frac{1}{2} (3000) = 2300 \text{ Units} \end{aligned}$$

|                                                           |           |
|-----------------------------------------------------------|-----------|
| Cost of making component (Annual basis)                   | Rs.       |
| Ordering cost of 40000 units = 13.33 or 13 orders @ 56.25 | 731.25    |
| Holding or storage cost = 2300 unit x 0.50                | 1150.00   |
| Cost of direct material 40000 x 4                         | 160000.00 |
| Direct Labour Cost 40000 x 12                             | 480000.00 |
| Hire Charges 400 x 12 months                              | 4800.00   |
| Cost of manufacturing component                           | 646681.25 |
| Purchase cost of component = 40,000 x 18                  | 720000.00 |
| Add : Transportation and Insurance charges 40000 x 1      | 40000.00  |
| Rs.                                                       | 760000.00 |

Since the cost of manufacturing component is less than the purchase of Component, the Company should manufacture the component.

**Answer 3(b)**

- (a) Assuming LIBOR say for 10% company Gita Ltd. floating rate is three per cent more expensive than company Rita Limited rate; but its fixed rate is 12.5% which is more expensive than Rita Ltd.. Hence the company Rita Ltd. has a more comparative advantage in fixed rate loans and company Gita Ltd. has a comparative advantage in floating rate loans.

(b) Net Potential Gain =  $(\text{LIBOR} - (\text{LIBOR} + 0.3) + (12.5 - 11))$

=  $-0.3 + 1.5 = 1.2$  per cent

i.e. 0.6 per cent benefit to each company

Net floating rate cost to Rita Ltd. would be =  $\text{LIBOR} - .6\%$

And net fixed rate cost to Gita Ltd. would be  $12.5\% - .6\% = 11.9\%$

So the swapping the interest rate obligations, both companies would be benefitted to the extent of .6%.

**Question 4**

*Distinguish between any four of the following :*

- (i) *'Factoring' and 'bill discounting'.*
- (ii) *'Operating lease' and 'finance lease'.*
- (iii) *'Business risk' and 'financial risk'.*
- (iv) *'Efficient portfolio' and 'optimal portfolio'.*
- (v) *'Translation risk' and 'transaction risk'.*

*(5 marks each)*

**Answer 4(i)****Factoring and Bill Discounting**

- (a) Under a bill discounting arrangement, the drawer undertakes the responsibility of collecting the bills and remitting the proceeds to the financing agency. On the other hand, under factoring agreement, the factor collects client's bills.
- (b) Bill discounting is always with recourse whereas factoring can be either with recourse or without recourse.
- (c) The finance house discounting bills does not offer any non-financial services unlike a factor which finances and manages the receivable of a client.

**Answer 4(ii)****'Operating Lease' and 'Finance Lease'**

| <i>Operating Lease</i>                                                                                   | <i>Finance Lease</i>                                                                                                                  |
|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| (a) It is a rental agreement where the lessee is committed to pay a periodic lease rental to the lessor. | It is like an installment loan. It is a legal commitment to pay for the entire cost of equipment plus interest over a period of time. |

| <i>Operating Lease</i>                                                | <i>Finance Lease</i>                                                                                                         |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| (b) It provides for maintenance expenses and taxes by lessor.         | It excludes the provisions for maintenance or taxes which are paid separately by the lessee.                                 |
| (c) Leasing company assumes risk of obsolescence.                     | Lessee assumes the risk of obsolescence.                                                                                     |
| (d) Contract period ranges from intermediate to short-run.            | Contract period ranges from medium to long run.                                                                              |
| (e) The financial commitment is restricted to regular rental payment. | The lessee involves a financial commitment similar to loan by a leasing company. It places lessee in a position of borrower. |

**Answer 4(iii)****Business Risk and Financial Risk**

*Business Risk* : The projects which carry the risk of not being able to successfully market the products fall within the category of business risk. For such risk premium is needed on investment proposed to be made in such project and so the expected rate of return on such investment will be higher than those in risk free investment.

*Financial Risk* : A project may carry financial risk when it is not able to generate sufficient funds to cover interest payments on its debts or pay dividend to the shareholders. Therefore, for investment in such project the rate of return is supposed to be higher.

**Answer 4(iv)****Efficient Portfolio and Optimal Portfolio**

*Efficient Portfolio* : Efficient Portfolio is that which lies along the capital market line. These are the portfolios which offer

- (a) the maximum level of expected return for a given level of risk or
- (b) the minimum level of risk for a given level of return.

These portfolios lie along the efficient frontier of the set of all possible portfolios in a graph of portfolio returns against portfolio risk. It is not possible to determine that which portfolio an individual will prefer, as it would be decided by the risk-return attitude of investor.

*Optimal Portfolio* : The efficient portfolio which is best suited to the risk return characteristics of a particular individual investor is an optimal portfolio for the investor. It represents a tangency point of the individual investor's utility function or indifference curve on the efficient frontier.

**Answer 4(v)****Translation Risk and Transaction Risk**

*Translation Risk* : It is also called accounting exposure. It refers to and deals with the probability that the firm may suffer a decrease in assets value due to devaluation of foreign currency even if no foreign exchange transaction has taken place. The risk is particularly relevant for the companies, which have subsidiaries in other countries. Due to translation exposure the values of assets, liabilities, expenses and profits of foreign subsidiaries may change. Two related decision areas are involved in translation exposure management , (a) Managing balance sheet items to minimize the net exposure (b) Deciding how to hedge against this exposure.

*Transaction risk* : Transaction risk refers to the potential change in the value of a foreign currency denominated transaction due to changes in the exchange rate. Credit purchases and sales as well as borrowing and lending denominated in foreign currencies and uncovered forward contracts are some examples of transaction exposure. Transaction exposure basically covers the following :

- (a) *Rate Risk* : It occurs (a) when there is mismatch of maturities and borrowings and (b) In foreign exchange, it results in net exchange positions
- (b) *Credit Risk* : A situation when borrower is not in a situation to pay
- (c) *Liquidity Risk* : Less chances of receiving payments.

**Question 5**

*Alfa Ltd. is in the business of manufacturing bearings. Some more product lines are being planned to be added to the existing system. To manufacture the planned product lines, the firm needs a machine which if purchased outright will cost Rs. 10,00,000. Modern Hire-Purchase and Leasing Co. has offered two proposals as below :*

*Proposal - I (Hire-Purchase)*

*Rs. 2,50,000 will be payable on signing of the agreement. Three annual installments of Rs. 4,00,000 will be payable at the end of each year starting from year first. The ownership of the machine will be transferred automatically at the end of third year. The company will be able to claim depreciation on straight line basis with zero salvage value.*

*Proposal - II (Lease)*

*Rs. 20,000 will be payable towards initial service fee upon signing of the agreement which is tax-deductible expense. Annual lease rental of Rs. 4,32,000 is payable at the end of each year starting from the first year for a period of three years.*

*Evaluate the above two proposals and advise the company as to which proposal implies lesser cost given that tax-rate is 35% and discount rate is 20%. (Calculations may be rounded off to Rupee.)*

*(20 marks)*

**Answer 5****Proposal I (Machine on Hire Purchase)****Computation of Interest and Depreciation**

| <i>Year</i> | <i>Hire Purchase (Rs.)</i> | <i>Interest (Rs.)</i> | <i>Cash Price (Rs.)</i> | <i>Depreciation (Rs.)</i> | <i>Interest and Depreciation (Rs.)</i> |
|-------------|----------------------------|-----------------------|-------------------------|---------------------------|----------------------------------------|
| 0           | 2,50,000                   | —                     | 2,50,000                | —                         | —                                      |
| 1           | 4,00,000                   | 2,25,000              | 1,75,000                | 3,33,333                  | 5,58,333                               |
| 2           | 4,00,000                   | 1,50,000              | 2,50,000                | 3,33,333                  | 4,83,333                               |
| 3           | 4,00,000                   | 75,000                | 3,25,000                | 3,33,334                  | 4,08,334                               |
|             | 14,50,000                  | 4,50,000              | 10,00,000               | 10,00,000                 | 14,50,000                              |

**Workings :**

The total hire purchase price is Rs. 14,50,000 and the cash price is Rs. 10,00,000. So the interest is Rs. 4,50,000 which is allocated in the ratio of hire purchase price outstanding i.e. 3:2:1

**Computation of Present Value of Cash Outflows**

| <i>End of the Year</i> | <i>Hire Purchase Instalment (Rs.)</i> | <i>Tax shield @ 35% of Interest and debentures (Rs.)</i> | <i>Net Outflow (Rs.)</i> | <i>PV Factor (Rs.)</i> | <i>Present value of Outflows (Rs.)</i> |
|------------------------|---------------------------------------|----------------------------------------------------------|--------------------------|------------------------|----------------------------------------|
| 0                      | 2,50,000                              | —                                                        | 2,50,000                 | 1.0000                 | 2,50,000                               |
| 1                      | 4,00,000                              | 1,95,417                                                 | 2,04,583                 | 0.8333                 | 1,70,479                               |
| 2                      | 4,00,000                              | 1,69,167                                                 | 2,30,833                 | 0.6944                 | 1,60,290                               |
| 3                      | 4,00,000                              | 1,42,917                                                 | 2,57,083                 | 0.5787                 | 1,48,774                               |
|                        | Present value of outflows             |                                                          |                          |                        | 7,29,543                               |

**Proposal II (Machine on Lease )****Computation of Present Value of Cash Outflows**

| <i>End of the Year</i>    | <i>Lease charges (Rs.)</i> | <i>Tax shield @ 35% (Rs.)</i> | <i>Net Outflow (Rs.)</i><br><i>(Rs.)</i> | <i>PV Factor (Rs.)</i> | <i>Present value of Outflows</i> |
|---------------------------|----------------------------|-------------------------------|------------------------------------------|------------------------|----------------------------------|
| 0                         | 20,000                     | 7,000                         | 13,000                                   | 1.0000                 | 13,000                           |
| 1                         | 4,32,000                   | 1,51,200                      | 2,80,800                                 | 0.8333                 | 2,33,991                         |
| 2                         | 4,32,000                   | 1,51,200                      | 2,80,800                                 | 0.6944                 | 1,94,988                         |
| 3                         | 4,32,000                   | 1,51,200                      | 2,80,800                                 | 0.5787                 | 1,62,499                         |
| Present value of outflows |                            |                               |                                          |                        | 6,04,478                         |

**Evaluation of Proposals**

The present value of cash outflows in case of hire purchase is Rs. 7,29,543 and in case of lease is Rs. 6,04,478. So the lease option (Proposal II) implies lesser cost and the firm should procure the machine on lease basis.

**Question 6**

(a) The following data is related to Raman Ltd. :

| <i>Year</i> | <i>Raman Ltd.</i>          |                           | <i>Nifty Average Index</i> | <i>Nifty Dividend Yield</i> | <i>Return on Government Stock</i> |
|-------------|----------------------------|---------------------------|----------------------------|-----------------------------|-----------------------------------|
|             | <i>Average Share Price</i> | <i>Dividend Per Share</i> |                            |                             |                                   |
| 3           | 278                        | 14                        | 2,600                      | 4%                          | 8%                                |
| 2           | 294                        | 17                        | 2,990                      | 6%                          | 10%                               |
| 1           | 326                        | 18                        | 3,040                      | 6.5%                        | 9%                                |
| Current     | 370                        | 20                        | 3,280                      | 6.5%                        | 9%                                |

Calculate —

- (i) Expected return on shares of Raman Ltd.; and
  - (ii) Beta (β) value using Capital Asset Pricing Model (CAPM). (14 marks)
- (b) Following facts are available for Astro Ltd. : (i) Cash turnover rate is 5; (ii) Annual cash outflow is Rs. 1,75,000; and (iii) Accounts payable can be stretched by 12 days.

What would be the effect of stretching accounts payable on the minimum operating cash requirements ? If the firm can earn 10% on its investments, what would be the savings on cost ? (Assume 360 days in a year.) (6 marks)

**Answer 6(a)****Expected return on Raman Ltd.'s shares**

(a) Average percentage annual capital gain :

$$\text{Let } g = \text{average annual capital gain } 278 (1 + g)^3 = 370$$

$$\text{Therefore } g = \quad - 1 = 1.10 - 1.00 = 0.10 \text{ or } 10\%$$

(b) Average annual dividend yield :

| Year         | Div | ÷ Share Price | = | Dividend Yield |
|--------------|-----|---------------|---|----------------|
| III Year     | 14  | ÷ 278         |   | 0.050          |
| II Year      | 17  | ÷ 294         |   | 0.058          |
| 1st Year     | 18  | ÷ 326         |   | 0.055          |
| Current Year | 20  | ÷ 370         |   | 0.054          |
| Total        |     |               |   | 0.217          |

$$0.217 \div 4 = 0.054 \text{ or } 5.4 \%$$

The expected return on the Raman Company's share would be

$$E(r_A) = \text{Average annual capital gain} + \text{average dividend yield}$$

$$E(r_A) = 10\% + 5.4\% = 15.4\%$$

Expected Return on the market portfolio (Nifty) :

(i) Average annual percentage capital gain

$$\text{Let } g = \text{average annual capital gain}$$

$$2600 (1 + g)^3 = 3280$$

$$\text{Therefore } g = \sqrt[3]{(3280 \div 2600)} - 1 = 0.08 \text{ or } 8 \%$$

(ii) Average annual dividend yield

$$4 + 6 + 6.5 + 6.5 = 23\% \div 4 = 5.75 \%$$

Therefore the expected return on Nifty index acting as surrogate for market portfolio is :

$$E(r_M) = 8\% + 5.75 = 13.75$$

$$\text{Average annual risk-free return : } 8 + 10 + 9 + 9 = 36\% \div 4 = 9\%$$

So

$$E(r_A) = 15.4\%$$

$$E(r_M) = 13.75 \%$$

$$r_f = 9\%$$

$\beta$  of the share can be found by using CAPM :  $E(r_A) = r_f + (\beta_A (E(r_M) - r_f))$

$$15.4\% = 9.0\% + (\beta_A (13.75\% - 9\%))$$

$$= \beta_A$$

$$\beta_A = 1.347$$

### Answer 6(b)

Cash cycle of the firm =

Present cash cycle =  $360 \text{ days} / 5 = 72 \text{ days}$

Proposed cash cycle when accounts payable can be stretched by 12 days -

$$72 \text{ days} - 12 \text{ days} = 60 \text{ days}$$

Proposed cash turnover rate would be =  $360 \text{ days} / 60 \text{ days} = 6$

Minimum operating cash requirement -

$$\text{Present} = \text{Rs. } 1,75,000 / 5 = \text{Rs. } 35,000$$

$$\text{Proposed} = \text{Rs. } 1,75,000 / 6 = \text{Rs. } 29,167$$

$$\text{Reduction in investment} = \text{Rs. } 35,000 - \text{Rs. } 29,167 = \text{Rs. } 5,833$$

$$\text{Therefore Savings in cost} = \text{Rs. } 5,833 \times 0.10 = \text{Rs. } 583.30$$

### Question 7

*Write notes on any four of the following :*

- (i) *Financial instruments used for venture financing*
- (ii) *Factors affecting dividend policy of a firm*
- (iii) *Optimal capital structure*
- (iv) *Financing cost escalation*
- (v) *Domestic resource cost.* (5 marks each)

### Answer 7(i)

#### Financial Instruments used for venture financing

The instruments used for venture financing can broadly be categorized into :

- *Equity Share Capital* : Venture Capital firm take ownership position but their stake does not exceed 49%. The venture capitalist holds the investment made for a prescribed minimum period. At the end of the period, it can divest its holdings either through sale of its holdings to the promoter at a mutually agreed price or through offer of sale in the secondary markets.

- *Conditional Loan* : The conditional loan either carries a low or no interest. In case no interest is charged, the loan carries a charge linked to the level of sale generated by the project on commercialization.
- *Income Notes* : Income notes are a combination of conventional and conditional loans.

The financing mix for each project is determined on the basis of factors such as the type of company (new or existing), contribution being made by promoters, the debt-equity ratio, the nature of the project being undertaken by the company and its project potential.

#### **Answer 7(ii)**

##### **Factors affecting dividend policy of a firm**

Firm-oriented matters relating to dividend policy can be grouped under the following categories, affecting directly or indirectly the determination and the appropriateness of the policy :

- (1) Firms' contractual obligations, restrictions in loan agreement and/or legal limitations/considerations; and insufficiency of cash to pay dividends.
- (2) Liquidity, credit standing and working capital requirements and considerations. Ability to borrow, nature of stockholders, degree of control, timing of investment opportunities, inflation and need to repay debt.
- (3) Need for expansion-availability of external finance, financial position of promoters, relative cost of external funds, the ratio of debt to equity.
- (4) Business cycle considerations.
- (5) Factors relating to future financing
- (6) Past dividend policies and stockholders relations.

#### **Answer 7(iii)**

##### **Optimal Capital Structure**

By the term optimal capital structure we mean a particular arrangement of various components of the structure (Debt and Equity) which is just in tune with the both the long term and short term objectives of the firm. A combination less or more than the optimal combination would be less than satisfying. Hence a sub-optimal combination would affect the achievement of the goal of maximization of the shareholders' wealth. Optimal capital structure is an ideal situation which can function as the benchmark of performance for a firm. But this benchmark is invincible and the firm can expect to achieve moderated or toned down versions of this benchmark depending upon dynamics of each project.

#### **Answer 7(iv)**

##### **Financing Cost Escalation**

Cost escalation results in the increase in project cost for many reasons viz. Delay in implementation of project, inflationary pressure on corporate purchasing etc.

Financing cost escalation will depend upon the corporate arrangements as to how the project cost has originally been financed. There may be the following different ways to treat the financing of cost escalation:

1. When the project is new and financed by owner fund only - In such cases, the raising of equity is costly but issue of right shares to existing shareholder could be planned and this cost be met out.
2. When the company is existing company and project cost is being financed by its internal funds - In this case the company can use its reserves and surplus in financing cost escalation.
3. Where the company has been using borrowed sums in addition to equity capital for financing the project cost, it can always make request for additional funds to the lending institutions to meet the cost escalations or over runs in the project cost. In case the cost escalation is of greater magnitude then the company will have to go to raise funds from equity holders besides raising loans from the institutions so as to maintain the debt equity ratio in the existing balanced and planned proportions.

#### **Answer 7(v)**

##### **Domestic Resource Cost**

Domestic Resource Cost (DRC) measures the resource cost of manufacturing a product as against the cost of importing/exporting it. It indicates the long term comparative advantage a country enjoys in the production of a particular product.

The output from any project adds to domestic availability implying a notional reduction in imports to the extent of output of the project or an addition to exports if the product is being exported. This in turn implies that foreign exchange is saved to the extent there is reduced imports or foreign exchange is earned to the extent there is increased exports.

However, in the setting up of the project itself and in the manufacturing of the product, foreign exchange outflows may be incurred in order to procure machinery, raw materials etc. The foreign exchange saved or earned thus has to be adjusted for such outflow.

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## PROFESSIONAL PROGRAMME EXAMINATION

JUNE 2010

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

Time allowed : 3 hours

Maximum marks : 100

- NOTE:** 1. Answer FIVE questions including Question No.1 which is **COMPULSORY**. All working notes should be shown distinctly.
2. Tables showing the present value of Re. 1 and the present value of an annuity of Re.1 for 15 years are annexed.

#### Question 1

Comment on **any four** of the following :

- (i) While deciding upon the capital structure, the firm has to consider the different life cycle stages.
- (ii) Financial services industry encompasses a considerable range and depth of activities.
- (iii) Tools and techniques of treasury manager are very specific.
- (iv) Traditional approach of business finance considers efficient utilisation of resources.
- (v) Playing with float is a risky proposition. (5 marks each)

#### Answer 1(i)

The firm has to consider the following life cycle stages while deciding upon the capital structure :

- (a) **The Pioneering Stage:** It is the starting stage when there is rapid increase in demand for the product/services of company. At this stage only efficient companies survive. Due to risk perception about the company the cost of borrowing is high. To survive in this stage, capital structure is more oriented towards equity and avail more soft loans.
- (b) **Expansion Stage:** In this stage strong companies having survived the competition struggle successfully expand their market share and volumes. For this requirement of funds is high. Therefore, the company in this stage resorts to financial leverage.
- (c) **Stabilization/Stagnation Stage:** In this stage, management looks out for expansion and diversification into new projects. Takeovers, mergers, acquisition and strategic alliances are main activities. In this stage, capital structure depends on these activities.

#### Answer 1(ii)

Now-a-days financial services industry has assumed great significance. It encompasses a considerable range and depth of activities. These includes traditional financial intermediaries such as commercial banks, insurance companies, mutual funds and unit trust etc. and modern services such as acceptances, brokerages, credit information, credit rating, deposit, insurance, discounting, re-discounting, factoring, guarantees, funds transfer, hire purchase, leasing, loan syndication, underwriting.

### Answer 1(iii)

The tools and techniques of treasury manager are very specific. These are as follows :

- (a) **Analytical and planning tools:** In treasury function planning and budgeting are essential to achieve targets and keep effective control on costs. For achieving this, techniques of performance budgeting and responsibility accounting are used. Each department is made profit centre and is accountable for its targets.
- (b) **Zero Base Budgeting:** Each manager establishes objectives for his function. He has to justify level of activity, cost and benefits for his function. The management assesses this and the least cost alternative is selected.
- (c) **Financial Statement Analysis:** It helps the treasury manager to decide whether to invest in the company. The soundness and intrinsic worth of company, is decided by such analysis. It helps in internal control also.

### Answer 1(iv)

The traditional approach of finance was concerned with raising of funds used in an enterprise. The approach encompasses instruments selection, institutions through which funds are raised and legal and accounting practices and their relationship with the enterprise. The traditional approach played very negligible role in financial planning and direction.

Efficient utilization of resources along with financing decisions requires financial planning and proper direction. The top managements in corporate sector are more concerned with planning the sources and uses of funds and measuring performance.

### Answer 1(v)

Playing with the float results into maximization of cash availability. The float is the difference between the total amount of cheques drawn and the actual amount shown in the bank account. The float is caused by transit and processing delays. If the float is estimated accurately, then excess amount can be invested elsewhere, and to earn return. However, it is a risky practice and has to be followed quite consciously.

### Question 2

- (a) *Priyanka Ltd. has the following capital structure as on 31st March, 2009 :*

|                                              | Rs.              |
|----------------------------------------------|------------------|
| Equity shares : 20,000 Shares of Rs.100 each | 20,00,000        |
| 10% Preference Shares (of Rs.100 each)       | 8,00,000         |
| 12% Debentures (of Rs.1,000 each)            | <u>12,00,000</u> |
|                                              | <u>40,00,000</u> |

*The company's shares are sold in the market at Rs.110 each and it is expected that a dividend of Rs.10 per share would be declared for the year 2009. The dividend growth rate is likely to remain at 6%.*

- (i) *You are required to calculate the weighted average cost of capital, if the company comes in the tax bracket of 30%.*
- (ii) *The company is planning to diversify its production activities and intends to borrow a sum of Rs.20 lakh at the rate of 15% per annum. This financing decision is expected to increase dividend from Rs.10 to Rs.12*

per share, however, the market price of the equity share is likely to decrease from Rs.110 to Rs.105. What will be the company's revised weighted average cost of capital ?

- (iii) Priyanka Ltd. has the following investment opportunities that are typical average risk projects for the company :

| Projects | Cost (Rs. in Lakhs) | Rate of Return |
|----------|---------------------|----------------|
|          | (t=0)               | (%)            |
| A        | 10                  | 17.4           |
| B        | 20                  | 16.0           |
| C        | 10                  | 14.2           |
| D        | 20                  | 13.7           |
| E        | 10                  | 10.0           |

Which project(s) should Priyanka Ltd. accept ? Why ? (4+3+3=10 marks)

- (b) Ratan Enterprises requires 1,80,000 units of a certain item annually. The cost per unit and the cost per purchase order are Rs.6 and Rs.600 respectively. The inventory carrying cost is Rs.6 per unit per year.
- (i) What is the economic order quantity?
- (ii) What should the firm do if the supplier offers discount as below :

| Order Quantity   | Discount (%) |
|------------------|--------------|
| 9000–11999       | 2            |
| 12,000 and above | 3            |

(6 marks)

- (c) On 1st October, Deepak is retiring from service and he will get an amount of Rs.16,32,000 as retirement benefits. He is planning to invest this money in the following three scripts, which he considers grossly under-valued stocks in the market:

| Stock | No. of Shares | Price (Rs.) | Beta |
|-------|---------------|-------------|------|
| X     | 2,000         | 300         | 0.42 |
| Y     | 3,000         | 416         | 0.65 |
| Z     | 4,600         | 330         | 1.72 |

It is September now and he plans to take advantage of this mispricing in the stock market by using futures market. How many October contracts will you be trading if the spot index is 3,990 and October futures are quoted at 4,062?

(4 marks)

**Answer 2(a)(i)**

**Calculation of Weighted average cost of Capital**

| Source of Capital            | Amount (Rs. Lakhs) | Proportion | After tax Cost (1-30%) | WACC                    |
|------------------------------|--------------------|------------|------------------------|-------------------------|
| Equity Share Capital         | 20                 | 50%        | 15.09                  | 50% $\times$ 15.09=7.55 |
| 10% Preference Share Capital | 08                 | 20%        | 10%                    | 20% $\times$ 10=2.00    |

|                |    |      |                     |                          |
|----------------|----|------|---------------------|--------------------------|
| 12% Debentures | 12 | 30%  | $12\%(1-0.3) = 8.4$ | $30\% \times 8.4 = 2.52$ |
|                | 40 | 100% |                     | 12.07%                   |

Working Note :

$$K_e = \frac{D_1}{P_0} + g = 10/110 + 0.06 = 0.1509 \text{ or } 15.09\%$$

#### Answer 2(a)(ii)

With the borrowing of Rs.20 lakhs at 15% the capital structure would be Rs.60 lakhs.

#### Statement of Revised WACC

| Source of Capital     | Amount<br>(Rs. lakhs) | Proportion | After tax cost      | WACC<br>(1—30%)               |
|-----------------------|-----------------------|------------|---------------------|-------------------------------|
| Equity Shares         | 20                    | 20/60      | 17.43%              | $20/60 \times 17.43 = 5.81\%$ |
| 10% Preference Shares | 08                    | 8/60       | 10%                 | $8/60 \times 10 = 1.33$       |
| 12% Debentures        | 12                    | 12/60      | $12\%(1-.30) = 8.4$ | $12/60 \times 8.4 = 1.68$     |
| 15% Loan              | 20                    | 20/60      | $15 (1-.30) = 10.5$ | $20/60 \times 10.5 = 3.50$    |
| Total                 | 60                    | 60/60      |                     | 12.32                         |

Revised WACC = 12.32%

Working Note:  $K_e = 12/105 + 0.06 = 0.1743$  or 17.43%

#### Answer 2(a)(iii)

Prinyaka Ltd's marginal cost of capital is 12.32% as shown in 2(a)(ii). Hence it can accept A, B, C and D projects. It should reject the project E because its rate of return is less than marginal cost of funds needed to finance.

#### Answer 2(b)

Annual Requirement = 1,80,000 units

Cost per purchase order = Rs. 600

Cost per unit = Rs. 6

Inventory Carrying Cost per unit = Rs. 6

$$(i) \text{ EOQ} = \sqrt{\frac{2AO}{C}}$$

A = Annual Requirement

O = Cost of per purchase order

C = Inventory Carrying cost per unit per annum

$$= \frac{\sqrt{2 \times 1,80,000 \times 600}}{6} = 6000 \text{ units}$$

(ii) Calculation of optimum order size if different rates of discount offered :

| Unit require-<br>ment p.a.<br><br>(A) | Order<br>Quantity<br><br>(B) | Average<br>Stock<br><br>(B÷ 2)<br>=(C) | No. of<br>Orders<br><br>(A÷ B)<br>=(D) | Unit price<br>after 2%<br>& 3%<br>discount<br><br>(E) | Purchase<br>Price<br>Rs.<br><br>(A×E) = (F) | Cost of carry-<br>ing @<br>Rs.6<br>(C×Rs.<br>6) (G) | Total<br>Cost of<br>Ordering<br>(D x<br>Rs.600) x<br>(H) | Total Cost<br>Rs.<br><br>(F + G + H)<br>(I) |
|---------------------------------------|------------------------------|----------------------------------------|----------------------------------------|-------------------------------------------------------|---------------------------------------------|-----------------------------------------------------|----------------------------------------------------------|---------------------------------------------|
| 1,80,000                              | 6,000                        | 3,000                                  | 30                                     | 6                                                     | 10,80,000                                   | 18,000                                              | 18,000                                                   | 11,16,000                                   |
| 1,80,000                              | 9,000                        | 4,500                                  | 20                                     | 5.88                                                  | 10,58,400                                   | 27,000                                              | 12,000                                                   | 10,97,400                                   |
| 1,80,000                              | 12,000                       | 6,000                                  | 15                                     | 5.82                                                  | 10,47,600                                   | 36,000                                              | 9,000                                                    | 10,92,600                                   |

The total cost is lowest for order quantity of 12,000 units with 3% discount and should be selected.

### Answer 2(c)

The portfolio beta is equal to :

$$\frac{2,000 \times 300}{16,32,000} \times .042 + \frac{3,000 \times 416}{16,32,000} \times 0.65 + \frac{4,600 \times 330}{16,32,000} \times 1.72$$

$$= 0.1544 + 0.4970 + 1.5998 = 2.25$$

$$\text{Number of contracts (n)} = \frac{\text{Value of Portfolio}}{\text{Value of future contract}} \times \beta$$

$$= \frac{16,32,000 \times 2.25}{4,062 \times 200}$$

$$= \frac{36,72,000}{8,12,400} = 4.5 \text{ contracts}$$

The investor has to buy 4 contracts

**Note : Nifty Contract multiplier 200 is taken for calculation.**

### Question 3

(a) An Indian importer has to settle an import bill for \$1,30,000. The exporter has given the Indian exporter two options :

- Pay immediately without any interest charges.
- Pay after three months with interest @ 5% per annum.

The importer's bank charges 15% per annum on overdrafts. The exchange rates in the market are as follows :

Spot rate (Rs./\$) : 48.35/48.36  
3-Month forward rate (Rs./\$): 48.81/48.83

The importer seeks your advice. Give your advice. (8 marks)

- (b) Zebra Ltd. was started a year back with paid-up equity capital of Rs.40 lakh. Other details are as under :

|                      |   |             |
|----------------------|---|-------------|
| Earnings of the year | : | Rs.4,00,000 |
| Dividend paid        | : | Rs.3,20,000 |
| Price-earnings ratio | : | 12.5        |
| Number of shares     | : | 40,000      |

You are required to find out whether company's dividend payout ratio is optimal using Walter's Model, giving reasons. (6 marks)

- (c) A futures contract is available on a company that pays an annual dividend of Rs.5 and whose stock is currently priced at Rs.200. Each futures contract calls for delivery of 1,000 shares of stock in one year, daily marking to market, an initial margin of 10% and a maintenance margin of 5%. The corporate treasury bill rate is 8%.
- Given the above information, what should the price of one futures contract be?
  - If the company stock price decreases by 7%, what will be the change, if any, in futures price ?
  - As a result of the company stock price decrease, will an investor that has a long position in one futures contract of this company realises a gain or loss? Why ? What will be the amount of this gain or loss ? (6 marks)

### Answer 3(a)

Evaluation of two options offered by exporter for settlement of payment

#### Option I: Pay immediately without any interest charges

|                                                                                                              |                      |
|--------------------------------------------------------------------------------------------------------------|----------------------|
| (a) Bill value converted to Indian rupees (\$ 1,30,000 x Rs. 48.36) =                                        | Rs. 62,86,800        |
| (b) Interest on the borrowing from bank (o/d) @ 15% p.a.<br>For three months Rs. 62,86,800 x 15/100 x 3/12 = | <u>Rs. 2,35,755</u>  |
| Total :                                                                                                      | <u>Rs. 65,22,555</u> |

#### Option II: Pay after 3 months with interest @ 5% p.a.

|                                                                    |                                       |
|--------------------------------------------------------------------|---------------------------------------|
| (a) Bill value                                                     | \$ 1,30,000                           |
| (b) Interest @ 5% p.a. for 3 months<br>= \$ 1,30,000 x 0.05 x 0.25 | <u>\$ 1,625</u><br><u>\$ 1,31,625</u> |

|                                                     |               |
|-----------------------------------------------------|---------------|
| (c) Forward Rs./\$ rate (\$ 1,31,625 x Rs. 48.83) = | Rs. 64,27,249 |
|-----------------------------------------------------|---------------|

Difference in outflows in Option I and Option II

$$= \text{Rs. } 65,22,555 - \text{Rs. } 64,27,249$$

$$= \text{Rs. } 95,306.$$

Advice: it is advisable to settle bill payable after three months since rupee outflow is less by Rs. 95,306.

### Answer 3(b)

Paid-up equity Capital = Rs.40,00,000

Earnings of the year = Rs.4,00,000

Dividend Paid = Rs.3,20,000

P/E Ratio = 12.5

No. of Shares = 40,000

$$\text{EPS or } r = \frac{\text{Rs. 4,00,000}}{40,000} = \text{Rs.10}$$

Dividend per share or (k) = 3,20,000/40,000 = Rs.8

**Walter's Model :**

$$P = \frac{\text{DPS} + (r/k)(\text{EPS} - \text{DPS})}{k}$$

If DPS = Rs. 8, then

$$P = \frac{8 + (.10/.08)(10 - 8)}{0.08}$$

$$= \frac{8 + (1.25)(2)}{.08}$$

$$= \frac{8 + 2.5}{.08}$$

= Rs. 131.25

To get optimal, the DPS = 0

$$P = \frac{0 + (0.10)(10 - 0)}{(.08)}$$

$$= \frac{1.25 \times 10}{.08}$$

If DPS = 0 then P = 156.26

So, value of share is optimal if Dividend is nil.

**Answer 3(c)**

(i) Annual dividend (D) = Rs.5

Current Stock Price(S) = Rs.200

Initial Margin = 10%

Maintenance Margin = 5%

Corporate Treasury bill rate (C) = 8%

*Price of One Future Contract*

$$F = S + (S \times C) - D$$

$$= 200 + (200 \times 0.08) - 5$$

$$= \text{Rs. 211}$$

- (ii) If the company stock prices decrease by 7%, then price of futures contract

$$\begin{aligned} F &= [200 \times (1 - 0.07)] + [200 \times (1 - 0.07) \times 0.08] - 5 \\ &= 186 + 14.88 - 5 \\ &= \text{Rs. } 195.88 \end{aligned}$$

- (iii) An investor with a long position in one future contract agrees to buy 1,000 shares of the company in one year at Rs.211. Therefore, this investor will benefit only if the future prices increase.

In this case, the future prices has decreased and the investor will therefore realize a loss of

$$(\text{Rs. } 195.88 - \text{Rs. } 211) \times 1,000 = (-) \text{Rs. } 15,120.$$

#### Question 4

*Distinguish between any four of the following :*

- (i) 'Deep discount bonds' and 'disaster bonds'.
- (ii) 'Financial aspects of project appraisal' and 'economic aspects of project appraisal'.
- (iii) 'Index futures' and 'index options'.
- (iv) 'Initial margin' and 'maintenance margin'.
- (v) 'Corporate finance' and 'business finance'. (5 marks each)

#### Answer 4(i)

##### Deep Discount Bonds

The deep discount bond is considered a safe, solid and liquid instrument. In the past, IDBI, ICICI and SIDBI had issued this instrument. For a deep discount price of Rs.2,700/- in IDBI the investor got a bond with the face value of Rs.1,00,000. The bond appreciates to its face value over the maturity period of 25 years. Alternatively, the investor can withdraw from the investment periodically after 5 years. The capital appreciation is charged to tax at capital gains rate which is lower than normal income tax rate.

##### Disaster Bonds

These are issued by companies and institutions to share the risk and expand the capital to link investors return with the size of insurer losses. The bigger the losses, the smaller the return and vice-versa. The coupon rate and the principal of the bonds are decided by the occurrence of the casualty of disaster and by the possibility of borrowers defaults.

#### Answer 4(ii)

##### The Financial Aspects of Project Appraisal

The financial aspects of the project are analysed under the following heads:

- (I) Amount of resources required to bring the project into operation and the sources from which finance will be obtained.
- (II) Equity-Debt ratio.
- (III) Profitability and cash flow.

(IV) Security.

### **Economic Aspects of Project Appraisal**

An economic analysis of industrial projects is made on the basis of the following techniques of economic appraisal.

There are three measures commonly used for economic appraisal:

- (1) Economic Rate of Return (ERR)
- (2) Domestic Resources Cost (DRC)
- (3) Effective Rate of Protection (ERP)

### **Answer 4(iii)**

#### **Index futures**

Index futures are the future contracts for which the underlying is the cash market index. In India, futures on both BSE Sensex and NSE Nifty are traded.

By trading in index futures, the investors are betting on the state of the economy or collectively on the future market values of the shares of leading companies from major industrial groups. In a normal contract for purchase of equity shares, physical quantity of shares is delivered but in a futures contract, there is nothing to be delivered.

#### **Index options**

A call or put option is possible on a financial index. Investors trading index options are essentially betting on the overall movement of the stock market as represented by a basket of stocks in the form of index such as BSE Sensex and NSE Nifty.

### **Answer 4(iv)**

#### **Initial Margin**

It represents the amount deposited by both buyer and seller. The amount of money which a customer must deposit in his account whenever he establishes a future position. It is set by the exchange and are usually about 10% to 20% of the total value of the contract. It is large enough to cover a one-day loss.

#### **Maintenance Margin**

it is the minimum margin required to hold a position. It should be sufficient to support the daily settlement process called "mark-to-market", whereby losses that have already occurred are collected. It provides safeguard against potential losses on outstanding position.

### **Answer 4(v)**

| <i>Corporate Finance</i>                                   | <i>Business Finance</i>                                                     |
|------------------------------------------------------------|-----------------------------------------------------------------------------|
| It deals with the finance of business of corporate bodies. | It deals with the financial practices of all types of business enterprises. |

|                                                            |                                                                      |
|------------------------------------------------------------|----------------------------------------------------------------------|
| It is a specialised branch of business finance.            | It is broader term. It includes corporate and non-corporate finance. |
| Sources of funds are generally from public and government. | Sources of funds are private agencies or others.                     |

### Question 5

- (a) *The spot exchange rate is Rs.15/€ and the three months forward exchange rate is Rs.15.20/€. The three month interest rate is 8% per annum in India and 5.8% per annum in Germany. Assume that you can borrow as much as Rs.15 lakh or € 10 lakh.*
- Determine whether the interest rate parity is currently holding.*
  - How would you carry out covered interest arbitrage ? Show all steps and determine the arbitrage profit. (4 marks)*
- (b) *Silver Coin Ltd. is a manufacturing company. It has received an export order of 1,80,000 units. The finance manager of the company is estimating working capital requirements for the production to meet export order. Following information is given for the year 2009-10 :*
- Production in 2008-09 was 1,80,000 units and it is estimated that in 2009-10 the level will be maintained.*
  - Each unit will remain in process for one month. Raw material being channelised into the pipelines immediately and the labour and overhead costs accruing evenly during the month.*
  - Final production will be stored in warehouse awaiting despatch for 3 months.*
  - Credit allowed by creditors is 1.5 months from the date of delivery of raw materials.*
  - Credit permitted to debtors is 2.5 months from the date of despatch.*
  - Selling price per unit is Rs.15.*
  - The expected ratios of cost to the selling price are raw material 50%, direct wages 15% and overheads 20%.*
  - Raw materials are expected to remain in store for an average of 1.5 months before issue to production.*
  - There is regular production and sales cycle.*
  - The company maintains Rs.60,000 as cash in hand.*
  - Wages and overheads are paid on the first of each month for the previous month.*

*You are required to submit the working capital requirement to the finance manager of Silver Coin Ltd. (16 marks)*

### Answer 5(a)

- Spot Exchange Rate = Rs.15/€  
3 months forward exchange = 15.20/€  
3 months interest rate = 8% p.a. (India)  
3 months interest rate = 5.8% p.a. (Germany)  
For interest rate parity to hold true

$$(1 + r_h) = F/S (1 + r_f)$$

$r_h$  = rate of interest in home currency

$r_f$  = rate of interest in foreign currency

$$\text{LHS} = (1 + 0.02)$$

$$\text{RHS} = (1 + r_f) (F/S) = (1.0145) (1.52/1.50) = 1.0280 \text{ (€ return)}$$

Since LHS  $\neq$  RHS, Interest Rate Parity does not hold exactly.

(ii) Step 1 Borrow Rs.15 lakh, repayment will be Rs.15,30,000.

Step 2 buy € 10,00,000 using spot rate

Step 3 invest €10 lakh at the Germany interest rate, maturity value will be € 10,14,500

Step 4 sell €10,14,500 forward for Rs.15,42,040

Arbitrage Profit = Rs.12,040.

### Answer 5(b)

June 16,2010

To

Finance Manager

Silver Coin Ltd.

As desired, statement showing Working Capital Requirement of Silver Coin Ltd. is as under :

#### Statement showing Working Capital requirement

| <i>Particulars</i>                        | <i>Basis of Calculation</i>  | <i>Amount (Rs. lakhs)</i> |
|-------------------------------------------|------------------------------|---------------------------|
| Raw material in store                     | 13,50,000 x 1.5/12           | 1,68,750                  |
| Work in progress 15000 units of one month |                              |                           |
| Raw Materials                             | 15,000 x 7.50 = 1,12,500     |                           |
| Wages                                     | 15,000 x 2.25 x 50% = 16,875 |                           |
| Overheads                                 | 15,000 x 3.00 x 50% = 22,500 | 1,51,875                  |
| Stock of finished goods                   | 15,000 x 3 x 12.75 =         | 5,73,750                  |
| Inventory                                 |                              | 8,94,375                  |
| Debtors                                   | 2.5 x 15,000 x 15 =          | 5,62,500                  |
| Cash in Hand                              |                              | 60,000                    |
| Current Asset                             |                              | (A) <u>15,16,875</u>      |
| Creditors                                 | 1.5/12 x 13,50,000 =         | 1,68,750                  |
| Wages and Overheads                       | 1/12 x 9,45,000              | 78,750                    |
| Current Liabilities                       |                              | (B) <u>2,47,500</u>       |
| Working Capital requirement               |                              |                           |
| Current Assets– Current Liabilities (A-B) |                              | <u>12,69,375</u>          |

#### Working Notes :

(i) Production during 2009-10 is 1,80,000 units. Production and sales are regular so sales is 1,80,000 units i.e., 15,000 units per month

(ii) Statement of Cost and Profit of Silver Coin Ltd.

| <i>Particulars</i> | <i>Rs. per unit</i> | <i>Amount</i> |
|--------------------|---------------------|---------------|
|--------------------|---------------------|---------------|

|                           |              |                                        |
|---------------------------|--------------|----------------------------------------|
|                           |              | <i>in a Year</i><br><i>(Rs. Lakhs)</i> |
| Raw material 50% of Rs.15 | 7.50         | 13,50,000                              |
| Direct Wages 15% of Rs.15 | 2.25         | 4,05,000                               |
| Overheads 20% of Rs.15    | <u>3.00</u>  | <u>5,40,000</u>                        |
| Cost of Sales             | 12.75        | 22,95,000                              |
| Sales                     | <u>15.00</u> | <u>27,00,000</u>                       |
| Profit                    | 2.25         | 4,05,000                               |

Thanking You

Yours faithfully

XYZ

**Note:** Wages and overheads for WIP has been charged 50%

### Question 6

*Surya Manufacturers is planning to start a new manufacturing process. Following are the estimated net cash flows and probabilities of the new manufacturing process :*

| Year        | Net Cash Flows (Rs.) |              |              |
|-------------|----------------------|--------------|--------------|
|             | <i>P=0.2</i>         | <i>P=0.6</i> | <i>P=0.2</i> |
| 0           | (–) 2,00,000         | (–) 2,00,000 | (–) 2,00,000 |
| 1           | 40,000               | 60,000       | 80,000       |
| 2           | 40,000               | 60,000       | 80,000       |
| 3           | 40,000               | 60,000       | 80,000       |
| 4           | 40,000               | 60,000       | 80,000       |
| 5           | 40,000               | 60,000       | 80,000       |
| 5 (Salvage) | 0                    | 40,000       | 60,000       |

*Surya Manufacturers cost of capital for an average risk project is 10%.*

- The project has average risk. Find the project's NPV.*
- Find the best case and worst case NPVs. What is the probability of occurrence of the worst case if the cash flows are perfectly dependent (perfectly positively correlated) over time and if they are independent over time ?*
- Assume that all the cash flows are perfectly positively correlated, that is, there are only three possible cash flow streams over time : (i) the worst case; (ii) the most likely or base case; and (iii) the best case with probabilities 0.2, 0.6 and 0.2 respectively. These cases are represented by each of the columns in the given table. Find the expected NPV, the standard deviation and co-efficient of variation. (20 marks)*

### Answer 6(a)

Table showing expected cash flows :

|  |     |     |     |  |
|--|-----|-----|-----|--|
|  | 0.2 | 0.6 | 0.2 |  |
|--|-----|-----|-----|--|

| Year | (P x Cash Flow)<br>Rs.<br>(A) | (P x Cash Flow)<br>Rs.<br>(B) | (P x Cash Flow)<br>Rs.<br>(C) | Expected Cash Flow<br>Rs.<br>(A + B + C) |
|------|-------------------------------|-------------------------------|-------------------------------|------------------------------------------|
| 0    | 0.2 (-2,00,000)               | 0.6 (-2,00,000)               | 0.2 (-2,00,000)               | = 2,00,000                               |
| 1    | 0.2 (40,000)                  | 0.6 ( 60,000)                 | 0.2 (80,000)                  | = 60,000                                 |
| 2    | 0.2 (40,000)                  | 0.6 (60,000)                  | 0.2 (80,000)                  | = 60,000                                 |
| 3    | 0.2 (40,000)                  | 0.6 (60,000)                  | 0.2 (80,000)                  | = 60,000                                 |
| 4    | 0.2 (40,000)                  | 0.6 (60,000)                  | 0.2 (80,000)                  | = 60,000                                 |
| 5    | 0.2 (40,000)                  | 0.6 (60,000)                  | 0.2 (80,000)                  | = 60,000                                 |
| 5*   | 0.2 (0)                       | 0.6 (40,000)                  | 0.2 (60,000)                  | = 36000                                  |

NPV of expected Cash Flows at 10%

$$\begin{aligned}
 \text{NPV} &= -2,00,000 + \frac{60,000}{(1.10)^1} + \frac{60,000}{(1.10)^2} + \frac{60,000}{(1.10)^3} + \frac{60,000}{(1.10)^4} + \frac{96,000}{(1.10)^5} \\
 &= -2,00,000 + 60,000 \times .9091 + 60,000 \times 0.8264 + 60,000 \times 0.7513 + 60,000 \times 0.6830 + 96,000 \times .6209 \\
 &= -2,00,000 + 54,546 + 49,584 + 45,078 + 40,980 + 59,606 \\
 &= -2,00,000 + 2,49,794 \\
 &= \text{Rs.}49,794
 \end{aligned}$$

#### Answer 6(b)

NPV of Worst Case at 10%

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 40,000 \quad 40,000 \quad 40,000 \quad 40,000 \quad 40,000 + \text{Zero Salvage Value} \\
 \text{NPV} &= -2,00,000 + \frac{40,000}{(1.10)^1} + \frac{40,000}{(1.10)^2} + \frac{40,000}{(1.10)^3} + \frac{40,000}{(1.10)^4} + \frac{40,000}{(1.10)^5} \\
 &= -2,00,000 + 1,51,632 = -\text{Rs.}48,368
 \end{aligned}$$

NPV of base Case at 10%

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 60,000 \quad 60,000 \quad 60,000 \quad 60,000 \quad 60,000 \\
 &+ \text{Salvage Value of } 40,000 \\
 &= -\text{Rs.}2,00,000 + 2,27,448 + 24,836 = \text{Rs.}52,284
 \end{aligned}$$

NPV of Best Case

$$\begin{aligned}
 &= -\text{Rs.}2,00,000 \quad 80,000 \quad 80,000 \quad 80,000 \quad 80,000 \quad 80,000 + \text{Salvage Value} \\
 &\text{of } 60,000 \\
 &= -\text{Rs.}2,00,000 + 30,32,264 + 37,254 = \text{Rs.}1,40,158
 \end{aligned}$$

If the cash flows are perfectly dependent, then the low cash flows in the first year will mean a low cash flows in every year. Thus the probability of the worst case occurring is the probability of getting Rs.40,000 net cash flow in year 1 or 20%.

If the cash flows are independent, the cash flows in each can be low, high or average and probability of getting all low cash flow will be :

$$0.2(0.2)(0.2)(0.2)(0.2) = 0.00032 \text{ or } 0.032\%$$

**Answer 6(c)**

The base case NPV is found using the most likely cash flows and is equal to Rs.52,284. This value differs from the expected NPV of Rs.49,800, because the year 5 cash flows are not symmetric. Under these conditions NPV distribution is as follows:

| Case       | P   | NPV (Rs.) |
|------------|-----|-----------|
| Worst Case | 0.2 | - 48,368  |
| Base Case  | 0.6 | 52,284    |
| Best Case  | 0.2 | 1,40,518  |

$$\begin{aligned}\text{The expected NPV} &= 0.2 (-48,368) + 0.6 (52,284) + 0.2 (1,40,518) \\ &= - 9,673.6 + 31,370.4 + 28,103.6 \\ &= 49,800.4 \text{ or Rs.49,800}\end{aligned}$$

As is generally the case the expected NPV is the same as the NPV of the expected cash flows in part (a). The standard deviation is :

$$\begin{aligned}\sigma^2 \text{ NPV} &= 0.2 (-48,368 - 49,800)^2 + 0.6 (52,284 - 49,800)^2 \\ &\quad + 0.2 (140,518 - 49,800)^2 \\ \sigma^2 \text{ NPV} &= 1927391244.8 + 3702153.6 + 1645951104.8 \\ &= 3577044503 \\ \sigma \text{ NPV} &= \sqrt{3577044503} \\ &= 59808\end{aligned}$$

$$\text{Co-efficient of variation} = 59808 / 49800 = 1.2$$

**Question 7**

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

- (i) Types of swaps
- (ii) Capital rationing
- (iii) Technical aspects of feasibility report
- (iv) Trade credit as source of finance
- (v) ABC analysis. (5 marks each)

**Answer 7(i)****Types of Swaps**

A swap can be defined as the exchange of one stream of future cash flows with another stream of cash flows with different characteristics. An interest swap is a contract to exchange cash flow streams that might be associated with some fixed income obligations—say swapping the cash flows of a fixed rate loan for those of a floating rate loan. A currency swap is exactly the same thing as with an interest rate swap. However, in later the cash flow streams are in the same currency while in currency swap, cash flows are in different currencies.

**Answer 7(ii)****Capital Rationing**

Capital Rationing decision is not confronted with those firms where fund is not the constraint, but in majority of the cases, firms have fixed capital budget. So a large number of projects compete for these limited fixed capital budget. So the firm rations these funds in a manner so as to maximize the long run returns. Thus, capital rationing refers to the situations where the firms have more acceptable investments requiring greater amount of finance than is available with the firm, it is concerned with the selection of a group of investment out of many investment proposals ranked in the descending order of the rate of return.

### **Answer 7(iii)**

#### **Technical aspects of feasibility report**

Technical examination of a project involves consideration of the following factors:

- (a) Feasibility of the selected technical process and its suitability under Indian conditions
- (b) Scale of operations
- (c) Location
- (d) Plant and Equipment and their specifications
- (e) Plant Layout
- (f) Facilities for the supply of water, power and fuel
- (g) Facilities for disposal of effluents and also of the by-products, if any
- (i) Availability and economies of the means of transport in the region be examined and ensured
- (j) Arrangements for securing the technical know-how and training of personnel and labour who have to operate in the shop-floor be certified and ensured
- (k) Construction Schedule
- (l) Cost Estimates.

### **Answer 7(iv)**

#### **Trade credit as source of finance**

Trade credit provides an instant source of financing variable working capital for the period falling between the point, goods are purchased and the point when payment is made. The longer this period, the more advantageous it becomes for the firm to avoid efforts of seeking finance for holding inventories or receivables.

Trade credit received on purchases reduces working capital funds requirements and has to be taken into account for correct assessment of funds.

### **Answer 7(v)**

#### **ABC Analysis**

This system is based on the assumption that in view of the scarcity of managerial time and efforts, more attention should be paid to those items which account for a larger chunk of the value of consumption rather than the quantity of consumption. Let us take an example of a firm having three major components of raw material :

| <i>Comp<br/>onent</i> | <i>Units<br/>Consumed</i> | <i>% to total<br/>quantity</i> | <i>Value per<br/>unit</i> | <i>Total Value<br/>(Lacs)</i> | <i>%</i> |
|-----------------------|---------------------------|--------------------------------|---------------------------|-------------------------------|----------|
| X                     | 5000                      | 45.45                          | 1000                      | 50.00                         | 22.93    |
| Y                     | 4000                      | 36.36                          | 1200                      | 48.00                         | 22.00    |

|   |       |        |      |        |        |
|---|-------|--------|------|--------|--------|
| Z | 2000  | 18.18  | 6000 | 120.00 | 55.05  |
|   | 11000 | 100.00 |      | 218.00 | 100.00 |

Thus the cost of raw material Z which accounts for 55% of the total consumption value should be given priority over item X although the number of units consumed of the letter is much more than former.

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## PROFESSIONAL PROGRAMME EXAMINATION

DECEMBER 2010

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

*Time allowed : 3 hours*

*Maximum marks : 100*

- NOTE :** 1. Answer FIVE questions including Question No.1 which is compulsory. All working notes should be shown distinctly.
2. Tables showing the present value of Re.1 and the present value of an annuity of Re.1 for 15 years are annexed.

#### Question 1

*Comment on any four of the following :*

- (i) *Dividend policy is strictly a financing decision and payment of cash dividend is a passive residual.*
- (ii) *Depository system functions very much like banking system.*
- (iii) *Accounting profit does not take into account all costs of capital invested in business.*
- (iv) *The mark-to-market process is lengthy for index futures.*
- (v) *Financial gearing is a fair weather friend.*

*(5 marks each)*

#### Answer 1(i)

**Dividend policy is strictly a financing decision and payment of cash dividend is a passive residual**

According to Ezra Solomon's Residual Theory of Dividend Policy, dividend policy is strictly a financing decision; the payment of cash dividend is a passive residual. The amount of dividend payout will fluctuate from period to period in keeping with fluctuations in the amount of acceptable investment opportunities available to the firm. If the opportunities are in plenty, percentage of payout is likely to be zero; on the other hand, if the firm is unable to find out profitable investment opportunities, payout will be 100 per cent. The theory implies that investors prefer to have the firm retain and reinvest earnings rather than pay them out in dividends if the return on re-invested earnings exceeds the rate of return the investors could themselves obtain on other investments of comparable risks.

#### Answer 1(ii)

**Depository system functions very much like banking system**

Yes, the Depository system functions very much like the banking system. A bank holds funds in accounts whereas a Depository holds securities in account for its clients. A bank transfers fund between accounts whereas a Depository transfers securities between accounts. In both the systems, the transfer of funds or securities happens without the actual handling of funds or securities. Both the Banks and the Depository are accountable for the safe keeping of funds and securities respectively.

**Answer 1(iii)****Accounting profit does not take into account all costs of capital invested in business**

The conventional approach to measure profit will deduct cost of loan capital in arriving at profit; but there is no similar deduction for the cost of shareholders. Critics of the conventional approach point out that a business will not make a profit, in an economic sense, unless it covers the cost of all capital invested, including shareholders' funds.

**Answer 1(iv)****The mark-to-market process is lengthy for index futures**

All open position in the index contracts are daily settled at the mark-to-market settlement price. The process of debit and credit by offsetting the transaction will continue till the final closure of the position. On the expiry, the settlement price is the spot index value as on expiry of any futures contract, the spot value and the futures value coverage. Mark-to-market settlement is made in cash.

**Answer 1(v)****Financial gearing is a fair weather friend**

When the EBIT is more than sufficient to meet the fixed charges like interest on debentures and dividend on preference shares, financial leverage would result in higher EPS compared to an unlevered company. Thus, a higher degree of financial leverage would result in higher EPS. However, a high degree of leverage may prove to be working in just the opposite direction if the EBIT level is not sufficient to cover the fixed charges, i.e., interest and preference dividend and the financial leverage would result in lower EPS compared to an unlevered company. Financial leverage thus helps in increasing the EPS of company which has more than sufficient EBIT to cover the fixed charges.

**Question 2**

(a) *Following figures relate to Twinkle Ltd. :*

|                                                                                                               | <i>Rs.</i>       |
|---------------------------------------------------------------------------------------------------------------|------------------|
| <i>Sales (at 3 months' credit)</i>                                                                            | <i>45,00,000</i> |
| <i>Materials consumed (suppliers extend 1½ months credit)</i>                                                 | <i>11,25,000</i> |
| <i>Wages paid (1 month in arrear)</i>                                                                         | <i>9,00,000</i>  |
| <i>Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)</i> | <i>1,00,000</i>  |
| <i>Total administration expenses for the year (cash expenses are paid one month in arrear)</i>                | <i>3,00,000</i>  |
| <i>Sales promotion expenses for the year (paid quarterly in advance)</i>                                      | <i>6,00,000</i>  |

*The company sells its product on gross profit margin of 25% assuming depreciation as a part of cost of production. It keeps 2 months' stock of finished goods and one month's stock of raw materials as inventory. It keeps cash balance of Rs. 1,25,000. Assume a safety margin of 5%.*

Work out working capital requirements of the company on cash cost basis.  
Ignore work-in-process. (12 marks)

- (b) Gel Corporation presently gives credit terms of 'net 30 days'. It has Rs.600 lakh in credit sales and its average collection period is 45 days. To stimulate sales, the company may give credit terms of 'net 60 days' with sales expected to increase by 15%. After the change, the average collection period is expected to be 75 days with no difference in payment habits between old and new customers. Variable costs are Re.0.80 for every Re. 1 of sales; and the company's before tax required rate of return on investment in receivables is 20%. Assume 360 days in a year. Should the company extend its credit period ? (8 marks)

**Answer 2(a)**

**Statement showing working capital requirement of Twinkle Ltd.**

**(A) Current Assets :**

|                                                 |                                               | Rs.                     |
|-------------------------------------------------|-----------------------------------------------|-------------------------|
| (i) Raw materials (1 month)                     | $= \frac{\text{Rs. } 11,25,000 \times 1}{12}$ | 93,750                  |
| (ii) Finished goods (2 months)                  | $= \frac{\text{Rs. } 32,25,000 \times 2}{12}$ | 5,37,500                |
| (iii) Debtors at cost (3 months)                | $= \frac{\text{Rs. } 41,25,000 \times 3}{12}$ | 10,31,250               |
| (iv) Cash balance                               |                                               | 1,25,000                |
| (v) Prepaid sales promotion expenses (3 months) | $= \frac{\text{Rs. } 6,00,000 \times 3}{12}$  | 1,50,000                |
| <b>Total current Assets..... (A)</b>            | <b>=</b>                                      | <b><u>19,37,500</u></b> |

**(B) Current Liabilities :**

|                                           |                                                 |                         |
|-------------------------------------------|-------------------------------------------------|-------------------------|
| (i) Creditors for goods (1.5 months)      | $= \frac{\text{Rs. } 11,25,000 \times 1.5}{12}$ | 1,40,625                |
| (ii) Wages (1 month)                      | $= \frac{\text{Rs. } 9,00,000 \times 1}{12}$    | 75,000                  |
| (iii) Manufacturing expenses (1 month)    |                                                 | 1,00,000                |
| (iv) Administration expenses (1 month)    | $= \frac{\text{Rs. } 3,00,000 \times 1}{12}$    | 25,000                  |
| <b>Total current liabilities .....(B)</b> |                                                 | <b><u>3,40,625</u></b>  |
| Net working capital (A – B)               |                                                 | 15,96,875               |
| Add : 5% safety margin                    |                                                 | 79,844                  |
| Net working capital required              |                                                 | <b><u>16,76,719</u></b> |

*Working Notes :*

|                                                            |                 |                  |
|------------------------------------------------------------|-----------------|------------------|
| (i) Calculation of depreciation for the year :             |                 | <i>Rs.</i>       |
| Sales                                                      |                 | 45,00,000        |
| Less : 25% Gross Profit on sales                           |                 | <u>11,25,000</u> |
| Total Manufacturing cost                                   |                 | 33,75,000        |
| Less : Materials consumed                                  | 11,25,000       |                  |
| Wages paid                                                 | <u>9,00,000</u> | <u>20,25,000</u> |
| Total Manufacturing Expenses (A)                           |                 | 13,50,000        |
| Less : Cash manufacturing expenses (Rs. 1,00,000 x 12) (B) |                 | <u>12,00,000</u> |
| Depreciation for the year (A – B)                          |                 | <u>1,50,000</u>  |
| (ii) Calculation of total cash cost for the year :         |                 |                  |
| Total manufacturing costs                                  |                 | 33,75,000        |
| Less : Depreciation                                        |                 | <u>1,50,00</u>   |
| Cash manufacturing costs                                   |                 | <u>32,25,000</u> |
| Add : Administration expenses                              | 3,00,000        |                  |
| Sales promotion expenses                                   | <u>6,00,000</u> | <u>9,00,000</u>  |
| Total cash cost for the year                               |                 | <u>41,25,000</u> |

**Answer 2(b)****Gel Corporation***Evaluation of proposal to extend credit period*

|                                                                                                                         |               |
|-------------------------------------------------------------------------------------------------------------------------|---------------|
| (a) Existing receivable turnover in times 360/45                                                                        | 8             |
| (b) New receivable turnover in times 360/75                                                                             | 4.80          |
| (c) Contribution on estimated additional sales of Rs.90 lakhs<br>@ 20% (90 lakh x 20%)                                  | Rs. 18 lakh   |
| (d) Additional receivable [(6,90,00,000 ÷ 360) x 75]<br>– [(6,00,00,000 ÷ 360) x 45]<br>= [(1,43,75,000) – (75,00,000)] | Rs. 68,75,000 |
| (e) Investment at cost of sales in additional receivables @ 80%<br>(68,75,000 x 80/100)                                 | Rs. 55 lakh   |
| (f) Required rate of return before tax @ 20%                                                                            | Rs. 11 lakh   |
| (g) Increase in Profit (18 – 11)                                                                                        | Rs. 7 lakh    |

*Recommendation :* The Company should extend credit period to 'Net 60 days'

**Question 3**

- (a) *Sushmita Ltd. produces an electronic component with a selling price of Rs. 100. Fixed cost amounts to Rs.2 lakh. 5,000 Units are produced and sold each year. Annual profits amount to Rs.50,000. The company's all equity-financed assets are Rs.5 lakh.*

*The company proposes to change its production process, adding Rs.4,00,000 to investment and Rs.50,000 to fixed operational costs. The consequences of such a proposal are —*

- (i) *Reduction in variable costs per unit Rs. 10;*
- (ii) *Increase in output by 2,000 units; and*
- (iii) *Reduction in selling price per unit to Rs.95.*

*Assuming an average cost of capital at 10%, examine the proposal and advise whether the company should make the change. Also, measure the degree of operating leverage and break-even point. (10 marks)*

- (b) *You are given following information of Alpha Ltd. for the year ended 31st March, 2010 :*

|                            | <i>Rs. in Thousands</i> |
|----------------------------|-------------------------|
| <i>Sales</i>               | <i>1,05,000</i>         |
| <i>Variable cost</i>       | <i>76,700</i>           |
| <i>Fixed cost Interest</i> | <i>7,500</i>            |
| <i>Income-tax @ 30%.</i>   | <i>11,000</i>           |

*On the basis of above information, you are required to calculate and interpret operating, financial and combined leverages. (6 marks)*

- (c) *Security-A offers an expected rate of return of 14% with a standard deviation of 8%. Security-B offers an expected rate of return of 11% with a standard deviation of 6%. If an investor wishes to construct a portfolio with a 12.8% expected return, what percentage of the portfolio will consist of Security-A ? (4 marks)*

**Answer 3(a)****Statement showing Evaluation of Proposal regarding Sushmita Ltd.**

|                                | <i>Present</i> | <i>New</i> |
|--------------------------------|----------------|------------|
| (1) Production & Sales (Units) | 5000           | 7000       |
|                                | <i>Rs.</i>     | <i>Rs.</i> |
| (2) Selling price per unit     | 100            | 95         |
| (3) Sales value                | 5,00,000       | 6,65,000   |
| (4) Annual Profit              | 50,000         | —          |
| (5) Fixed costs                | 2,00,000       | 2,00,000   |
| (6) Contribution (4 + 5)       | 2,50,000       | —          |
| (7) Variable costs (3 – 6)     | 2,50,000       | —          |
| (8) Variable costs per unit    | 50             | 40         |

|                                                  |          |          |
|--------------------------------------------------|----------|----------|
| (9) Additional fixed costs                       | —        | 50,000   |
| (10) Total fixed costs (5 + 9)                   | 2,00,000 | 2,50,000 |
| (11) Contribution per unit (2 – 8)               | 50       | 55       |
| (12) Contribution Rs.(5,000 x 50) & (7,000 x 55) | 2,50,000 | 3,85,000 |
| (13) Operating Profit (EBIT) (12 – 10)           | 50,000   | 1,35,000 |
| (14) Additional Investment                       | —        | 4,00,000 |
| (15) Cost of Capital 10%                         | —        | 40,000   |
| (16) Profit before tax (13 – 15)                 | 50,000   | 95,000   |

**Decision :** Since the proposal results into increased profits the company should accept the proposed changes

|                                                                                              |        |
|----------------------------------------------------------------------------------------------|--------|
| (17) Operating leverage (12 ÷ 13) = $\frac{\text{Contribution}}{\text{EBIT}} = 5.00$         | 2.8519 |
| (18) Break even point (10 ÷ 11)                                                              |        |
| $= \frac{\text{Total fixed costs including interest}}{\text{Contribution per unit}} = 4,000$ | 4,545  |

### Answer 3(b)

#### Calculation of Earnings of Alpha Ltd.

|                                       | Rs.(in '000) |
|---------------------------------------|--------------|
| Sales                                 | 1,05,000     |
| Less : Variable cost                  | 76,700       |
| Contribution                          | 28,300       |
| Less : Fixed cost                     | 7,500        |
| Earnings before interest & tax (EBIT) | 20,800       |
| Less : Interest                       | 11,000       |
| Earnings before tax (EBT)             | 9,800        |
| Less : Income tax @ 30%               | 2,940        |
| Earnings after tax (EAT)              | 6,860        |

#### Calculation of Leverages :

$$(i) \text{ Operating Leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Rs. 28,300}}{\text{Rs. 20,800}} = 1.36$$

*Interpretation :* Operating leverage shows that 1% change in sales revenue is expected to result in 1.36% change in EBIT.

$$(ii) \text{ Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{\text{Rs. 20,800}}{\text{Rs. 9,800}} = 2.12$$

*Interpretation :* Financial leverage represents that 1% change in EBIT is expected to result in 2.12% change in net income of Alpha Ltd.

- (iii) *Combined Leverage* : Operating Leverage x Financial Leverage =  $1.36 \times 2.12$   
= 2.88

$$\text{Alternatively, } \frac{\text{contribution}}{\text{EBT}} = \frac{\text{Rs. 28,300}}{\text{Rs. 9,800}} = 2.88$$

*Interpretation* : The combined leverage of 2.88 means that 1% change in sales is expected to change Net Income by 2.88%.

### Answer 3(c)

Expected Rate of Return of Security A :  $E(R_A) = 14\%$

$$\sigma_A = 9\%$$

Expected Rate of Return of Security B :  $E(R_B) = 11\%$

$$\sigma_B = 6\%$$

Expected Return of Portfolio  $E(R_p) = 12.8\%$

Assume proportion of investment in security A =  $W_A$

Investment in security B =  $(1 - W_A)$

Expected return on a portfolio

$$E(R_p) = W_A E(R_A) + W_B E(R_B)$$

Where  $W_A$  &  $W_B$  are the respective weights of security A & B

$$12.8 = W_A \times 14 + (1 - W_A) \times 11$$

$$12.8 = 14W_A + 11 - 11W_A$$

$$1.8 = 3W_A$$

$$\therefore W_A = 0.6 = 60\%.$$

Thus, investment in security A = 60%

Investment in security B = 40%.

### Question 4

*Distinguish between any four of the following :*

- (i) 'Financial distress' and 'insolvency',
- (ii) 'Leasing' and 'hire-purchase'.
- (iii) 'Financial viability of a project' and 'commercial viability of a project'.
- (iv) 'Clearing mechanism' and 'settlement mechanism'.
- (v) 'Return on capital employed' and 'return on net worth'. (5 marks each)

### Answer 4(i)

#### Financial distress and insolvency

Generally the affairs of a firm should be managed in such a way that the total risk-business as well as financial-borne by equity holders is minimized and is manageable, otherwise, the firm would obviously face difficulties. If cash inflow is inadequate the

firm will face difficulties in payment of interest and repayment of principal. If the situation continues long enough, a time will come when the firm would face pressure from creditors. Failure of sales can also cause difficulties in carrying out production operations. The firm would find itself in a tight spot. Investors would not invest further. Creditors would recall their loans. Capital market would heavily discount its securities. Thus, the firm would find itself in a situation called distress. It may have to sell its assets to discharge its obligations to outsiders at prices below their economic values i.e., resort to distress sale. So when the sale proceeds are inadequate to meet outside liabilities, the firm is said to have failed or become bankrupt or (after due processes of law are gone through) insolvent.

**Answer 4(ii)****Leasing and hire-purchase**

In case of leasing, the asset is handed over by the lessor to the lessee in return for a lease rental. The ownership and the title to the assets remain with the lessor. The lessor, however, recovers the cost of the assets as well as a reasonable return in form of rental income. The lessor also gets the deduction in taxable income for the depreciation of the assets (though not using the assets). The lessee gets the opportunity for using the assets in its entirety without owning it. Further, the rental, paid by the lessee gets fully deducted from the taxable income of the lessee.

In case of hire-purchase, the seller hands over the assets to the buyer but the title to goods is not transferred. The buyer becomes the owner of the goods and acquires the title to the goods only when he makes the payments of all the installments. In case of default in payment by the buyer, the sellers can repossess the goods. The installments already paid by the buyer upto the date of repossession, in such a case, are treated as 'hire' towards using the assets by the buyer. The hire-purchaser shows the assets in his balance sheet and can claim depreciation from taxable income, although he may not be the owner at that time. The interest part of the installment can also be claimed as deduction from the taxable income.

**Answer 4(iii)****Financial viability of a project and commercial viability of a project**

**Financial Viability :** A project is considered to be financially viable if the earnings are expected to be sufficient to meet the burden of servicing debt, to cover fixed charges, operating and maintenance costs, and, in addition, yield a reasonable return on the investment made. Profitability projections are made to judge the financial viability of the project.

The profitability projections are made taking into account the various concessions/ subsidies which may be available to the project and the tax burden associated with the project.

Broadly, assessment of financial viability of the project involves consideration of following aspects:

- (i) Cost of the Project.
- (ii) Financing Plans, Financial Collaboration arrangements and the terms there- for.

- (iii) Requirements of working capital.
- (iv) Projections of future profitability.
- (v) Projections of cash flow.
- (vi) Break-even and sensitivity analysis of the project.
- (vii) Assessment of financial rates of return, financial ratios, cost benefit analysis etc.
- (viii) Debt-equity Ratio.
- (ix) Promoters' contribution.

*Commercial Viability* : A project is considered to be commercially viable if it is able to market its products competitively in the domestic or international markets at a reasonable margin of profit. The appraisal takes into account the aggregate demand (projected) for the proposed product service and the expected share of the market the project expects to capture.

The commercial broadly involves market analysis to cover:

- Consumption trends in the past and present consumption level;
- Past and present supply position;
- Production possibilities and constraints;
- Cost structure;
- Imports and Exports;
- Structure of competition;
- Elasticity of Demand;
- Consumer behaviour, intention, motivation, attitudes, preferences and requirements;
- Distribution channel and marketing policies in use;
- Administrative, technical and legal constraints.

#### **Answer 4(iv)**

#### **Clearing Mechanism and Settlement Mechanism**

##### *Clearing Mechanism*

Clearing Corporation of Stock Exchange carries out clearing and settlement cycles of different sub-segments in the Equities segment. The clearing function of the clearing corporation is designed to work out (a) what counter parties owe and (b) what counter parties are due to receive on the settlement date.

##### *Settlement Mechanism*

Settlement is a two way process which involves legal transfer of title to funds and securities or other assets on the settlement date.

For administrative convenience, a stock exchange divides the year into a number of settlement periods so as to enable members to settle their trades. All transactions executed during the settlement period are settled at the end of the settlement period.

#### Answer 4(v)

#### Return on capital employed and Return on net worth

*Return on Capital Employed* : The profitability of the firm can also be analysed from the point of view of the total funds employed in the firm. The term funds employed or the capital employed refers to the total long term sources of funds. It means that the capital employed comprises of shareholders funds plus long term debts. Alternatively, it can also be defined as fixed assets plus net working capital.

RCE =

*Return on net worth* : The ROE examines profitability from the perspective of the equity investors by relating profits available for the equity shareholders with the book value of the equity investment. The return from the point of view of equity shareholders may be calculated by comparing the net profit less preference dividend with their total contribution in the firm.

$$\text{Return on Net Worth} = \frac{\text{PAT} - \text{Preference Dividend}}{\text{Equity Shareholders Funds or Net Worth}} \times 100$$

#### Question 5

*India Inc.'s dependence on banks for funding appears to be showing decline. With the Reserve Bank of India blocking sub-benchmark prime lending rate route for cheap financing from banks, corporates are looking at non-bank alternatives.*

*Under the earlier below prime lending rate (BPLR) regime, while large corporates could borrow at low interest rates from banks, the small and medium enterprises (SMEs) and retail borrowers ended up paying high interest rates. The new lending regime is aimed at enhancing transparency in lending rates of banks.*

*Highly rated corporates are replacing their earlier short-term sub-BPLR loans, by taking recourse to the debt market to keep a lid on borrowing costs and have been able to raise resources around the base rate of banks. However, corporates may not be able to supplant bank finance with funds from the debt capital market. Funding could dry up from debt markets in case of a liquidity crisis in the financial system.*

*Although, a bit costly as compared to the debt markets, banks are a steady source of funds for corporates. A bank is unlikely to jeopardize its long-standing relationship with a corporate by choking off funds during a liquidity crisis.*

*Answer the following questions :*

- (i) *List and describe features of sources of finance other than banks and equity for corporates.* (10 marks)
- (ii) *How is base rate system more expensive than prime lending rate for corporates?* (5 marks)
- (iii) *How is bank finance superior to funding from debt market for corporates ?* (5 marks)

**Answer 5(i)**

Source of finance available other than banks and equity for raising funds by Corporates include the following :

**(a) Deposits**

Public deposits are a prominent source of finance to the companies. Salient features of deposits are as follows:

- (i) Funds are available at low cost;
- (ii) There is no need to provide security;
- (iii) Process is simple and no restrictive covenants are involved;
- (iv) Restrictions put by the RBI on financial institutions to advance, to prevent hoarding and black marketing leads to the companies accept deposits from the public;
- (v) Tax deductibility of interest paid on deposits.

**(b) Debentures and Bonds**

Debentures as a source of finance suit companies which have regular earnings to service the debt, have higher proportion of fixed assets in their assets structure which offers adequate security and motivate investors. The company has to ensure maintenance of prudent debt equity ratio. Importance of debentures and bonds in the capital structure due to the following features:

- (i) Debenture holders or suppliers of loan capital have no controlling interest in the company.
- (ii) Finance is available for a fixed period.
- (iii) It enhances the earnings of equity holders through the operation of financial leverage.
- (iv) It provides long term finance to company on easy and cheap term.
- (v) The cost of debt is lower than cost of equity or preference shares as interest is tax deductible.

**(c) Mortgage Backed Securities**

In Mortgage backed securities the issuer can generate cash from assets immediately enabling funds to be deployed in other projects. The assets to be securitized shall have the following features:

- (i) The cash flow generated from the assets should be received periodically in accordance with a pre-determined schedule.
- (ii) The assets should be large in number and total value to be issued in securitized form.
- (iii) The asset should be sufficiently similar in nature and total value to be issued in cash flows.
- (iv) The asset should be marketable.

(d) *Foreign Currency Convertible Bonds (FCCBs)*

A Foreign Currency Convertible Bond (FCCB) is a quasi debt instrument which is issued by any corporate entity, international agency or sovereign state to the investors all over the world.

*Features:*

- (i) FCCB are denominated in any freely convertible foreign currency.
- (ii) The FCCB by virtue of convertibility offers to issuer a privilege of lower interest cost than that of similar non convertible debt instrument.
- (iii) FCCB can be marketed conveniently and the issuer company expects that the number of its shares will not increase until investors see improved earnings and prices for its common stock.

**Answer 5(ii)**

The base rate system has, in a way, put an end to this practice of cross-subsidization. Banks, on the other hand, cannot lend below or at the base rate. They add risk and tenor premium to the base rate to lend to a corporate. The base rate is arrived at by taking into account cost of deposits/funds, the negative carry on the cash reserve ratio and statutory liquidity ratio, overhead costs, and average return on net worth.

**Answer 5(iii)**

A bank is unlikely to jeopardize its long-standing relationship with a corporate by choking off funds during a liquidity crisis. In sharp contrast, funding could dry up from debt markets in case of a liquidity crisis in the financial system.

**Question 6**

(a) *Sushant Ltd. has the following capital structure :*

|                              | <i>Rs.</i>              |
|------------------------------|-------------------------|
| <i>Equity shares</i>         | <i>50,00,000</i>        |
| <i>10% Preference shares</i> | <i>10,00,000</i>        |
| <i>14% Debentures</i>        | <i>20,00,000</i>        |
|                              | <u><i>80,00,000</i></u> |

*Equity shares of the company are sold at Rs.25 per share in the market. It is expected that the company will pay next year a dividend of Rs.4 per share which will grow at 8% forever. Assume a tax-rate of 30%.*

- (i) *Compute weighted average cost of capital based on the existing capital structure.*
- (ii) *Compute the new weighted average cost of capital, if the company raises an additional Rs.20,00,000 debt by issuing 15% debentures. This would increase the expected dividend to Rs.5 per share with dividend growth rate unchanged, but the price of share will fall to Rs. 20 per share.*

*(12 marks)*

- (b) A company is considering three methods of attracting customers to expand its business by undertaking — (A) advertising campaign; (B) display of neon signs; and (C) direct delivery service. The initial outlay for each alternative is as under:

|   |              |
|---|--------------|
| A | Rs. 1,00,000 |
| B | Rs. 1,50,000 |
| C | Rs. 1,50,000 |

If A is carried out, but not B, it has an NPV of Rs. 1,25,000. If B is done, but not A, B has an NPV of Rs. 45,000. However, if both are done, then NPV is Rs. 2,00,000. The NPV of the delivery system C is Rs. 90,000. Its NPV is not dependent on whether A or B is adopted and the NPV of A or B does not depend on whether C is adopted.

Which of the investments should be made by the company if (i) firm has no budget constraint; and (ii) the budgeted amount is only Rs. 2,50,000 ?

(8 marks)

#### Answer 6(a)

##### (i) Weighted Average Cost of Capital (based on existing capital structure)

| Source                       | Amount (Rs.)     | After Tax Cost | Weights      | Weight Average Cost |
|------------------------------|------------------|----------------|--------------|---------------------|
| Equity Share Capital         | 50,00,000        | 0.24           | .625         | 0.15                |
| 10% Preference Share Capital | 10,00,000        | 0.10           | .125         | .0125               |
| 14% Debentures               | 20,00,000        | 0.098          | .250         | 0.0245              |
|                              | <u>80,00,000</u> |                | <u>1.000</u> | <u>0.187</u>        |

∴ Weighted average cost of Capital = 0.187 or 18.7%.

Working Notes :

$$(i) \text{ Cost of Equity} = \frac{\text{Rs. 4}}{\text{Rs. 25}} + g = 0.16 + 0.08 = 0.24 \text{ or } 24\%$$

##### (ii) Cost of 14% Debentures

$$\begin{aligned}
 &= 14\% (1 - \text{tax rate}) \\
 &= 14\% (1 - 0.30) \\
 &= 14\% \times 0.70 \\
 &= 9.8\%
 \end{aligned}$$

**(ii) Weighted Average Cost of Capital (based on New capital structure)**

| <i>Source</i>                | <i>Amount (Rs.)</i> | <i>After Tax Cost</i> | <i>Weights</i> | <i>Weight Average Cost</i> |
|------------------------------|---------------------|-----------------------|----------------|----------------------------|
| Equity Share Capital         | 50,00,000           | 0.33                  | .50            | 0.165                      |
| 10% Preference Share Capital | 10,00,000           | 0.10                  | .10            | .01                        |
| 14% Debentures               | 20,00,000           | 0.098                 | .20            | 0.0196                     |
| 15% Debentures               | 20,00,000           | 0.105                 | .20            | 0.021                      |
|                              | 1,00,00,000         |                       | 1.00           | 0.2156                     |

∴ New Weighted average cost of Capital = 0.2156 or 21.56%.

*Working Notes :*

$$(i) \text{ Cost of Equity} = \frac{\text{Rs. } 5}{\text{Rs. } 20} + g = 0.25 + 0.08 = 0.33 \text{ or } 33\%$$

$$\begin{aligned}
 (ii) \text{ Cost of 15\% Debentures} &= (\text{Interest Rate} - \text{Tax}) \\
 &= 15\% (1 - 0.30) \\
 &= 15\% (0.70) \\
 &= 10.5\%
 \end{aligned}$$

**Answer 6(b)****Calculation of expected NPVs**

| <i>Mode of attracting customers</i> | <i>Initial Outlay (Rs.)</i> | <i>Expected NPV (Rs.)</i> |
|-------------------------------------|-----------------------------|---------------------------|
| Advertisement Campaign (A)          | 1,00,000                    | 1,25,000                  |
| Display of neon signs (B)           | 1,50,000                    | 45,000                    |
| Direct delivery service (C)         | 1,50,000                    | 90,000                    |
| (A) + (B) + (C)                     | 4,00,000                    | 2,90,000                  |
| (A) + (C)                           | 2,50,000                    | 2,15,000                  |
| (B) + (C)                           | 3,00,000                    | 1,35,000                  |
| (A) + (B)                           | 2,50,000                    | 2,00,000                  |

(i) *No Budget Constraint* : The firm should adopt all the three modes of attracting customers. Its outlay in this case would be Rs.4,00,000 and the expected NVP would be Rs.2,90,000.

(ii) *Budget Constraint* : If the budget constraints are limited to Rs.2,50,000 then the

firm should adopt mode (A) and (C) only. In this case, the outlay would be Rs. 2,50,000 and the total NPV would be Rs.2,15,000.

### Question 7

*Write notes on any four of the following :*

- (i) *Secured premium note*
- (ii) *Important motives to hold cash*
- (iii) *Domestic resource cost*
- (iv) *Purchasing power parity*
- (v) *Factoring.*

*(5 marks each)*

### Answer 7(i)

#### **Secured Premium Notes (SPN)**

These instruments are issued with detachable warrants and are redeemable after a notified period say 4 to 7 years. The warrants enable the holder to get equity shares allotted provided the secured premium notes are fully paid. During the lock in period no interest is paid. The holder has an option to sell back the SPN to the company at par value after the lock in period. If the holder exercises this option, no interest/ premium is paid on redemption. In case the holder keeps it further, he is repaid the principal amount along with the additional interest/premium on redemption in installments as per the terms of issue. The conversion of detachable warrants into equity has to be done within the specified time.

### Answer 7(ii)

#### **Important motives to hold cash**

Three important motives for holding cash are as under:

##### (a) *Transactional Motive*

This is the most essential motive for holding cash because cash is the medium through which all the transactions of the firm are carried out. These transactions are paid for from the cash pool or cash reservoir which is all the time being supplemented by inflows.

##### (b) *Speculative Motive*

Since cash is the most liquid current asset, it has the maximum potential of value addition to a firm's business. Therefore, efficient firms seek to deploy surplus cash in short term investments to get better returns. Since this deployment of cash needs to be done skillfully, not all the firms hold cash for speculative motive. Further the amount of cash held for speculative motive should not cause any strain upon the operating cycle.

##### (c) *Contingency Motive*

This motive of holding cash takes into account the element of uncertainty associated with any form of business. The uncertainty can result in prolongation

of the working capital operating cycle or even its disruption. It is possible that cost of raw materials or components might go up or the time taken for conversion of raw materials into finished goods might increase. For such contingencies, some amount of cash is kept by every firm.

**Answer 7(iii)****Domestic Resource Cost**

DRC measures the resource cost of manufacturing a product as against the cost of importing/exporting it. It indicates the long-term comparative advantage a country enjoys in the production of a particular product.

The output from any project adds to domestic availability implying a notional reduction in imports to the extent of output of the project or an addition to exports if the product is being exported. This in turn implies that foreign exchange is saved to the extent there is reduced imports or foreign exchange is earned to the extent there is increased exports.

However, in the setting up of the project itself and in the manufacturing of the product, foreign exchange outflows may be incurred in order to procure machinery, raw materials etc. The foreign exchange saved or earned thus has to be adjusted for such outflow.

**Answer 7(iv)****Purchasing Power Parity**

According to the Purchasing Power Parity (PPP) Principle, the currency of a country will depreciate vis-a-vis the currency of another country on the basis of differential in the rates of inflation between them. The rate of depreciation in the currency of a country would roughly be equal to the excess inflation rate in the country over the other country.

It maintains that free international trade equalizes prices of tradable goods in different countries. So, a product will sell for the same price in common currency in all countries. Different rates of changes in prices i.e. different inflation rates must eventually induce offsetting changes in exchange rates in order to restore approximate price equality.

**Answer 7(v)****Factoring**

Factoring is a type of financial service which involves an outright sale of the receivables of a firm to a financial institution called the factor which specializes in the management of trade credit. Under a typical factoring arrangement, a factor collects the accounts on the due dates, effects payments to the firm on these dates (irrespective of whether the customers have paid or not) and also assumes the credit risks associated with the collection of the accounts. As such factoring is nothing but a substitute for in-house management of receivables. A factor not only enables a firm to get rid of the work involved in handling the credit and collection of receivables, but also in placing its sales in effect on cash basis.

Table

Table

## PROFESSIONAL PROGRAMME EXAMINATION

JUNE 2011

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

Time allowed : 3 hours

Maximum marks : 100

- NOTE :** 1. Answer FIVE questions including Question No.1 which is compulsory. All working notes should be shown distinctly.
2. Tables showing the present value of ₹ 1 and the present value of an annuity of 1 for 15 years are annexed.

#### Question 1

Comment on any four of the following :

- (i) A treasury manager has a significant role to play in the overall functioning of a firm.
- (ii) A firm's stock price is not related to its mix of debt and equity financing.
- (iii) Depreciation is a source of internal finance.
- (iv) A stable dividend policy is always preferable to fluctuating dividend policy.
- (v) Risk and uncertainty are quite inherent in capital budgeting decisions.

(5 marks each)

#### Answer 1(i)

The different roles of treasury manager are follows :

- 1. *Originating roles* : The treasury manager inducts and originates system of accounting for the firm. Routine accounting of the firm is then carried out along these established systems. The treasury manager compiles exhaustive operations manual for the guidance of the users.
- 2. *Supportive roles* : The treasury manager supports the activities of other departments based on constructive coordination.
- 3. *Leadership roles* : This role comes into play during times of exigency which can occur during time of systems break down.
- 4. *Watch dog roles* : Treasury manager is the eyes and ears of the management. As a processor of the financial transactions, he keeps a watch on suspects bungling and frauds in the firm.
- 5. *Learning roles* : Treasury manager continuously learns the new accounting concepts and technological changes and adopts these changes with open mind; educates other departments of firms about damages.

#### Answer 1(ii)

Theory of modern financial management – by Franco Modigliani and Merton Miller concluded that the value of a firm depends solely on its future earnings stream, and

hence its value is unaffected by its debt/equity mix. They concluded that a firm's value stems from its assets, regardless of how those assets are financed.

The theory was based on restrictive set of assumptions, including perfect capital markets (which implies zero taxes). They used an arbitrage proof to demonstrate that capital structure is irrelevant. If debt financing resulted in a higher value for the firm than equity financing, then investors who owned shares in a leveraged (debt-financed) firm could increase their income by selling those shares and using the proceeds, plus borrowed funds, to buy shares in an unleveraged (all equity-financed) firm. The simultaneous selling of shares in the leveraged firm and buying of shares in the unleveraged firm would drive the prices of the stocks to the point where the values of the two firms would be identical. Thus, according to MM Hypothesis, a firm's stock price is not related to its mix of debt and equity financing.

**Answer 1(iii)**

As regards depreciation, it is a deduction out of profits of the company calculated as per accounting rules on the basis of estimated life of the assets to an amount equal to original value of the assets. This results in reduction of taxable income and hence the firm has to pay lesser taxes. This brings funds to the firms. Usually, the entire amount deducted towards depreciation on fixed assets is not invested in the acquisition and replacement of fixed assets and is saved and utilised in business as working capital. This is also a temporary source of working capital so long as the acquisition of fixed assets is deferred.

But there exists a controversy whether depreciation should be taken as a source of internal funds. Whatever may be the outcome of such controversy, the fact remains that the depreciation is a sum that is set apart out of profits and retained within the business and finance the capital needs in the normal business routine, and as such depreciation in true academia sense be deemed as a source of internal finance.

**Answer 1(iv)**

A stable Dividend policy may lead to higher stock prices because it sustains investors confidence as they value more the dividend which are certain to be received. If dividends fluctuate investors may discount with some percentage probability factor i.e. the likelihood of receiving any particular amount of dividend. Failure to pay dividends in one year may shock the market price of share and remove the security from the approved list of the investments used by institutional investors.

The dividend policy has to be adapted to the nature and environments of the firm, industry and economy. If the company is operating in highly cyclical industry, like the machine tools industry, its management cannot create through regular dividends as stability does not exist. A low pay out in boom period cannot be off set by continuing dividends in prolonged period of large losses. It is better to relate dividends to earnings and not unduly attempt to protect shareholders from large fluctuations in earnings so inherent in business.

**Answer 1(v)**

Risk and uncertainty: Capital budgeting decision is surrounded by great number of uncertainties. Investment is present and investment is future. The future is uncertain

and full of risks. Longer the period of project, greater may be the risk and uncertainty. The estimates about cost, revenues and profits may not come true.

Risk and uncertainty are quite inherent in capital budgeting decisions. This is so because investment decisions and capital budgeting are actions of today which bear fruits in future which is unforeseen. Future is uncertain and involve risk. The projection of probability of cash inflows made today are not certain to be achieved in future. Seasonal fluctuations and business cycles both deliver heavy impact upon the cash inflows and outflows projected for different project proposals. The cost of capital which offers cut off rates may also be inflated or deflated under business cycle conditions.

Inflation and deflation are bound to effect the investment decisions in future period rendering the degree of uncertainty more reverse and enhancing the scope of risk. Technological developments are other factors that enhance the degree of risk and uncertainty by rendering plants and equipments obsolete and the project out of date. All these circumstances combined together affect capital budgeting decisions.

## Question 2

(a) *Indigo Ltd. has the following capital structure :*

|                           | <i>in Lakhs</i> |
|---------------------------|-----------------|
| Ordinary shares of 1 each | 1,000           |
| Retained earnings         | 160             |
| 8% Debentures             | 440             |
|                           | 1,600           |

*In order to undertake a programme of expansion, the company requires to raise additional capital of 400 lakh and three alternative financing schemes are under consideration :*

- (i) *A rights issue, at nominal value, of an additional 400 lakh 1 ordinary shares; or*
- (ii) *Issue, at nominal value, 400 lakh, 10% preference shares of 1; or*
- (iii) *Issue an additional 400 lakh of 8% debentures.*

*Without the expansion programme, Indigo Ltd.'s estimated annual profit before interest and tax in the foreseeable future is 200 lakh. If the programme proceeds, this will rise to 280 lakh. At present, the market values of the company's securities are :*

|                 |                              |
|-----------------|------------------------------|
| Ordinary shares | 5.40 (ex-dividend) per share |
| Debentures      | 110 per 100 nominal          |

*and the last ordinary dividend was 20 paise per share. If expansion does not take place, ordinary dividends are expected to grow at a constant rate of 2.5% per annum. After some initial fluctuations, the anticipated effect of expansion on dividends and market values is expected to stabilise as follows :*

|                                            | Expansion Financed by |                   |            |
|--------------------------------------------|-----------------------|-------------------|------------|
|                                            | Rights Issue          | Preference Shares | Debentures |
| Market value of an ordinary share          | 5.60                  | 5.80              | 6.00       |
| Market value of debentures per 100 nominal | 110                   | 110               | 108        |
| Market value of a preference share         | NA                    | 1.14              | NA         |
| Annual growth rate in ordinary shares      | 3.5%                  | 4.0%              | 5.0%       |

The company's profit is subject to corporation tax at 35% and this rate is unlikely to change. You are required to calculate for each alternative financing scheme:

- (i) the gearing ratio
- (ii) the profit available per ordinary share
- (iii) Weighted average cost of capital based on market value.

Calculations may be restricted to two decimal places.

(14 marks)

- (b) Rani has invested in a share whose dividend is expected to grow at 15% for 5 years and thereafter at 5% till life of the company. Find out value of the share, if current dividend is and 4 investor's required rate of return is 6%.

(6 marks)

### Answer 2(a)(i)

Gearing ratio =

$$\begin{aligned} \text{Gearing ratio for the existing capital structure} &= \frac{\text{₹ 440 lakh}}{\text{₹ 1600 lakh}} \\ &= 0.275 \end{aligned}$$

**If expansion programme funded by issuing ordinary shares**

$$\frac{\text{₹ 440 lakhs}}{\text{₹ 1600 lakh} + \text{₹ 400 lakh}} = \frac{440}{2000} = 0.22$$

**If either preference shares or debentures are used to finance**

$$\frac{\text{₹ 440 lakh} + \text{400 lakh}}{\text{₹ 1600 lakh} + \text{Rs.400 lakh}} = \frac{840}{2000} = 0.42$$

**Answer 2(a)(ii)**

The following table gives profit available for ordinary shares under each capital structure :

| <i>Particulars</i>                   | <i>Existing Capital Structure</i> | <i>Issue 400 lakh Ordinary Shares</i> | <i>Issue 400 lakh 10% preference shares</i> | <i>Issue ₹ 400 lakh of 8% debentures</i> |
|--------------------------------------|-----------------------------------|---------------------------------------|---------------------------------------------|------------------------------------------|
|                                      | ( )                               | ( )                                   | ( )                                         | ( )                                      |
| Profit before interest and tax       | 2,00,00,000                       | 2,80,00,000                           | 2,80,00,000                                 | 2,80,00,000                              |
| Less Debenture interest              | 35,20,000                         | 35,20,000                             | 35,20,000                                   | 67,20,000                                |
| Taxable profit                       | 1,64,80,000                       | 2,44,80,000                           | 2,44,80,000                                 | 2,12,80,000                              |
| Less Tax 35%                         | 57,68,000                         | 85,68,000                             | 85,68,000                                   | 74,48,000                                |
| PAT                                  | 1,07,12,000                       | 1,59,12,000                           | 1,59,12,000                                 | 1,38,32,000                              |
| Less Preference Shares dividend      | Nil                               | Nil                                   | 40,00,000                                   | -                                        |
| Profit available for ordinary shares | 1,07,12,000                       | 1,59,12,000                           | 1,19,12,000                                 | 1,38,32,000                              |
| No. of ordinary shares               | 10,00,00,000                      | 14,00,00,000                          | 10,00,00,000                                | 10,00,00,000                             |
| Profit per share                     | 0.107                             | 0.113                                 | 0.119                                       | 0.138                                    |

**Answer 2(a)(iii)****Weighted average cost of capital based on Market Value**

The market value of Indigo Ltd. Existing capital is :

|                                                                              | <i>% in capital structure</i> |
|------------------------------------------------------------------------------|-------------------------------|
| Market value of Ordinary shares (1,00,000,000 @ 5.40 (ex dividend) per share | 540,000,000 91.77             |
| Debentures @ 44,000,000 ÷ Rs. 100 @ 110                                      | 484,00,000 8.23               |
|                                                                              | <b>588,400,000 100.00</b>     |
| If additional shares are issued this change to                               |                               |
| Ordinary shares (140,000,000 @ 5.60)                                         | 784,000,000 94.19             |
| Debentures @ 44,000,000 ÷ 100 @ 110                                          | 48400000 5.81                 |
|                                                                              | <b>832400000 100</b>          |
| If preferential shares are issued                                            |                               |
| Ordinary shares (1,00,000,000 @ 5.80                                         | 580000000 86.05               |
| Debentures @ 44,000,000 ÷ 100 @ 110                                          | 48400000 7.18                 |
| Preference Shares (40,000,000 @ 1.14)                                        | 45600000 6.77                 |
|                                                                              | <b>674000000 100</b>          |

|                                       | ₹                | % in capital structure |
|---------------------------------------|------------------|------------------------|
| If additional debentures are issued : |                  |                        |
| Ordinary shares (1,00,000,000 @ 6.00) | 600,000,000      | 86.87                  |
| Debentures 84,000,000 ÷ 100 @ 108     | 90720000         | 13.13                  |
|                                       | <b>690720000</b> | <b>100.00</b>          |

Cost of each element

Ordinary Shares =

Where  $d$  = dividend

$g$  = growth rate

$P_0$  = price of the share

Preference Shares =  $d/P_0$

Debentures =  $i / P_0$

Inserting values relating to present capital structure

(i) If there is no expansion

$$\begin{aligned}
 \text{Ordinary shares} &= \frac{0.20(1 + 0.025)}{₹ 5.40} + 0.025 \\
 &= 0.037 + 0.025 \\
 &= 0.063 \\
 \text{Debentures} &= 8\% \times \frac{₹ 100}{₹ 110} \\
 &= 0.07
 \end{aligned}$$

$$\text{The WACC} = (91.77\% \times 0.063) + (8.23\% \times 0.07) = 5.78 + 0.58 = 6.36\%$$

(ii) If expansion is through issue of rights shares

For rights issue

$$\begin{aligned}
 \text{Ordinary shares} &= \frac{0.20(1 + 0.035) + 0.035}{₹ 5.60} = 0.07 \\
 \text{Debentures} &= \frac{8\% \times ₹ 100}{₹ 110} = 0.07
 \end{aligned}$$

$$\text{WACC} = 94.19 \times 0.07 + 5.81 \times 0.07 = 6.59 + .41 = 7\%$$

Therefore WACC is 7%

(iii) If expansion is through issue of preference shares

$$\text{Ordinary shares} = \quad + 0.04 = 0.08$$

Cost of capital of Debentures unchanged 0.07

$$\text{Preference shares} = \frac{10\% \times 1.00}{₹ 1.14} = 0.09$$

$$\text{WACC} = (86.05\% \times 0.08) + (7.18\% \times 0.07) + (6.77\% \times 0.09) = 7.93\%$$

If debentures are issued

$$\text{Ordinary shares} = \frac{0.20(1+0.05)}{₹ 6.00} + 0.05 = 0.09$$

$$= \frac{8\% \times ₹ 100}{₹ 108} = 0.07$$

$$\text{WACC} = (86.87\% \times 0.09) + (13.13\% \times 0.07) = 8.35\%$$

$$\frac{₹ 0.20 (1 + 0.04)}{₹ 5.80}$$

#### Answer 2(b)

##### Calculation of present value of dividend at 15% for 5 years

| Year |              | Dividend<br>$D_t = Do(1+g)^t$ | PVF@6% | Present Value |
|------|--------------|-------------------------------|--------|---------------|
| 1    | $4(1+.15)^1$ | 4.6000                        | 0.9434 | 4.3378        |
| 2    | $4(1+.15)^2$ | 5.2900                        | 0.8900 | 4.7081        |
| 3    | $4(1+.15)^3$ | 6.0835                        | 0.8396 | 5.1101        |
| 4    | $4(1+.15)^4$ | 6.9960                        | 0.7921 | 5.5408        |
| 5    | $4(1+.15)^5$ | 8.0454                        | 0.7473 | 6.0099        |
|      |              | 31.0149                       |        | 25.7067       |

Total dividends of ₹ 31.01 are expected in the next 5 years, which is NPV of 25.70 @ 6%.

The value of equity share at the end of the 6th year :

Dividend for 6<sup>th</sup> year

$$D_6 = D_5 (1+g)$$

$$= 8.0454 (1+0.05) = 8.4476$$

$$P_5 = D_6 / (k_e - g) = 8.4476 / (0.06 - 0.05) = 844.76$$

So the share price is 844.76

Present Value of this @ 6% =  $844.76 \times .7473 = 631.28$

Value of share = present value of dividend + present value of expected price

=  $25.71 + 631.28 = 656.99 = 657$

### Question 3

- (a) *Peacock Ltd. has been engaged in manufacturing of textiles. It has a current sales of 30 lakh per annum. The cost of sales is 75% of sales and bad debts are 1% of sales. The cost of sales comprises 80% variable costs and 20% fixed cost, while the company's required rate of return is 12%. The company currently allows customers 30 days' credit, but is now considering increasing this to 60 days' credit in order to attract more customers.*

*It has been estimated that this change in policy will increase sales by 15%, while bad debts will increase from 1% to 4%. It is expected that the policy change will not result in any increase in fixed costs, creditors and stock level.*

*Should Peacock Ltd. introduce proposed policy ? (10 marks)*

- (b) *The following information is related to Evergreen Ltd :*

|                                         |                    |
|-----------------------------------------|--------------------|
| <i>Unit cost</i>                        | <i>200</i>         |
| <i>Order cost</i>                       | <i>320</i>         |
| <i>Inventory carrying cost</i>          | <i>40</i>          |
| <i>Back order cost (stock out cost)</i> | <i>20</i>          |
| <i>Annual demand</i>                    | <i>2,000 units</i> |

*You are required to compute the following :*

- (i) Minimum cost order quantity*
- (ii) Time between orders*
- (iii) Minimum number of back orders*
- (iv) Maximum inventory level*
- (v) Overall annual cost.*

*(2 marks each)*

### Answer 3(a)

Current Level of Sales = 30 Lakh

New Level of Sales will be

$30,00,000 \times 1.15 = 34,50,000$

Variable Costs = 80%

Variable costs are 80% of Cost of Sales  $\times 75\% = 60\%$  of sales

| Contribution from Sales = 40% of Sales                     |              |          |
|------------------------------------------------------------|--------------|----------|
| Proposed Investment in debtors 34,50,000x 60/365           |              | 5,67,123 |
| Current investment in debtors 30,00,000 x 30/365           |              | 2,46,575 |
| Increase in investment in debtors                          |              | 3,20,548 |
| Increase in contribution = 15% x 30,00,000 x 40% ..... (A) |              | 1,80,000 |
| New level of bad debts = 34,50,000 x 4%                    | 1,38,000     |          |
| Current level of bad debts = 30,00,000 x 1%                | 30,000       |          |
| Increase in bad debts                                      | (-) 1,08,000 |          |
| Additional financing costs = 3,20,548 x 12%....(B)         | (-) 38,466   | 1,46,466 |
| Saving by introducing change in policy (A – B)             |              | 33,534   |

The change in financing policy is financially acceptable although savings are not very substantial

Notes : Investment in Debtors has been taken at Selling Price.

$$\sqrt{\frac{2AD(B+C)}{C \quad B}}$$

### Answer 3(b)

Here :

A = Annual demand = 2000 units

B = Back Order Cost = 20

C = Inventory Carrying Cost = 40

D = Order Cost = Rs.320

(i) Minimum cost order quantity

Q =

$$= \sqrt{\frac{2 \times 2000 \times 320(20+40)}{40 \quad 20}} = \sqrt{32000 \times 3}$$

$$= \sqrt{96000} = 309.83 \text{ OR } 310 \text{ Units}$$

(ii) Time between order :

$$\frac{\text{Minimum Cost Order Quantity}}{\text{Annual Demand}} = Q/A = 310/2000 = 0.155$$

0.155 year or  $0.155 \times 12 = 1.86$  months

(iii) Minimum number of back orders :

Let back order may be = S

$$S = QC / B + C = 310 \times 40 / 20 + 40 = 12400/60 = 206.67 \text{ or } 207 \text{ units}$$

(iv) Maximum inventory level :  $Q - S = 310 - 207 = 103$  units

(v) Overall annual cost : purchase cost = 2000 units @ ₹ 200 =  $2000 \times 200 = 4,00,000$

*Alternative solution*

|               |                       |           |
|---------------|-----------------------|-----------|
| Purchase cost | $200 \times 2000$     | 4,00,000  |
| Order Cost    | $2000/310 \times 320$ | 2064.51   |
| Carrying cost | $103 \times 40 / 2$   | 2060      |
| Total         |                       | 404124.51 |

#### Question 4

*Distinguish between any four of the following :*

- (i) 'Current account' and 'capital account' in balance of payment.
- (ii) 'Foreign direct investment' and 'portfolio investment'.
- (iii) 'Ask price' and 'bid price'.
- (iv) 'Horizontal capital structure' and 'vertical capital structure'.
- (v) 'Investment' and 'speculation'. (5 marks each)

#### Answer 4(i)

The current account of the BOP comprises trade in goods and services. In other words, the current account balance takes into account exports, imports, and net foreign income from unilateral transfers. The capital account of the BOP, on the other hand, takes into account cross-border flow of funds that are associated with financial or other assets in the trading countries. For example, the direct and portfolio investments made by foreign investors, in India, are captured by the capital account balance of the BOP. The capital account also encompasses foreign investments of Indian companies, foreign aid and bank deposits of Non-resident Indians (NRI).

#### Answer 4(ii)

Foreign direct investment means investment by non-resident entity/person resident outside India in the capital of the Indian company under Schedule I of FEM (Transfer or Issue of Securities by a person Resident Outside India) Regulations 2000.

Portfolio investment mainly includes FIIs' investment, funds raised through GDRs/ ADRs by Indian companies and through offshore funds. Data on investment abroad, hitherto reported, have been split into equity capital and portfolio investment.

#### Answer 4(iii)

An ask price is the rate at which the market maker is ready to sell a particular

currency pair. This is the price that a trader is ready to receive in order to sell the currency. The bid/ask combination comprises a quotation, which is based on a floating exchange rate. The quotation lists the bid price first, then the ask price.

A bid price is the rate at which the market maker is prepared to buy a specific currency pair in the Forex trading market. This is the price that a trader will pay when buying a currency.

#### **Answer 4(iv)**

In a Horizontal capital structure, the firm has zero debt component in the structure mix. The structure is quite stable. Expansion of the firm takes in a lateral manner, i.e. through equity or retained earning only. The absence of debt results in the lack of financial leverage. Probability of disturbance of the structure is remote.

In a vertical capital structure, the base of the structure is formed by a small amount of equity share capital. This base serves as the foundation on which the super structure of preference share capital and debt is built. The incremental addition in the capital structure is almost entirely in the form of debt. Quantum of retained earnings is low and the dividend pay-out ratio is quite high. In such a structure, the cost of equity capital is usually higher than the cost of debt. The high component of debt in the capital structure increases the financial risk of the firm and renders the structure unstable. The firm, because of the relatively lesser component of equity capital, is vulnerable to hostile takeovers.

#### **Answer 4(v)**

Investment may be defined as a conscious act on the part of a person that involves deployment of money in securities issued by firms/companies with a view to obtain a target rate of return over a specified period of time.

Speculation also involves deployment of funds but it is not backed by a conscious analysis of pros and cons. Mostly it is a spur of the moment activity that is promoted and supported by half-baked information and rumours. Speculative deployment of funds is generally prevalent in the secondary equity market. What attracts people to speculation is a rate of return that is abnormally higher than the prevailing market rates. The balancing of risk and return nevertheless operates in speculative activity also and as such the risk element in speculation is very high.

#### **Question 5**

- (a) *Excel Ltd. is considering investing in a risky project which would be added to an existing portfolio of investment projects, also subject to risk. It envisages six possible states of the economy for which it has estimated probabilities and outcome as follows :*

| <i>State of Economy</i> | <i>Probability</i> | <i>Return on Existing Portfolio</i> | <i>Return on Proposed Projects</i> |
|-------------------------|--------------------|-------------------------------------|------------------------------------|
| 1                       | 0.1                | 12%                                 | 8%                                 |
| 2                       | 0.2                | 14%                                 | 10%                                |
| 3                       | 0.2                | 15%                                 | 12%                                |
| 4                       | 0.3                | 16%                                 | 10%                                |
| 5                       | 0.1                | 18%                                 | 14%                                |
| 6                       | 0.1                | 20%                                 | 6%                                 |

You are required to determine whether the project should be accepted. The risk-free rate of return is 6%. (10 marks)

(b) The following details of Alpha Ltd. for the year ended 2010 are furnished :

|                                      |         |
|--------------------------------------|---------|
| Financial leverage                   | 2:1     |
| Operating leverage                   | 3:1     |
| Interest charges per annum           | 20 lakh |
| Corporate tax rate                   | 40%     |
| Variable cost as percentage of sales | 60%     |

Prepare income statement of the company. (6 marks)

(c) Mohan has a portfolio of 6 securities, each with a market value of 10,000. The current beta ( ) of the portfolio is 1.30 and of the riskiest security is 1.80. Mohan wishes to reduce his portfolio to 1.15 by selling the riskiest security and replacing it with another security with a lower . What must be the of the replacement security ? (4 marks)

#### Answer 5(a)

| Date of return | Probability | R x Pt      | Ri x Pt     | Rpt - Rpt (a) | Rpt - Ript (b) | $\bar{a}^2 p$ | (a)(b)p  |
|----------------|-------------|-------------|-------------|---------------|----------------|---------------|----------|
| 1              | .1          | 12<br>(1.2) | 8<br>(.8)   | -3.6          | - 2.2          | 1.296         | +.792    |
| 2              | .2          | 14<br>(2.8) | 10<br>(2.0) | -1.6          | - 0.2          | .512          | +0.064   |
| 3              | .2          | 15<br>(3.0) | 12<br>(2.4) | -0.6          | +1.8           | .072          | (-) .216 |
| 4              | .3          | 16<br>(4.8) | 10<br>(3.0) | + 0.4         | -0.2           | .048          | (-) .024 |
| 5              | .1          | 18<br>(1.8) | 14<br>(1.4) | + 2.4         | +3.8           | .576          | 0.912    |
| 6              | .1          | 20<br>(2.0) | 06<br>(0.6) | + 4.4         | -4.2           | 1.936         | (-)1.848 |
|                |             | 15.6        | —           |               |                | 4.440         | +1.768   |
|                |             | Rpt =       | Rpt =       |               |                |               | - 2.088  |
|                |             | 15.6        | 10.2        |               |                |               |          |
|                |             |             |             |               |                |               | - .32    |

$$B = \quad = (-) .32/4.44 = (-) .072$$

Required rate of return is

$$R_{ft} + \beta R_p = 6 + (-.072 \times 9.6) \text{ [where } R_p = R_{pt} - R_f ; 15.6 - 6.0 = 9.6 \text{ ]}$$

$$= 6 - .691 = 5.309$$

The expected rate of return is 10.2%, therefore the project should be accepted.

**Answer 5(b)****Income Statement of Alpha Ltd. (For the year ended 2010)**

| <i>Particulars</i>                   | <i>( In lakhs)</i> |
|--------------------------------------|--------------------|
| Sales                                | 300                |
| Less : Variable cost (60% of sales)  | <u>180</u>         |
| Contribution (WN-2)                  | 120                |
| Less : Fixed cost excluding interest | <u>80</u>          |
| EBIT (WN-1)                          | 40                 |
| Less : Interest                      | <u>20</u>          |
| Profit Before Tax                    | 20                 |
| Less : Corporate tax @ 40%           | <u>8</u>           |
| Profit After Tax                     | <u>12</u>          |

*Working notes*

(1) Financial leverage = 2:1

Financial leverage = EBIT/PBT

=

$$= \frac{\text{EBIT}}{\text{EBIT} - 20} = \frac{2}{1}$$

$$\text{EBIT} = 2(\text{EBIT} - 20)$$

$$\text{EBIT} = 2\text{EBIT} - 40$$

$$2\text{EBIT} - \text{EBIT} = 40$$

$$\text{EBIT} = ₹ 40 \text{ lakhs}$$

(2) Operating leverage = 3:1

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = 3$$

$$= \frac{\text{Contribution}}{40} = 3/1$$

$$\text{Contribution} = 3 \times 40 = ₹ 120 \text{ Lakhs}$$

(3) Variable cost is 60% of sales

$$\text{Contribution} = 100 - 60 = 40\% \text{ of sales}$$

$$\text{Contribution} = 120 \text{ lakhs}$$

$$\text{Hence sales} = 100/40 \times 120$$

$$\text{Sales} = 300 \text{ lakhs}$$

Contribution  
EBIT  
EBIT - 1

**Answer 5(c)**

Beta of a portfolio = weighted average beta of the constituent securities = WiBi

The current beta of Mohan's Portfolio = 1.30

Market value of the total portfolio = ₹ 10,000 x 6 = 60,000

Weight of each security in the portfolio = 10,000/60,000 = 1/6

Sum of the betas of six securities = 1.30 x 6 = 7.80

The beta of the portfolio after replacement of security = 1.15

Sum of the new betas of six securities = 1.15 x 6 = 6.90

Since the riskiest security with a beta of 1.80 is replaced, it means.

Sum of beta of existing securities – beta of replacement security = new of securities

$$7.80 - 1.80 + X = 6.90$$

$$6 + X = 6.90$$

$$X = 6.90 - 6.0 = 0.90$$

Thus, the beta of the replacement security = 0.90

**Question 6**

Following information is extracted from the books of Perfume Ltd. at the end of financial year 2010-11 :

|                                           |           |
|-------------------------------------------|-----------|
| Net sales                                 | 20,00,000 |
| Debt-assets ratio                         | 0.6       |
| Debtors turnover ratio based on net sales | 2.0       |
| Inventory turnover ratio                  | 1.25      |
| Fixed assets turnover ratio               | 0.80      |
| Net profit margin                         | 5%        |
| Gross profit margin                       | 25%       |
| Return on investment                      | 2%        |

**Balance Sheet as at 31st March, 2011**

| Liabilities      |                          | Assets           |                          |
|------------------|--------------------------|------------------|--------------------------|
| Equity           | ?                        | Net fixed assets | ?                        |
| Long-term debts  | ?                        | Inventory        | ?                        |
| Short-term debts | 10,00,000                | Debtors          | ?                        |
|                  |                          | Cash             | ?                        |
|                  | <u>?</u>                 |                  | <u>?</u>                 |
|                  | <u><u>          </u></u> |                  | <u><u>          </u></u> |

Calculate —

- (i) The working capital available with the company on 31st March, 2011.
- (ii) Its permissible bank borrowings as per second method recommended by the Tandon Committee. (20 marks)

### Answer 6

#### Working Notes

(a) Fixed Assets

$$\begin{aligned} \text{Fixed Assets} &= \text{Sales} / \text{Fixed Assets Turnover Ratio} \\ &= 20,00,000 / 0.80 = 25,00,000 \end{aligned}$$

(b) Gross Profit

$$\begin{aligned} \text{Gross Profit Margin} &= \text{Gross Profit} / \text{net sale} \times 100 \\ 25\% &= \text{Gross Profit} / 20,00,000 \\ \text{Gross Profit} &= 25\% \text{ of } 20,00,000 = 5,00,000 \end{aligned}$$

(c) Inventory

$$\begin{aligned} \text{Inventory} &= \text{Cost of Sales} / \text{Inventory Turnover Ratio} \\ &= \text{Sales} - \text{Gross Profit} / \text{Inventory Turnover Ratio} \\ &= 20,00,000 - 5,00,000 / 1.25 \\ \text{Inventory} &= 12,00,000 \end{aligned}$$

(d) Debtors

$$\begin{aligned} \text{Debtors} &= \text{Net Sales} / \text{Debtors Turnover Ratio based on Net Sales} \\ &= 20,00,000 / 2.0 \\ &= 10,00,000 \end{aligned}$$

(e) Net Profit

$$\begin{aligned} \text{Net Profit Margin} &= \text{Net Profit} / \text{Net Sales} \times 100 \\ 5\% &= \text{net profit} / 20,00,000 \\ \text{Net profit} &= 5\% \text{ of Rs. } 20,00,000 = 1,00,000 \end{aligned}$$

(f) Investment

$$\begin{aligned} \text{Return Investment} &= \text{Net Profit} / \text{Investment} \times 100 \\ 2\% &= 1,00,000 / \text{Investment} \\ \text{Investment} &= 100 / 2 \times 1,00,000 = 50,00,000 \end{aligned}$$

(g) Total debt

$$\begin{aligned} \text{Debt Assets Ratio} &= \text{Debts} / \text{Total Assets (Investments)} \\ 0.6 &= \text{debts} / 50,00,000 \\ \text{Debts} &= 0.6 \times 50,00,000 = 30,00,000 \end{aligned}$$

(h) Capital (Equity)

$$\begin{aligned} \text{Capital} &= \text{Total Assets} - \text{Total Debts} \\ &= 50,00,000 - 30,00,000 = 20,00,000 \end{aligned}$$

(i) *Short term debts* 10,00,000

(j) *Long term debts*

Long Term Debts = Total Debts – Short Term Debts

$$= 30,00,000 - 10,00,000 = 20,00,000$$

Now on the basis of above information, we can prepare the balance sheet as at 31st March 2011 as under :

**Balance sheet as at March 31st, 2011**

| <i>Liabilities</i> |                  | <i>Assets</i>           |                  |
|--------------------|------------------|-------------------------|------------------|
| Equity             | 20,00,000        | Net fixed assets        | 20,00,000        |
| Long term debts    | 20,00,000        | Inventory               | 12,00,000        |
| Short term debts   | 10,00,000        | Debtors                 | 10,00,000        |
|                    |                  | Cash (balancing figure) | 3,00,000         |
|                    | <u>50,00,000</u> |                         | <u>50,00,000</u> |

(i) *Working capital as on March 31, 2011*

Working capital = current assets – current liabilities

= (inventory + debtors + cash) – short term debts

$$= 12,00,000 + 10,00,000 + 3,00,000 - 10,00,000$$

$$= 15,00,000$$

(ii) *Permissible bank borrowings as per second method recommended by Tondon Committee*

2<sup>nd</sup> method

= 0.75 (current assets) – (current liabilities)

$$= 0.75 \times 25,00,000 - 10,00,000$$

$$= 18,75,000 - 10,00,000$$

$$= 8,75,000$$

**Question 7**

*Write notes on any four of the following :*

(i) *Sweat equity shares*

(ii) *Benefits of depository system*

(iii) *Operating cycle*

(iv) *Risks in forex market*

(v) *Interest rate parity.*

(5 marks each)

**Answer 7(i)****Sweat Equity Shares**

Sweat equity shares can be issued by the company to employees or directors at a discount or for consideration other than cash, for providing know how or making available rights in the nature of intellectual property rights or value additions.

Sweat equity shares are shares given to employees of company for the efforts & work they put in. These shares are given to the employees at a discounted rate of Market value. The motive behind giving sweat equity is to make the employee feel that he/she is a part owner in the company.

Sweat equity share is a instrument permitted to be issued by specified Indian companies, under Section 79A of Companies Act, 1956. According to this section a public company may issue sweat equity shares of a class of shares already issued if the following conditions are fulfilled:

- The issue of sweat equity share is authorised by a special resolution passed by the company in the general meeting.
- The resolution specifies the number of shares, current market price, consideration if any and the class or classes of directors or employees to whom such equity shares are to be issued.
- Not less than one year has elapsed at the date of the issue, since the date on which the company was entitled to commence business.
- The sweat equity shares of a company whose equity shares are listed on a recognised stock exchange are issued in accordance with the regulations made by SEBI in this regard.

All the limitations, restrictions and provisions relating to equity shares are also applicable to such sweat equity shares issued under the new Section 79A.

**Answer 7(ii)****Benefits of depository system**

In the depository system, the ownership and transfer of securities takes place by means of electronic book entries. At the outset, this system rids the capital market of the dangers related to handling of paper. The system provides numerous direct and indirect benefits, like:

- Elimination of bad deliveries
- Elimination of all risks associated with physical certificates
- Immediate transfer and registration of securities
- Faster disbursement of non cash corporate benefits like rights, bonus, etc.
- Reduction in brokerage by many brokers for trading in dematerialised securities
- Reduction in handling of huge volumes of paper and periodic status reports

- Elimination of problems related to change of address of investor, transmission, etc.
- Elimination of problems related to selling securities on behalf of a minor.

**Answer 7(iii)****Operating Cycle**

The operating cycle is the length of time between the company's outlay on raw materials, wages and other expenditures and the inflow of cash from the sale of the goods. In a manufacturing business, operating cycle is the average time that raw material remains in stock less the period of credit taken from suppliers, plus the time taken for producing the goods, plus the time the goods remain in finished inventory, plus the time taken by customers to pay for the goods. Operating cycle concept is important for management of cash and management of working capital because the longer the operating cycle the more financial resources the company needs. Therefore, the management has to remain cautious that the operating cycle should not become too long.

**Answer 7(iv)****Risks in forex market**

Operations in the forex market are exposed to a number of risks. These risks are as under :

- (a) credit risk arising out of lending to a foreign borrower whose credit rating is not known for certainly
- (b) currency risk of trading in a currency whose stability and strength is known to fluctuate
- (c) country risk involved in dealing in the currency of a country whose political and economic stability is uncertain
- (d) solvency risk due to mismatch between current assets and liabilities of dealers and resultant default in meeting forward commitments.

**Answer 7(v)**

Interest Rate Parity: According to interest rate parity principle, the forward premium (or discount) on currency of a country vis-à-vis the currency of another country will be exactly offset by the interest rate differential between the countries. The currency of the country with lower interest rate is quoted at a forward premium and vice-versa. Two assumption central to interest rates parity are capital mobility & perfect substitutability of domestic and foreign assets. For example, the IPR condition implies that the expected return on dollar assets will equal the expected return on foreign currency assets, due to an equilibrium in foreign exchange market resulting from changes in the exchange rate between two countries.

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## PROFESSIONAL PROGRAMME EXAMINATION

DECEMBER 2011

### FINANCIAL, TREASURY AND FOREX MANAGEMENT

Time allowed : 3 hours

Maximum marks : 100

- NOTE :** 1. Answer FIVE questions including Question No.1 which is compulsory. All working notes should be shown distinctly.
2. Tables showing the present value of ₹ 1 and the present value of an annuity of 1 for 15 years are annexed.

#### Question 1

Comment on any four of the following :

- (i) It is not always necessary that inventory is held for smooth manufacturing and sales operations.
  - (ii) Capital rationing does not always lead to optimum results.
  - (iii) Corporate taxation creates incentive for advancement to the company by utilising borrowed funds for financing its growth schemes.
  - (iv) Financial gearing is a double-edged sword.
  - (v) Financial policy and corporate strategy are most significant concerns of top management.
- (5 Marks each)

#### Answer 1(i)

The necessity of holding of inventory varies from firm to firm. The firm carrying large inventory may require huge investment involved in those goods but it takes the benefit from the fluctuation of prices and in scarcity of goods. The firm carrying a small level of inventory, on the other hand, face the problems in the situation when the goods are in scarce but take the advantage of storage cost and investment cost. Practically it is very difficult to manage the production system without inventory. Various companies follow various systems of holding Inventory such as Economic Order Quantity, JIT etc. with a view to minimize the total inventory cost as well to make availability of raw material in time.

#### Answer 1(ii)

A Firm may fix the maximum amount that can be invested in capital projects, during a given period of time. The firm then attempts to select a combination of investment proposals that will be within the specific limits providing maximum profitability and put them in descending order according to their rate of return. Capital rationing may result in accepting several small investment proposals than a few large investment proposals so that there may be full utilization of budgeted amount. This may result in accepting relatively less profitable investment proposals if full utilization of budget is a primary consideration. Similarly, capital rationing may also mean that the firm foregoes the next most profitable investment following after the budget ceiling even though it is estimated to yield a rate of

return much higher than the required rate of return. Thus capital rationing does not always lead to optimum results

### Answer 1(iii)

The main advantage to carry the debt capital is that interest paid on debentures is deducted from the income. This deduction of interest from income results in reduction of cost of debt and thus induces companies to raise more capital through debentures. In other words it becomes financially advantageous for companies to launch expansion programmes on borrowed money rather than raising equity from public. Earning per share (EPS) increases with high presence of debt in debt- equity mix of a firm, as debt is less costly than equity. As a result, equity shareholders are benefited from enhancement of EPS as a result of increase in trading on equity. Thus, corporate taxation creates incentives for advancement to the company by utilizing borrowed for financing its growth schemes.

### Answer 1(iv)

A highly geared company is one where there is a high proportion of debt to equity, and can be considered a risky investment as there is a higher likelihood of the company being unable to pay its large debts. High financial gearing will increase the earnings per share of a company if earnings before interest and taxes are rising, as compared to the earning per share of a company with low or no financial gearing. So at times when the economy is doing well, shares of highly geared company perform better than the shares of a low geared company. However, if the company is not doing well, when its profits before interest and taxes are falling, the earnings per share of highly geared company will fall faster than those of low geared company

### Answer 1(v)

Financial policy making is the backbone of business and very significant to top management and helps the management to form corporate strategy. It helps in defining the feasible area of operation for all types of activities and thereby defines the overall framework. Financial policy comprises of three components (a) Financial resource (b) Financial tools (c) Financial goals. Management need to ensure that enough funding is available at the right time to meet the needs of the business. Hence, making of financial policy in taking three important decision of business viz. Financing, Investing and Dividend are always helpful to the management to take key corporate decision like expansion, diversification etc.

### Question 2

(a) *Ash Enterprises Ltd. generated the following forecast in real terms for a capital budgeting project :*

|                            | Year-0<br>(₹ in '000) | Year-1<br>(₹ in '000) | Year-2<br>(₹ in '000) |
|----------------------------|-----------------------|-----------------------|-----------------------|
| <i>Capital expenditure</i> | 1,210                 | —                     | —                     |
| <i>Revenue</i>             | —                     | 1,900                 | 2,000                 |
| <i>Cash expenses</i>       | —                     | 950                   | 1,000                 |
| <i>Depreciation</i>        | —                     | 605                   | 605                   |

Ash, the President estimates the inflation to be 10% per year over the next two years. In addition, Ash believes that the cash flows of the project should be discounted at the nominal rate of 15.50%.

Required (Apply tax rate of 30%) —

- (i) Workout NPV based on normal cash flow technique.
- (ii) Workout NPV based on real cash flow technique. (10 marks)
- (b) Prakash Motors Pvt. Ltd. purchases 9,000 spare parts for its annual requirements ordering one month usage at a time. Each spare part costs ₹20. The ordering cost per order is ₹15 and the carrying charges are 15% of unit cost. You have been asked to suggest the most economical purchasing policy for the company. What advice would you offer and how much would it save for the company per year ? (5 marks)
- (c) Following are the details regarding operations of Radiance Enterprises Ltd. during a period of last 12 months :

|                          | ₹         |
|--------------------------|-----------|
| Sales                    | 12,00,000 |
| Selling price (per unit) | 10        |
| Variable cost (per unit) | 7         |
| Total cost (per unit)    | 9         |

Credit period allowed to customers is one month.

The company is considering a proposal for a more liberal credit by increasing the average collection period from one month to two months. This relaxation is expected to increase sales by 25%. You are asked to advise the company regarding adoption of new credit policy assuming that the company's required rate of return on investment is 30%. (5 marks)

### Answer 2(a)(i)

| Year  | Cash Inflow | Effect of Inflation on cash flow (a) | Cash expenses (effect of Inflation) (b) | Depreciation (c) | Net cash flow before tax a-b-c | Cash flow after tax @ 30 % (d) | Cash flow after tax but before depreciation e=d+c | PV rate 15.5% (f) | Net cash Inflow e*f |
|-------|-------------|--------------------------------------|-----------------------------------------|------------------|--------------------------------|--------------------------------|---------------------------------------------------|-------------------|---------------------|
| 1     | 1900        | 2090                                 | 1045                                    | 605              | 440                            | 308                            | 913                                               | 0.865             | 789.74              |
| 2     | 2000        | 2200                                 | 1100                                    | 605              | 495                            | 346                            | 951                                               | 0.749             | 712.29              |
| Total |             |                                      |                                         |                  |                                |                                |                                                   |                   | 1512.03             |

$$\begin{aligned}
 \text{NPV} &= \text{Cash inflow} - \text{Cash outflow} \\
 &= 1512.03 - 1210 \\
 &= 302.03
 \end{aligned}$$

**Answer 2(a)(ii)****NPV based on Real cash flow technique**

| <i>Year</i>  | <i>Cash Inflow<br/>(a)</i> | <i>Cash expenses<br/>(b)</i> | <i>Depre-<br/>ciation<br/>(c)</i> | <i>Net cash<br/>flow before<br/>tax<br/>a-b-c</i> | <i>Cash flow<br/>after tax<br/>@ 30%<br/>(d)</i> | <i>Cash flow<br/>after tax<br/>but before<br/>deprecia-<br/>e=d+c</i> | <i>PV rate<br/>15.5%<br/>(f)</i> | <i>Net<br/>cash<br/>e*f</i> |
|--------------|----------------------------|------------------------------|-----------------------------------|---------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------|----------------------------------|-----------------------------|
| 1            | 1900                       | 950                          | 605                               | 345                                               | 241                                              | 846                                                                   | 0.865                            | 731.79                      |
| 2            | 2000                       | 1000                         | 605                               | 395                                               | 276                                              | 881                                                                   | 0.749                            | 659.86                      |
| <i>Total</i> |                            |                              |                                   |                                                   |                                                  |                                                                       |                                  | 1391.65                     |

$$\begin{aligned}
 \text{NPV} &= \text{Cash inflow} - \text{Cash outflow} \\
 &= 1391.65 - 1210 \\
 &= 181.65
 \end{aligned}$$

**Answer 2(b)**

According to current policy:

$$\begin{aligned}
 \text{Number of spare parts per purchase order} &= \text{Annual usage} / 12 \text{ months} \\
 &= 9000 / 12 = 750 \text{ units}
 \end{aligned}$$

$$\begin{aligned}
 \text{Total variable cost} &= \text{Ordering cost} + \text{Carrying cost} \\
 &(\text{Ordering cost} = \text{No. of order} \times \text{ordering cost per order}) \\
 &= 12 \times \text{Rs. } 15 + 750 / 2 \times 15\% \text{ of Rs. } 20 \\
 &= ₹ 180 + \text{Rs. } 1125 = ₹ 1305
 \end{aligned}$$

According to EOQ

$$\begin{aligned}
 \text{EOQ} &= \\
 &= \sqrt{\frac{2 \times 9000 \times \text{Rs. } 15}{15\% \text{ of Rs. } 20}} \\
 &= 300 \text{ units}
 \end{aligned}$$

Where,

A = Annual requirement

B = Ordering cost

C = Carrying cost per unit

$$\begin{aligned}
 \text{Total variable cost} &= \text{Ordering cost} + \text{Carrying cost} \\
 &= 9000 / 300 \times ₹ 15 + 300 / 2 \times ₹ 3 \\
 &= ₹ 450 + ₹ 450 \\
 &= ₹ 900
 \end{aligned}$$

Total variable cost under EOQ policy is less than the current policy. Therefore, the company should follow the EOQ policy.

Savings in terms of cost according to ordering policy as per EOQ will be:

Cost as per current policy – Cost as per EOQ

₹ 1305 – ₹ 900 = ₹ 405

### Answer 2(c)

|                                                                                                   |   |              |
|---------------------------------------------------------------------------------------------------|---|--------------|
| Present cost of Sales (₹ 12,00,000 / ₹ 10)                                                        |   |              |
| = (1,20,000 units x ₹ 9)                                                                          | = | ₹ 10,80,000  |
| Cost of additional sales [30,000 units x ₹ 7<br>(Variable cost only)]                             | = | ₹ 2,10,000   |
| Total cost of sales                                                                               | = | ₹ 12,90,000  |
| New average cost per unit = ₹ 12,90,000 / 1,50,000 units                                          | = | ₹ 8.60       |
| New average collection period = 2 months                                                          |   |              |
| Amount invested in receivables = ₹ 12,90,000 / 12 x 2                                             | = | ₹ 2,15,000   |
| Amount invested in number of units receivables under<br>existing policy = 1,20,000 / 12 x 1 month | = | 10,000 units |
| Investment in receivables = 10,000 units x<br>₹ 9 (variable cost only)                            | = | ₹ 90,000     |
| Additional investment in receivables = New Investment<br>– old Investment = ₹ 2,15,000 – ₹ 90,000 | = | ₹ 1,25,000   |
| Profitability of additional sales<br>= Additional units sold x contribution per unit              |   |              |
| = 30,000 x ₹ 3                                                                                    | = | ₹ 90,000     |
| Return on additional Investment in receivables<br>= ₹ 90,000 / ₹ 125,000 x ₹ 100                  | = | 72%          |

The required rate of return of the firm is only 30 % while the actual return on additional investment in receivables comes to 72% on adoption of new policy. Therefore, the firm should adopt the new credit policy.

### Question 3

(a) The following data relate to Intel Projects (India) Ltd. :

| Year ending 31st March | Net Earnings Per Share | Net Dividend Per Share |
|------------------------|------------------------|------------------------|
|                        | (₹)                    | (₹)                    |
| 2006                   | 32                     | 17.50                  |
| 2007                   | 28                     | 18.50                  |

|      |    |       |
|------|----|-------|
| 2008 | 26 | 20.00 |
| 2009 | 26 | 21.00 |
| 2010 | 24 | 22.00 |

*There are 10 lakh equity shares issued and majority of these shares are owned by private investors. There is no debt in the capital structure of the company.*

*The company has been experiencing difficult trading conditions over the past few years. In the current year, net earnings are likely to be ₹2.20 crore, which will be just sufficient to pay a maintained dividend of ₹22 per share.*

*You are required to comment on the company's dividend policy between 2005-06 to 2009-10; and on its possible consequences for earnings.*

*(6 marks)*

- (b) Hi-Fi Builders Ltd. needs to acquire the use of a crane for its construction business. The crane if purchased outright will cost ₹10,00,000. A hire-purchase and leasing company has offered the following two alternatives :*

*Hire-Purchase : ₹2,50,000 will be payable on signing of the agreement. Three annual installments of ₹4,00,000 will be payable at the end of each year starting from year one. The ownership in the crane will be transferred automatically at the end of the third year. It is assumed that the company will be able to claim depreciation on straight line basis with zero salvage value.*

*Leasing : ₹20,000 will be payable towards initial service fee upon signing of the lease agreement. Annual lease rent of ₹4,32,000 is payable at the end of each year starting from the first, for a period of three years.*

*The company is in 35% tax bracket and its discount rate is 20%. Should it hire-purchase or lease the crane ?*

*(8 marks)*

- (c) How do firms manage economic risk due to fluctuations in forex market?*

*(6 marks)*

### **Answer 3(a)**

**Comments on Company's Dividend Policy :** From the data stated in the question, it can be observed that, the EPS of Company has fallen from ₹ 32 to ₹ 24 over a period of time (from 2005-06 to 2009-10). It represents 25 % fall in EPS during the said period. But if we see the Net DPS, it is increasing from ₹ 17.50 to ₹ 22.00 over three years.

EPS and DPS are moving in opposite directions. Assuming that capital structure remains constant, both actual earnings and return on capital employed have gone down. Low EPS indicates that either company is earning less profit or surpluses available with the company are less.

**Comments on possible consequences for earnings :** it is seen that dividend per share is gradually increasing. The management would probably think that the increase in dividend year after year give indication that company is growing. The increase in dividend per share in a situation of decreasing EPS will adversely affect the retention ratio and will adversely affect its long term profitability. This will also weaken the company's competitive position and wrong signals to the investors which may cause to fall in market price of company's share

**Answer 3(b)****Option I: Hire Purchase****Computation of Interest Charges and depreciation**

| <i>Year</i> | <i>Installments (₹)<br/>(a)</i> | <i>Interest (₹)<br/>(b)*</i> | <i>Cash price (₹)<br/>(a-b)</i> | <i>Depreciation<br/>(₹)</i> |
|-------------|---------------------------------|------------------------------|---------------------------------|-----------------------------|
| 0           | 2,50,000                        | -                            | 2,50,000                        | -                           |
| 1           | 4,00,000                        | 2,25,000                     | 1,75,000                        | 3,33,333                    |
| 2           | 4,00,000                        | 1,50,000                     | 2,50,000                        | 3,33,333                    |
| 3           | 4,00,000                        | 75,000                       | 3,25,000                        | 3,33,334                    |
|             | 14,50,000                       | 4,50,000                     | 10,00,000                       | 10,00,000                   |

\* As the total hire purchase price is Rs. 14,50,000 and the cash price cost is Rs. 10,00,000. Hence the interest is Rs. 4,50,000 which is proportioned in the ratio of hire purchase price outstanding i.e. 3:2:1.

**Calculation of cash outflows in Hire Purchase**

| <i>Year</i> | <i>Installment<br/>(₹)<br/>(a)</i> | <i>Tax shield @ 35 %<br/>of Interest +<br/>depreciation<br/>(b)</i> | <i>Net outflow<br/>(₹)<br/>c = (a-b)</i> | <i>PV factor<br/>@ 20 %<br/>(₹)<br/>(d)</i> | <i>PV of<br/>outflow<br/>(₹)<br/>c * d</i> |
|-------------|------------------------------------|---------------------------------------------------------------------|------------------------------------------|---------------------------------------------|--------------------------------------------|
| 0           | 2,50,000                           | -                                                                   | 2,50,000                                 | 1.0000                                      | 2,50,000                                   |
| 1           | 4,00,000                           | 1,95,417                                                            | 2,04,583                                 | 0.8333                                      | 1,70,479                                   |
| 2           | 4,00,000                           | 1,69,167                                                            | 2,30,833                                 | 0.6944                                      | 1,60,290                                   |
| 3           | 4,00,000                           | 1,42,917                                                            | 2,57,083                                 | 0.5787                                      | 1,48,774                                   |
|             |                                    |                                                                     |                                          |                                             | 7,29,543                                   |

**Option II: Leasing****Calculation of cash outflows**

| <i>Year</i> | <i>Installment<br/>(₹)<br/>(a)</i> | <i>Tax shield @ 35 %<br/>of Lease Rental<br/>(b)</i> | <i>Net outflow<br/>(₹)<br/>c = (a-b)</i> | <i>PV factor<br/>@ 20 %<br/>(₹)<br/>(d)</i> | <i>PV of<br/>outflow<br/>(₹)<br/>c * d</i> |
|-------------|------------------------------------|------------------------------------------------------|------------------------------------------|---------------------------------------------|--------------------------------------------|
| 0           | 20,000                             | -                                                    | 20,000                                   | 1.0000                                      | 20,000                                     |
| 1           | 4,32,000                           | 1,58,200 (35% of<br>20,000 + 4,32,000)               | 2,73,800                                 | 0.8333                                      | 2,28,158                                   |
| 2           | 4,32,000                           | 1,51,200 (35% of<br>4,32,000)                        | 2,80,800                                 | 0.6944                                      | 1,94,988                                   |
| 3           | 4,32,000                           | 1,51,200 (35% of<br>4,32,000)                        | 2,80,800                                 | 0.5787                                      | 1,62,499                                   |
|             |                                    |                                                      |                                          |                                             | 6,05,645                                   |

The present value of cash outflows in case of hire purchase alternative is ₹ 7,29,543 and in case of lease alternative is ₹ 6,05,645. The lease option implies lesser cost and, therefore, the firm should procure the crane on lease basis.

**Answer 3(c)**

Economic risk refers to unfavorable economic conditions in buyer or seller's country which may affect both parties in fulfilling their obligations. On the buyer side, economic risk may result in buyer's insolvency or inability to accept the goods and services. On the other hand, the seller may experience difficulty in producing or shipping the goods.

Once a firm recognizes its risk, it can reduce it by using following tools:

- Forecasts
- Risk Estimation
- Benchmarking
- Hedging
- Netting
- Matching
- Leading and Lagging
- Stop loss
- Reporting and Review

**Question 4**

*Distinguish between any four of the following :*

- (i) *'Control need of widely-held company' and 'control need of closely-held company'.*
- (ii) *'Capital structure' and 'financial structure'.*
- (iii) *'Finance lease' and 'sale-and-lease back'.*
- (iv) *'Net income approach to capital structure' and 'net operating income approach to capital structure'.*
- (v) *'Financial risk' and 'business risk'.* (5 marks each)

**Answer 4(i)****'Control Need of Widely held company' and 'Control Need of closely held company'**

A closely held company is a company whose common shares are owned by one individual owner or by a small group of controlling stockholders. This is in contrast to a widely held stock, in which thousands or even millions of different investors may own shares in a large company. Closely held stock is typically not publicly traded on exchanges because the small number of owners rarely sells their shares. A common way that a closely held stock is created is when an entrepreneur starts and incorporates his or her own business, but retains ownership of all the company's outstanding shares.

**Answer 4(ii)****Capital Structure and Financial Structure**

- Capital Structure relates to long term capital sources for creation of long term assets. Financial Structure involves creation of long term as well as short term sources of funds.
- Capital Structure is the core element of financial structure. Capital Structure can exist without the current liabilities and in such cases, capital structure will be equal to financial structure. But we cannot have a situation where the firm has only current liabilities and no long term capital.

The financial structure of the firm is considered to be balance one if the amount of current liabilities is less than the capital structure net of outside debt because in such cases, the long term capital is considered sufficient to pay current liabilities (in case of sudden loss of current assets.)

**Answer 4(iii)****'Financial lease' and 'Sale and leaseback'**

Financial lease is like an installment loan. It is a legal commitment to pay for the entire cost of equipment plus interest over a specific period of time. The lessee commits to a series of payments which in total exceeds the original cost of the equipment. It excludes the provision for maintenance or taxes which are paid separately, by the lessee. Contract period ranges from medium to long term. These contracts are generally non cancelable.

A 'sale and leaseback' allows a company to raise money from the sale of assets, while retaining use of them, but at the cost of increasing operational. The money raised from selling assets may make the company financially stronger, but is commonly used, at least in part, to return capital to shareholders.

**Answer 4(iv)****Net Income approach and Net Operating Income approach**

According to NI approach, if the financial leverage increases, the weighted average cost of capital decreases and the value of the firm and the market price of the equity shares increases. Similarly, if the financial leverage decreases, the weighted average cost of capital increases and the value of the firm and the market price of the equity shares decreases.

Net Operating Income Approach is of the opposite view of Net Income approach. This approach suggests that the capital structure decision of a firm is irrelevant and that any change in the leverage or debt will not result in a change in the total value of the firm as well as the market price of its shares. This approach also says that the overall cost of capital is independent of the degree of leverage

**Answer 4(v)****Financial Risk and Business Risk**

Financial risk is the associated risk if an investment will not generate sufficient cash

flows either to cover interest payment on money borrowed to finance it or principal repayment on the debt or to provide profits to the firm.

Business Risk can be defined as the chance that the firm will not have the ability to complete successfully with the assets that it purchases, for example, the firm may acquire a machine that may not operate properly, that may not produce saleable products or that may face other operating or market difficulties that causes losses.

Business risk is related to the viability of earnings before interest and taxes (EBIT), Financial risk is related to the variability of earnings per share.

Factors responsible for business risk are changes in consumer preferences, competitors actions, technological obsolescence, business cycle, etc. Thus, so long as the environment is given to the firm, business risk is an unavoidable risk. Financial risk, on the other hand, is associated with the financing decisions or the capital mix of the firm.

### Question 5

- (a) A Portfolio Manager has three stocks in his portfolio. Following information is available in respect of his portfolio :

| Company | Investment<br>(₹) | $\beta$ |
|---------|-------------------|---------|
| X Ltd.  | 6,00,000          | 1.3     |
| Y Ltd.  | 3,00,000          | 1.4     |
| Z Ltd.  | 1,00,000          | 0.9     |

Expected return on the market portfolio is 15% and the risk free rate of interest is 6%. On the basis of Capital Asset Pricing Model (CAPM), compute the following :

- (i) Expected return of the portfolio; and  
 (ii) Expected  $\beta$  of the portfolio. (8 marks)
- (b) The following data is related to X Ltd., Y Ltd. and Z Ltd. for the current financial year :

|                               | X Ltd. | Y Ltd. | Z Ltd.   |
|-------------------------------|--------|--------|----------|
| Variable cost as a % of sales | 70     | 75     | 50       |
| Interest expense (₹)          | 20,000 | 30,000 | 1,00,000 |
| Degree of operating leverage  | 5:1    | 6:1    | 2:1      |
| Degree of financial leverage  | 3:1    | 4:1    | 2:1      |
| Corporate tax rate            | 30%    | 30%    | 30%      |

You are required to prepare their income statements.

(12 marks)

**Answer 5(a)****Expected rate of Individual Securities**

$$\bar{r}_a = r_f + \beta_a (\bar{r}_m - r_f)$$

Where :

$$r_f = \text{Risk free rate} = 6\%$$

$$\beta_a = \text{Beta of the security}$$

$$\bar{r}_m = \text{Expected market return} = 15\%$$

$$\bar{r}_a \text{ of X Ltd.} = .06 + 1.3 (.15 - .06) = .06 + .117 = .177$$

$$\bar{r}_a \text{ of Y Ltd.} = .06 + 1.4 (.15 - .06) = .06 + .126 = .186$$

$$\bar{r}_a \text{ of Z Ltd.} = .06 + 0.9 (.15 - .06) = .06 + .081 = .141$$

**(i) Expected rate of Portfolio**

| Company | Amount (₹) | Weight (w) | $\beta_a$ | $\bar{r}_a$ | $w \times \bar{r}_a$ |
|---------|------------|------------|-----------|-------------|----------------------|
| X Ltd.  | 6,00,000   | 0.6        | 1.3       | 0.177       | 0.1062               |
| Y Ltd.  | 3,00,000   | 0.3        | 1.4       | 0.186       | 0.0558               |
| Z Ltd.  | 1,00,000   | 0.1        | 0.9       | 0.141       | 0.0141               |
|         | 10,00,000  |            |           |             | 0.1761               |

So the expected return of the portfolio is 0.1761 or 17.61%

**(ii) Expected  $\beta$  of the portfolio**

$$\begin{aligned} \rho_p &= \rho_1 W_1 + \rho_2 W_2 + \rho_3 W_3 \\ &= 1.3 \times 0.6 + 1.4 \times 0.3 + 0.9 \times 0.1 \\ &= .78 + .48 + .09 \\ \rho_p &= 1.29 \end{aligned}$$

**Answer 5(b)****Income Statement**

| Particulars          | X Ltd. (in ₹)              | Y Ltd. (in ₹)              | Z Ltd. (in ₹)              |
|----------------------|----------------------------|----------------------------|----------------------------|
| Sales *              | 5,00,000                   | 9,60,000                   | 8,00,000                   |
| Less : variable cost | 3,50,000<br>(70% of sales) | 7,20,000<br>(75% of sales) | 4,00,000<br>(50% of sales) |
| Contribution         | 1,50,000                   | 2,40,000                   | 4,00,000                   |
| Less : fixed cost    | 1,20,000                   | 2,00,000                   | 2,00,000                   |

| Particulars               | X Ltd. (in ₹) | Y Ltd. (in ₹) | Z Ltd. (in ₹) |
|---------------------------|---------------|---------------|---------------|
| EBIT                      | 30,000        | 40,000        | 2,00,000      |
| Less: Interest expense    | 20,000        | 30,000        | 1,00,000      |
| EBT                       | 10,000        | 10,000        | 1,00,000      |
| Less : Corporate tax @30% | 3,000         | 3,000         | 30,000        |
| EAT                       | 7,000         | 7,000         | 70,000        |

\*Working notes:

| Particulars                                     | X Ltd. (in ₹)                     | Y Ltd. (in ₹)                      | Z Ltd. (in ₹)                       |
|-------------------------------------------------|-----------------------------------|------------------------------------|-------------------------------------|
| <b>Calculation of EBIT</b>                      |                                   |                                    |                                     |
| Interest Expense                                | 20,000                            | 30,000                             | 1,00,000                            |
| Degree of financial Leverage=                   | 3= EBIT/ EBIT-20,000              | 4 = EBIT/ EBIT- 30,000             | 2= EBIT/ EBIT- 1,00,000             |
| Earning before interest and tax/ EBIT –Interest | 3 EBIT -60,000<br>= EBIT          | 4 EBIT -1,20,000<br>= EBIT         | 2 EBIT -<br>2,00,000 = EBIT         |
|                                                 | 2 EBIT= 60,000<br>EBIT= 30,000    | 3 EBIT= 1,20,000<br>EBIT= 40,000   | EBIT=<br>2,00,000<br>EBIT= 2,00,000 |
| <b>Calculation of Contribution</b>              |                                   |                                    |                                     |
| Degree of operating leverage =                  | 5 =<br>Contribution/<br>Rs.30,000 | 6 =<br>Contribution =<br>Rs.40,000 | 2 =<br>Contribution =<br>₹2,00,000  |
| Contribution/EBIT                               | Contribution =<br>1,50,000        | Contribution =<br>2,40,000         | Contribution =<br>4,00,000          |
| <b>Calculation of fixed cost</b>                |                                   |                                    |                                     |
| Fixed cost = Contribution - EBIT                | 1,20,000                          | 2,00,000                           | 2,00,000                            |
| Variable cost                                   | 70%                               | 75%                                | 50%                                 |
| <b>Calculation of Sales</b>                     |                                   |                                    |                                     |
| Sales = contribution/sales                      | 1,50,000/100-70<br>(in %)         | 2,40,000/100-75<br>(in %)          | 4,00,000/ 100 -50<br>(in %)         |
| – variable cost (%)                             | 1,50,000/ 30 %                    | 2,40,000/ 25%                      | 4,00,000/ 50%                       |
|                                                 | = ₹5,00,000                       | = ₹9,60,000                        | = ₹8,00,000                         |

**Question 6**

Unichem Ltd. sells its products on a gross profit margin of 20% on sales. The following figures and ratios are extracted from its annual accounts for the year ended 31st March, 2010 :

|                                                  |             |
|--------------------------------------------------|-------------|
| Sales for the year (all credit)                  | ₹ 40,00,000 |
| Fixed assets turnover (Cost of goods sold basis) | 1.6         |
| Stock turnover (Cost of goods sold basis)        | 8           |
| Liquid ratio                                     | 1 : 1       |
| Current ratio                                    | 1.8 : 1     |
| Debtors collection period                        | 1 Month     |
| Reserves and surplus to share capital            | 0.6 : 1     |
| Capital gearing ratio                            | 0.5         |
| Fixed assets to net worth                        | 1.25 : 1    |

On the basis of above details, you are required to prepare —

- Balance sheet of the company; and
- The statement showing working capital requirement, with a provision for contingencies @ 10% of net working capital. (20 marks)

**Answer 6(i)****Balance Sheet of Unichem Ltd. as on 31st March 2010**

| Liabilities         | Amount (₹) | Assets        | Amount (₹) |
|---------------------|------------|---------------|------------|
| Share Capital       | 10,00,000  | Fixed Assets  | 20,00,000  |
| Reserve and Surplus | 6,00,000   | Closing Stock | 4,00,000   |
| Long term debts     | 8,00,000   | Debtors       | 3,33,333   |
| Current Liabilities | 5,00,000   | Cash          | 1,66,667   |
|                     | 29,00,000  |               | 29,00,000  |

**Working Notes:**

- Cost of goods sold = Sales – gross profit (20 % of sales)  
= ₹ 40,00,000 – ₹ 8,00,000 = ₹ 32,00,000
- Closing Stock = Cost of goods sold / Stock turnover  
= ₹ 32,00,000 / 8 = ₹ 4,00,000
- Fixed Assets = Cost of goods sold / Fixed Assets turnover  
= ₹ 32,00,000 / 1.6 = ₹ 20,00,000
- Current Assets  
Current ratio = 1.8 : 1

$$\text{Liquid ratio} = 1:1$$

$$\text{Closing stock} = 1.8 - 1 = 0.8$$

$$\text{Hence, Current Assets} =$$

$$= \frac{4,00,000 \times 1.8}{0.8}$$

$$= ₹ 9,00,000$$

$$\begin{aligned} \text{(e) Liquid Assets (Debtors + cash)} &= \text{Current Assets} - \text{Closing Stock} \\ &= ₹ 9,00,000 - ₹ 4,00,000 = ₹ 5,00,000 \end{aligned}$$

$$\begin{aligned} \text{(f) Debtors} &= \frac{\text{Sales} \times \text{Debtors Collection period}}{12} \\ &= ₹ 40,00,000 \times 1 / 12 = ₹ 3,33,333 \end{aligned}$$

$$\begin{aligned} \text{(g) Cash} &= \text{Liquid Assets} - \text{Debtors} \\ &= ₹ 5,00,000 - ₹ 3,33,333 = ₹ 1,66,667 \end{aligned}$$

$$\begin{aligned} \text{(h) Net Worth} &= \text{Fixed Assets} / 1.25 \\ &= ₹ 20,00,000 / 1.25 = ₹ 16,00,000 \end{aligned}$$

$$\begin{aligned} \text{(i) Reserve and Surplus} &= \text{Reserves} + \text{Share capital} \\ &= 0.6 + 1 \\ &= ₹ 16,00,000 \times 0.6 / 1.6 = ₹ 6,00,000 \end{aligned}$$

$$\begin{aligned} \text{(j) Share capital} &= \text{Net worth} - \text{Reserve and Surplus} \\ &= ₹ 16,00,000 - ₹ 6,00,000 = ₹ 10,00,000 \end{aligned}$$

$$\begin{aligned} \text{(k) Current Ratio} &= \text{Current Assets} / \text{Current Liabilities} \\ &= ₹ 9,00,000 / 1.8 = ₹ 5,00,000 \end{aligned}$$

$$\text{(l) Long term debts} =$$

$$\text{Capital gearing ratio} = \text{Long term Debts} / \text{Net worth}$$

$$\text{Long term debts} = ₹ 16,00,000 \times 0.5 = ₹ 8,00,000$$

**Answer 6(ii)****Statement Showing Working Capital Requirement**

| Particulars       | Amount (in ₹) | Grand Total (in ₹) |
|-------------------|---------------|--------------------|
| A. Current Assets |               |                    |
| Closing Stock     | 4,00,000      |                    |
| Debtors           | 3,33,333      |                    |
| Cash              | 1,66,667      | 9,00,000           |

| <i>Particulars</i>                                                                                                                  | <i>Amount (in ₹)</i> | <i>Grand Total (in ₹)</i> |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------|
| B. Current Liabilities                                                                                                              | 5,00,000             | 5,00,000                  |
| Working capital before provision<br>(A- B)                                                                                          |                      | 4,00,000                  |
| Add : Provision for Contingencies<br>@ 10 % of working capital including<br>provision or 1/9 of working Capital<br>before provision |                      |                           |
| ₹ 4,00,000 x 1/9                                                                                                                    | 44,444               | 44,444                    |
| <b>Net Working Capital Requirement</b>                                                                                              |                      | <b>4,44,444</b>           |

**Question 7**

*Write notes on any four of the following :*

- (i) *Forfaiting*
- (ii) *Financial distress*
- (iii) *Cost of retained earnings*
- (iv) *Advantages of commodity trading*
- (v) *Services provided by venture capital fund.* (5 marks each)

**Answer 7(i)****Forfaiting**

It is the method of export trade financing, especially when dealing in capital (which have long payment periods) or with high risk countries. In forfeiting, a bank advances cash to an exporter against invoices or promissory notes guaranteed by the importer's bank.

The amount advanced is always 'without recourse' to the exporter, and is less than the invoice or note amount as it is discounted by the bank. The discount rate depends on the terms of the invoice/note and the level of the associated risk

**Answer 7(ii)****Financial Distress**

Generally, the affairs of the firm should be managed in such a way that the total risk-business as well as financial borne by equity shareholders is minimized and is manageable, otherwise the firm will obviously face difficulties. If cash inflow is inadequate, the firm will face difficulties in payment of interest and repayment of principal. If the situation continues long enough, a time will come when the firm would face pressure from creditors. Failures of sales can also cause difficulties in carrying out production operations. The firm would find itself in a tight spot. Investors would not invest further. Creditors would recall their loans. Capital market would heavily discount its securities. Thus, the firm would find itself in a situation called distress.

**Answer 7(iii)****Cost of Retained Earnings**

Retained earnings are reinvested in the firm. Since there is no explicit payout from the retained earnings, it has been argued that there is no cost to the firm for carrying these retained earnings. It is further stated that these retained earnings acquire the character of owners' perpetual capital and as such, the return on investment of the firm is ultimately proportional to the rate of growth of retained earnings. The capital that is reinvested in business carry some cost if that is ideal and the firm bears a cost on it which affects the profitability of the firm. Therefore, the cost of retained earnings is the opportunity cost of returns obtained in a similar investment elsewhere.

**Answer 7(iv)****Advantages of commodity trading**

- Good low risk portfolio diversifier.
- Less volatile as compared to equity trading
- Better risk adjusted returns
- A highly liquid asset class, acting as a counter weight to stocks, bonds and real estate.
- Investors can leverage their investment and multiply potential earnings.
- A good hedge against any downturn in equities or bonds as there is little correlation with equity and bond market.
- High correlation with changes in Inflation.

**Answer 7(v)****Services Provided by venture capital fund**

Venture Capital (VC) is risk capital invested in privately held companies by Venture Capital firms, through the underwriting of newly issued stock and/or convertible bonds. Services offered by venture capital are:

- Finance new and rapidly growing companies, typically knowledge based, sustainable, up scaleable companies
- Purchase equity/quasi- equity securities
- Assist in the development of new products and services
- Add value to the company through active participation
- Take higher risks with the expectation of higher rewards having a long term orientation.

TABLE - I : PRESENT VALUE OF RUPEE ONE

| RATE | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
|      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15     | YEAR |
| 5%   | 0.9524 | 0.9070 | 0.8638 | 0.8227 | 0.7835 | 0.7462 | 0.7107 | 0.6768 | 0.6446 | 0.6139 | 0.5847 | 0.5568 | 0.5303 | 0.5051 | 0.4810 |      |
| 6%   | 0.9434 | 0.8900 | 0.8396 | 0.7921 | 0.7473 | 0.7050 | 0.6651 | 0.6274 | 0.5919 | 0.5584 | 0.5268 | 0.4970 | 0.4688 | 0.4423 | 0.4173 |      |
| 7%   | 0.9346 | 0.8734 | 0.8163 | 0.7629 | 0.7130 | 0.6663 | 0.6227 | 0.5820 | 0.5439 | 0.5083 | 0.4751 | 0.4440 | 0.4150 | 0.3878 | 0.3624 |      |
| 8%   | 0.9259 | 0.8573 | 0.7938 | 0.7350 | 0.6806 | 0.6302 | 0.5835 | 0.5403 | 0.5002 | 0.4632 | 0.4289 | 0.3971 | 0.3677 | 0.3405 | 0.3152 |      |
| 9%   | 0.9174 | 0.8417 | 0.7722 | 0.7084 | 0.6499 | 0.5963 | 0.5470 | 0.5019 | 0.4604 | 0.4224 | 0.3875 | 0.3555 | 0.3262 | 0.2992 | 0.2745 |      |
| 10%  | 0.9091 | 0.8264 | 0.7513 | 0.6830 | 0.6209 | 0.5645 | 0.5132 | 0.4665 | 0.4241 | 0.3855 | 0.3505 | 0.3186 | 0.2897 | 0.2633 | 0.2394 |      |
| 11%  | 0.9009 | 0.8116 | 0.7312 | 0.6587 | 0.5935 | 0.5346 | 0.4817 | 0.4339 | 0.3909 | 0.3522 | 0.3173 | 0.2858 | 0.2575 | 0.2320 | 0.2090 |      |
| 12%  | 0.8929 | 0.7972 | 0.7118 | 0.6355 | 0.5674 | 0.5066 | 0.4523 | 0.4039 | 0.3606 | 0.3220 | 0.2875 | 0.2567 | 0.2292 | 0.2046 | 0.1827 |      |
| 13%  | 0.8850 | 0.7831 | 0.6931 | 0.6133 | 0.5428 | 0.4803 | 0.4251 | 0.3762 | 0.3329 | 0.2946 | 0.2607 | 0.2307 | 0.2042 | 0.1807 | 0.1599 |      |
| 14%  | 0.8772 | 0.7695 | 0.6750 | 0.5921 | 0.5194 | 0.4556 | 0.3996 | 0.3506 | 0.3075 | 0.2697 | 0.2366 | 0.2076 | 0.1821 | 0.1597 | 0.1401 |      |
| 15%  | 0.8696 | 0.7561 | 0.6575 | 0.5718 | 0.4972 | 0.4323 | 0.3759 | 0.3269 | 0.2843 | 0.2472 | 0.2149 | 0.1869 | 0.1625 | 0.1413 | 0.1229 |      |
| 16%  | 0.8621 | 0.7432 | 0.6407 | 0.5523 | 0.4761 | 0.4104 | 0.3538 | 0.3050 | 0.2630 | 0.2267 | 0.1954 | 0.1685 | 0.1452 | 0.1252 | 0.1079 |      |
| 17%  | 0.8547 | 0.7305 | 0.6244 | 0.5337 | 0.4561 | 0.3898 | 0.3332 | 0.2848 | 0.2434 | 0.2080 | 0.1778 | 0.1520 | 0.1299 | 0.1110 | 0.0949 |      |
| 18%  | 0.8475 | 0.7182 | 0.6086 | 0.5158 | 0.4371 | 0.3704 | 0.3139 | 0.2660 | 0.2255 | 0.1911 | 0.1619 | 0.1372 | 0.1163 | 0.0985 | 0.0835 |      |
| 19%  | 0.8403 | 0.7062 | 0.5934 | 0.4987 | 0.4190 | 0.3521 | 0.2959 | 0.2487 | 0.2090 | 0.1756 | 0.1476 | 0.1240 | 0.1042 | 0.0876 | 0.0736 |      |
| 20%  | 0.8333 | 0.6944 | 0.5787 | 0.4823 | 0.4019 | 0.3349 | 0.2791 | 0.2326 | 0.1938 | 0.1615 | 0.1346 | 0.1122 | 0.0935 | 0.0779 | 0.0649 |      |
| 21%  | 0.8264 | 0.6830 | 0.5645 | 0.4665 | 0.3855 | 0.3186 | 0.2633 | 0.2176 | 0.1799 | 0.1486 | 0.1228 | 0.1015 | 0.0839 | 0.0693 | 0.0573 |      |
| 22%  | 0.8197 | 0.6719 | 0.5507 | 0.4514 | 0.3700 | 0.3033 | 0.2486 | 0.2038 | 0.1670 | 0.1369 | 0.1122 | 0.0920 | 0.0754 | 0.0618 | 0.0507 |      |
| 23%  | 0.8130 | 0.6610 | 0.5374 | 0.4369 | 0.3552 | 0.2888 | 0.2348 | 0.1909 | 0.1552 | 0.1262 | 0.1026 | 0.0834 | 0.0678 | 0.0551 | 0.0448 |      |
| 24%  | 0.8065 | 0.6504 | 0.5245 | 0.4230 | 0.3411 | 0.2751 | 0.2218 | 0.1789 | 0.1443 | 0.1164 | 0.0938 | 0.0757 | 0.0610 | 0.0492 | 0.0397 |      |
| 25%  | 0.8000 | 0.6400 | 0.5120 | 0.4096 | 0.3277 | 0.2621 | 0.2097 | 0.1678 | 0.1342 | 0.1074 | 0.0859 | 0.0687 | 0.0550 | 0.0440 | 0.0352 |      |

TABLE - 2 : PRESENT VALUE OF AN ANNUITY OF RUPEE ONE

| RATE | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR   | YEAR    | YEAR | YEAR | YEAR |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|------|------|------|
|      | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | 13     | 14     | 15      |      |      |      |
| 5%   | 0.9524 | 1.8594 | 2.7232 | 3.5460 | 4.3295 | 5.0757 | 5.7864 | 6.4632 | 7.1078 | 7.7217 | 8.3064 | 8.8633 | 9.3936 | 9.8986 | 10.3797 |      |      |      |
| 6%   | 0.9434 | 1.8334 | 2.6730 | 3.4651 | 4.2124 | 4.9173 | 5.5824 | 6.2098 | 6.8017 | 7.3601 | 7.8869 | 8.3838 | 8.8527 | 9.2950 | 9.7122  |      |      |      |
| 7%   | 0.9346 | 1.8080 | 2.6243 | 3.3872 | 4.1002 | 4.7665 | 5.3893 | 5.9713 | 6.5152 | 7.0236 | 7.4987 | 7.9427 | 8.3577 | 8.7455 | 9.1079  |      |      |      |
| 8%   | 0.9259 | 1.7833 | 2.5771 | 3.3121 | 3.9927 | 4.6229 | 5.2064 | 5.7466 | 6.2469 | 6.7101 | 7.1390 | 7.5361 | 7.9038 | 8.2442 | 8.5595  |      |      |      |
| 9%   | 0.9174 | 1.7591 | 2.5313 | 3.2397 | 3.8897 | 4.4859 | 5.0330 | 5.5348 | 5.9952 | 6.4177 | 6.8052 | 7.1607 | 7.4869 | 7.7862 | 8.0607  |      |      |      |
| 10%  | 0.9091 | 1.7355 | 2.4869 | 3.1699 | 3.7908 | 4.3553 | 4.8684 | 5.3349 | 5.7590 | 6.1446 | 6.4951 | 6.8137 | 7.1034 | 7.3667 | 7.6061  |      |      |      |
| 11%  | 0.9009 | 1.7125 | 2.4437 | 3.1024 | 3.6959 | 4.2305 | 4.7122 | 5.1461 | 5.5370 | 5.8892 | 6.2065 | 6.4924 | 6.7499 | 6.9819 | 7.1909  |      |      |      |
| 12%  | 0.8929 | 1.6901 | 2.4018 | 3.0373 | 3.6048 | 4.1114 | 4.5638 | 4.9676 | 5.3282 | 5.6502 | 5.9377 | 6.1944 | 6.4235 | 6.6282 | 6.8109  |      |      |      |
| 13%  | 0.8850 | 1.6681 | 2.3612 | 2.9745 | 3.5172 | 3.9975 | 4.4226 | 4.7988 | 5.1317 | 5.4262 | 5.6869 | 5.9176 | 6.1218 | 6.3025 | 6.4624  |      |      |      |
| 14%  | 0.8772 | 1.6467 | 2.3216 | 2.9137 | 3.4331 | 3.8887 | 4.2883 | 4.6389 | 4.9464 | 5.2161 | 5.4527 | 5.6603 | 5.8424 | 6.0021 | 6.1422  |      |      |      |
| 15%  | 0.8696 | 1.6257 | 2.2832 | 2.8550 | 3.3522 | 3.7845 | 4.1604 | 4.4873 | 4.7716 | 5.0188 | 5.2337 | 5.4206 | 5.5831 | 5.7245 | 5.8474  |      |      |      |
| 16%  | 0.8621 | 1.6052 | 2.2459 | 2.7982 | 3.2743 | 3.6847 | 4.0386 | 4.3436 | 4.6065 | 4.8332 | 5.0286 | 5.1971 | 5.3423 | 5.4675 | 5.5755  |      |      |      |
| 17%  | 0.8547 | 1.5852 | 2.2096 | 2.7432 | 3.1993 | 3.5892 | 3.9224 | 4.2072 | 4.4506 | 4.6586 | 4.8364 | 4.9884 | 5.1183 | 5.2293 | 5.3242  |      |      |      |
| 18%  | 0.8475 | 1.5656 | 2.1743 | 2.6901 | 3.1272 | 3.4976 | 3.8115 | 4.0776 | 4.3030 | 4.4941 | 4.6560 | 4.7932 | 4.9095 | 5.0081 | 5.0916  |      |      |      |
| 19%  | 0.8403 | 1.5465 | 2.1399 | 2.6386 | 3.0576 | 3.4098 | 3.7057 | 3.9544 | 4.1633 | 4.3389 | 4.4865 | 4.6105 | 4.7147 | 4.8023 | 4.8759  |      |      |      |
| 20%  | 0.8333 | 1.5278 | 2.1065 | 2.5887 | 2.9906 | 3.3255 | 3.6046 | 3.8372 | 4.0310 | 4.1925 | 4.3271 | 4.4392 | 4.5327 | 4.6106 | 4.6755  |      |      |      |
| 21%  | 0.8264 | 1.5095 | 2.0739 | 2.5404 | 2.9260 | 3.2446 | 3.5079 | 3.7256 | 3.9054 | 4.0541 | 4.1769 | 4.2784 | 4.3624 | 4.4317 | 4.4890  |      |      |      |
| 22%  | 0.8197 | 1.4915 | 2.0422 | 2.4936 | 2.8636 | 3.1669 | 3.4155 | 3.6193 | 3.7863 | 3.9232 | 4.0354 | 4.1274 | 4.2028 | 4.2646 | 4.3152  |      |      |      |
| 23%  | 0.8130 | 1.4740 | 2.0114 | 2.4483 | 2.8035 | 3.0923 | 3.3270 | 3.5179 | 3.6731 | 3.7993 | 3.9018 | 3.9852 | 4.0530 | 4.1082 | 4.1530  |      |      |      |
| 24%  | 0.8065 | 1.4568 | 1.9813 | 2.4043 | 2.7454 | 3.0205 | 3.2423 | 3.4212 | 3.5655 | 3.6819 | 3.7757 | 3.8514 | 3.9124 | 3.9616 | 4.0013  |      |      |      |
| 25%  | 0.8000 | 1.4400 | 1.9520 | 2.3616 | 2.6893 | 2.9514 | 3.1611 | 3.3289 | 3.4631 | 3.5705 | 3.6584 | 3.7251 | 3.7801 | 3.8241 | 3.8593  |      |      |      |