

**PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE**

**PART A: FINANCIAL MANAGEMENT**

**QUESTIONS**

**Ratio Analysis**

1. The following information of ASD Ltd. relate to the year ended 31<sup>st</sup> March, 2022:

|                                        |                           |
|----------------------------------------|---------------------------|
| Net profit                             | 8% of sales               |
| Raw materials consumed                 | 20% of Cost of Goods Sold |
| Direct wages                           | 10% of Cost of Goods Sold |
| Stock of raw materials                 | 3 months' usage           |
| Stock of finished goods                | 6% of Cost of Goods Sold  |
| Gross Profit                           | 15% of Sales              |
| Debt collection period                 | 2 Months                  |
| (All sales are on credit)              |                           |
| Current ratio                          | 2 : 1                     |
| Fixed assets to Current assets         | 13 : 11                   |
| Fixed assets to sales                  | 1 : 3                     |
| Long-term loans to Current liabilities | 2 : 1                     |
| Capital to Reserves and Surplus        | 1 : 4                     |

You are required to PREPARE-

- (a) Profit & Loss Statement of ASD Limited for the year ended 31<sup>st</sup> March, 2022 in the following format.

| Particulars                          | (₹) | Particulars         | (₹) |
|--------------------------------------|-----|---------------------|-----|
| To Direct Materials consumed         | ?   | By Sales            | ?   |
| To Direct Wages                      | ?   |                     |     |
| To Works (Overhead)                  | ?   |                     |     |
| To Gross Profit c/d                  | ?   |                     | ?   |
|                                      | ?   |                     |     |
| To Selling and Distribution Expenses | ?   | By Gross Profit b/d | ?   |
| To Net Profit                        | ?   |                     |     |
|                                      | ?   |                     | ?   |

(b) Balance Sheet as on 31st March, 2022 in the following format.

| Liabilities          | (₹) | Assets                  | (₹)         |
|----------------------|-----|-------------------------|-------------|
| Share Capital        | ?   | Fixed Assets            | 1,30,00,000 |
| Reserves and Surplus | ?   | Current Assets:         |             |
| Long term loans      | ?   | Stock of Raw Material   | ?           |
| Current liabilities  | ?   | Stock of Finished Goods | ?           |
|                      |     | Debtors                 | ?           |
|                      |     | Cash                    | ?           |
|                      | ?   |                         | ?           |

### Cost of Capital

2. Bounce Ltd. evaluates all its capital projects using discounting rate of 15%. Its capital structure consists of equity share capital, retained earnings, bank term loan and debentures redeemable at par.

Rate of interest on bank term loan is 1.5 times that of debenture. Remaining tenure of debenture and bank loan is 3 years and 5 years respectively. Book value of equity share capital, retained earnings and bank loan is ₹ 10,00,000, ₹ 15,00,000 and ₹ 10,00,000 respectively. Debentures which are having book value of ₹ 15,00,000 are currently trading at ₹ 97 per debenture. The ongoing P/E multiple for the shares of the company stands at 5. You are required to CALCULATE the rate of interest on bank loan and debentures if tax rate applicable is 25%.

### Capital Structure

3. ABC Limited provides you the following information:

|                                  | (₹)             |
|----------------------------------|-----------------|
| Profit (EBIT)                    | 2,80,000        |
| Less: Intt. on Debt @10%         | <u>40,000</u>   |
| EBT                              | 2,40,000        |
| Less: Income Tax @ 50%           | <u>1,20,000</u> |
|                                  | <u>1,20,000</u> |
| No. of Equity Shares (₹ 10 each) | 30,000          |
| Earnings per share (EPS)         | 4               |
| Price / EPS (P/E) Ratio          | 10              |
| Ruling Market price per share    | 40              |

The company has undistributed reserves of ₹ 7,00,000 and needs ₹ 4,00,000 further for expansion. This investment is expected to earn the same rate as funds already invested. You are informed that a debt equity (debt/ debt +equity) ratio higher than 32% will push the P/E ratio down to 8 and raise the interest rate on additional borrowings (debentures) to 12%. You are required to ASCERTAIN the probable price of the share.

- (i) If the additional funds are raised as debt; and
- (ii) If the amount is raised by issuing equity shares at ruling market price of ₹ 40 per share.

#### Leverage

4. Debu Ltd. currently has an equity share capital of ₹ 1,30,00,000 consisting of 13,00,000 Equity shares. The company is going through a major expansion plan requiring to raise funds to the tune of ₹ 78,00,000. To finance the expansion the management has following plans:

Plan-I : Issue 7,80,000 Equity shares of ₹ 10 each.

Plan-II : Issue 5,20,000 Equity shares of ₹ 10 each and the balance through long-term borrowing at 12% interest p.a.

Plan-III : Issue 3,90,000 Equity shares of ₹ 10 each and 39,000, 9% Debentures of ₹ 100 each.

Plan-IV : Issue 3,90,000 Equity shares of ₹ 10 each and the balance through 6% preference shares.

EBIT of the company is expected to be ₹ 52,00,000 p.a.

Considering corporate tax rate @ 40%, you are required to-

- (i) CALCULATE EPS in each of the above plans.
- (ii) ASCERTAIN financial leverage in each plan and comment.

#### Investment Decisions

5. K. K. M. M Hospital is considering purchasing an MRI machine. Presently, the hospital is outsourcing the work received relating to MRI machine and is earning commission of ₹ 6,60,000 per annum (net of tax). The following details are given regarding the machine:

|                                                   | (₹)       |
|---------------------------------------------------|-----------|
| Cost of MRI machine                               | 90,00,000 |
| Operating cost per annum (excluding Depreciation) | 14,00,000 |
| Expected revenue per annum                        | 45,00,000 |
| Salvage value of the machine (after 5 years)      | 10,00,000 |
| Expected life of the machine                      | 5 years   |

Assuming tax rate @ 40%, whether it would be profitable for the hospital to purchase the machine?

Give your RECOMMENDATION under:

- (i) Net Present Value Method, and
- (ii) Profitability Index Method.

PV factors at 10% are given below:

| Year      | 1     | 2     | 3     | 4     | 5     |
|-----------|-------|-------|-------|-------|-------|
| PV factor | 0.909 | 0.826 | 0.751 | 0.683 | 0.620 |

### Risk Analysis in Capital Budgeting

6. Consider the below mentioned table for the risk premium and the coefficient of variation

| Co-efficient of Variation | Risk Premium |
|---------------------------|--------------|
| 0                         | 0            |
| 0 to 0.25                 | 2%           |
| 0.25 to 0.50              | 3%           |
| 0.50 to 0.75              | 4%           |
| 0.75 to 1                 | 6%           |

A company is evaluating two projects with an initial investment of ₹ 1,50,000 for each project with cash inflows from them occurring at the end of 5th Year which depends on possible scenarios prevailing during the investment period. The details of the same are as follows:

| Scenario | Project X     |             | Project Y     |             |
|----------|---------------|-------------|---------------|-------------|
|          | Cash Flow (₹) | Probability | Cash Flow (₹) | Probability |
| Superb   | 5,00,000      | 0.20        | 4,00,000      | 0.30        |
| Better   | 3,00,000      | 0.30        | 3,50,000      | 0.20        |
| Moderate | 1,50,000      | 0.15        | 2,50,000      | 0.20        |
| Bad      | 50,000        | 0.20        | 75,000        | 0.20        |
| Worse    | 10,000        | 0.15        | 5,000         | 0.10        |

If the ongoing government bond yield is 6%, identify WHICH project to be undertaken.

**Dividend Decision**

7. Ordinary shares of a listed company are currently trading at ₹ 10 per share with two lakh shares outstanding. The company anticipates that its earnings for next year will be ₹ 5,00,000. Existing cost of capital for equity shares is 15%. The company has certain investment proposals under discussion which will cause an additional 26,089 ordinary shares to be issued if no dividend is paid or an additional 47,619 ordinary shares to be issued if dividend is paid.

Applying the MM hypothesis on dividend decisions, CALCULATE the amount of investment and dividend that is under consideration by the company.

**Management of Cash**

8. A company was incorporated w.e.f. 1<sup>st</sup> April, 2021. Its authorised capital was ₹ 1,00,00,000 divided into 10 lakh equity shares of ₹ 10 each. It intends to raise capital by issuing equity shares of ₹ 50,00,000 (fully paid) on 1<sup>st</sup> April. Besides this, a loan of ₹ 6,50,000 @ 12% per annum will be obtained from a financial institution on 1<sup>st</sup> April and further borrowings will be made at same rate of interest on the first day of the month in which borrowing is required. All borrowings will be repaid along with interest on the expiry of one year. The company will make payment for the following assets in April.

| Particulars            | (₹)       |
|------------------------|-----------|
| Plant and Machinery    | 10,00,000 |
| Land and Building      | 20,00,000 |
| Furniture              | 5,00,000  |
| Motor Vehicles         | 5,00,000  |
| Stock of Raw Materials | 5,00,000  |

The following further details are available:

- (1) Projected Sales (April-September):

|           | (₹)       |
|-----------|-----------|
| April     | 15,00,000 |
| May       | 17,50,000 |
| June      | 17,50,000 |
| July      | 20,00,000 |
| August    | 20,00,000 |
| September | 22,50,000 |

- (2) Gross profit margin will be 25% on sales.
- (3) The company will make credit sales only and these will be collected in the second month following sales.

- (4) Creditors will be paid in the first month following credit purchases. There will be credit purchases only.
- (5) The company will keep minimum stock of raw materials of ₹ 5,00,000.
- (6) Depreciation will be charged @ 10% per annum on cost on all fixed assets.
- (7) Payment of miscellaneous expenses of ₹ 50,000 will be made in April.
- (8) Wages and salaries will be ₹ 1,00,000 each month and will be paid on the first day of the next month.
- (9) Administrative expenses of ₹ 50,000 per month will be paid in the month of their incurrence.
- (10) No minimum cash balance is required.

You are required to PREPARE the monthly cash budget (April-September), the projected Income Statement for the 6 months period and the projected Balance Sheet as on 30<sup>th</sup> September, 2021.

#### Management of Working Capital

9. Trading and Profit and Loss Account of Beat Ltd. for the year ended 31<sup>st</sup> March, 2022 is given below:

| Particulars            | Amount<br>(₹) | Amount<br>(₹) | Particulars         | Amount<br>(₹) | Amount<br>(₹) |
|------------------------|---------------|---------------|---------------------|---------------|---------------|
| To Opening Stock:      |               |               | By Sales (Credit)   |               | 1,60,00,000   |
| - Raw Materials        | 14,40,000     |               | By Closing Stock:   |               |               |
| - Work-in- progress    | 4,80,000      |               | - Raw Materials     | 16,00,000     |               |
| - Finished Goods       | 20,80,000     | 40,00,000     | - Work-in-progress  | 8,00,000      |               |
| To Purchases (credit)  |               | 88,00,000     | - Finished Goods    | 24,00,000     | 48,00,000     |
| To Wages               |               | 24,00,000     |                     |               |               |
| To Production Exp.     |               | 16,00,000     |                     |               |               |
| To Gross Profit c/d    |               | 40,00,000     |                     |               |               |
|                        |               | 2,08,00,000   |                     |               | 2,08,00,000   |
| To Administration Exp. |               | 14,00,000     | By Gross Profit b/d |               | 40,00,000     |
| To Selling Exp.        |               | 6,00,000      |                     |               |               |
| To Net Profit          |               | 20,00,000     |                     |               |               |
|                        |               | 40,00,000     |                     |               | 40,00,000     |

The opening and closing payables for raw materials were ₹ 16,00,000 and ₹ 19,20,000 respectively whereas the opening and closing balances of receivables were ₹ 12,00,000 and ₹ 16,00,000 respectively.

You are required to ASCERTAIN the working capital requirement by operating cycle method.

### Miscellaneous

10. (a) Under financial lease, lessee bears the risk of obsolescence; while under operating lease, lessor bears the risk of obsolescence. In view of this, you are required to COMPARE the financial lease and operating lease.
- (b) BRIEF OUT salient features of Samurai Bond.

### SUGGESTED ANSWERS

#### 1. Working Notes:

- (i) Calculation of Sales

$$\frac{\text{Fixed Assets}}{\text{Sales}} = \frac{1}{3}$$

$$\therefore \frac{1,30,00,000}{\text{Sales}} = \frac{1}{3} \Rightarrow \text{Sales} = ₹ 3,90,00,000$$

- (ii) Calculation of Current Assets

$$\frac{\text{Fixed Assets}}{\text{Current Assets}} = \frac{13}{11}$$

$$\therefore \frac{1,30,00,000}{\text{Current Assets}} = \frac{13}{11} \Rightarrow \text{Current Assets} = ₹ 1,10,00,000$$

- (iii) Calculation of Raw Material Consumption and Direct Wages

|                                    | ₹                  |
|------------------------------------|--------------------|
| Sales                              | 3,90,00,000        |
| Less: Gross Profit (15 % of Sales) | <u>58,50,000</u>   |
| Cost of Goods sold                 | <u>3,31,50,000</u> |

Raw Material Consumption (20% of Cost of Goods Sold) ₹ 66,30,000

Direct Wages (10% of Cost of Goods Sold) ₹ 33,15,000

- (iv) Calculation of Stock of Raw Materials (= 3 months usage)

$$= 66,30,000 \times \frac{3}{12} = ₹ 16,57,500$$

- (v) Calculation of Stock of Finished Goods (= 6% of Cost of Goods Sold)

$$= 3,31,50,000 \times \frac{6}{100} = ₹ 19,89,000$$

(vi) Calculation of Current Liabilities

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2$$

$$\frac{1,10,00,000}{\text{Current Liabilities}} = 2 \Rightarrow \text{Current Liabilities} = ₹ 55,00,000$$

(vii) Calculation of Debtors

$$\text{Average collection period} = \frac{\text{Debtors}}{\text{Credit Sales}} \times 12 \text{ months}$$

$$\frac{\text{Debtors}}{3,90,00,000} \times 12 = 2 \Rightarrow \text{Debtors} = ₹ 65,00,000$$

(viii) Calculation of Long-term Loan

$$\frac{\text{Long term Loan}}{\text{Current Liabilities}} = \frac{2}{1}$$

$$\frac{\text{Long term loan}}{55,00,000} = \frac{2}{1} \Rightarrow \text{Long term loan} = ₹ 1,10,00,000$$

(ix) Calculation of Cash Balance

|                      | ₹                |
|----------------------|------------------|
| Current assets       | 1,10,00,000      |
| Less: Debtors        | 65,00,000        |
| Raw materials stock  | 16,57,500        |
| Finished goods stock | <u>19,89,000</u> |
| Cash balance         | <u>8,53,500</u>  |

(x) Calculation of Net worth

|                      |                    |
|----------------------|--------------------|
| Fixed Assets         | 1,30,00,000        |
| Current Assets       | <u>1,10,00,000</u> |
| Total Assets         | 2,40,00,000        |
| Less: Long term Loan | 1,10,00,000        |
| Current Liabilities  | <u>55,00,000</u>   |
| Net worth            | <u>75,00,000</u>   |

$$\text{Net worth} = \text{Share capital} + \text{Reserves} = ₹ 75,00,000$$

$$\frac{\text{Capital}}{\text{Reserves and Surplus}} = \frac{1}{4} \Rightarrow \text{Share Capital} = ₹ 75,00,000 \times \frac{1}{5} = ₹ 15,00,000$$

$$\text{Reserves and Surplus} = ₹ 75,00,000 \times \frac{4}{5} = ₹ 60,00,000$$

**Profit and Loss Statement of ASD Ltd.  
for the year ended 31<sup>st</sup> March, 2022**

| Particulars                                      | (₹)         | Particulars         | (₹)         |
|--------------------------------------------------|-------------|---------------------|-------------|
| To Direct Materials consumed                     | 66,30,000   | By Sales            | 3,90,00,000 |
| To Direct Wages                                  | 33,15,000   |                     |             |
| To Works (Overhead) (Bal. fig.)                  | 2,32,05,000 |                     |             |
| To Gross Profit c/d (15% of Sales)               | 58,50,000   |                     |             |
|                                                  | 3,90,00,000 |                     | 3,90,00,000 |
| To Selling and Distribution Expenses (Bal. fig.) | 27,30,000   | By Gross Profit b/d | 58,50,000   |
| To Net Profit (8% of Sales)                      | 31,20,000   |                     |             |
|                                                  | 58,50,000   |                     | 58,50,000   |

**Balance Sheet of ASD Ltd.  
as at 31<sup>st</sup> March, 2022**

| Liabilities          | (₹)         | Assets                  | (₹)         |
|----------------------|-------------|-------------------------|-------------|
| Share Capital        | 15,00,000   | Fixed Assets            | 1,30,00,000 |
| Reserves and Surplus | 60,00,000   | Current Assets:         |             |
| Long term loans      | 1,10,00,000 | Stock of Raw Material   | 16,57,500   |
| Current liabilities  | 55,00,000   | Stock of Finished Goods | 19,89,000   |
|                      |             | Debtors                 | 65,00,000   |
|                      |             | Cash                    | 8,53,500    |
|                      | 2,40,00,000 |                         | 2,40,00,000 |

2. Let the rate of Interest on debenture be x

∴ Rate of Interest on loan = 1.5x

$$\therefore K_d \text{ on debentures} = \frac{\text{Int (1-t)} + \frac{RV-NP}{n}}{\frac{RV+NP}{2}}$$

$$= \frac{100x(1-0.25) + \frac{100-97}{3}}{\frac{100+97}{2}}$$

$$= \frac{75x+1}{98.5}$$

$$\therefore K_d \text{ on bank loan} = 1.5x (1 - 0.25) = 1.125x$$

$$K_e = \frac{\text{EPS}}{\text{MPS}} = \frac{1}{\text{MPS} / \text{EPS}} = \frac{1}{\text{P/E}} = \frac{1}{5} = 0.2$$

$$K_Y = K_e = 0.2$$

#### Computation of WACC

| Capital    | Amount (₹) | Weights | Cost         | Product                                      |
|------------|------------|---------|--------------|----------------------------------------------|
| Equity     | 10,00,000  | 0.2     | 0.2          | 0.04                                         |
| Reserves   | 15,00,000  | 0.3     | 0.2          | 0.06                                         |
| Debentures | 15,00,000  | 0.3     | (75x+1)/98.5 | (22.5x + 0.3)/98.5                           |
| Bank Loan  | 10,00,000  | 0.2     | 1.125x       | 0.225x                                       |
|            | 50,00,000  | 1       |              | 0.1 + 0.225x +<br><u>22.5x + 0.3</u><br>98.5 |

$$\text{WACC} = 15\%$$

$$\therefore 0.1 + 0.225x + \frac{22.5x}{98.5} + \frac{0.3}{98.5} = 0.15$$

$$\therefore 9.85 + 22.1625x + 22.5x + 0.3 = (0.15) (98.5)$$

$$\therefore 44.6625x = 14.775 - 9.85 - 0.3$$

$$\therefore 44.6625x = 4.625$$

$$\therefore x = \frac{4.625}{44.6625}$$

$$\therefore x = 10.36 \%$$

$$\therefore \text{Rate of interest on debenture} = x = 10.36\%$$

$$\text{Rate of interest on Bank loan} = 1.5x = (1.5) (10.36\%) = 15.54\%.$$

## 3. Ascertainment of probable price of shares

| Particulars                                                      | Plan (i)<br>(If ₹ 4,00,000<br>is raised as<br>debt) (₹) | Plan (ii)<br>(If ₹ 4,00,000 is<br>raised by<br>issuing equity<br>shares) (₹) |
|------------------------------------------------------------------|---------------------------------------------------------|------------------------------------------------------------------------------|
| Earnings Before Interest (EBIT)<br>20% on (14,00,000 + 4,00,000) | 3,60,000                                                | 3,60,000                                                                     |
| Less: Interest on old debentures @ 10% on<br>4,00,000            | 40,000                                                  | 40,000                                                                       |
|                                                                  | 3,20,000                                                | 3,20,000                                                                     |
| Less: Interest on New debt @ 12% on ₹ 4,00,000                   | 48,000                                                  | -                                                                            |
| Earnings Before Tax (After interest)                             | 2,72,000                                                | 3,20,000                                                                     |
| Less: Tax @ 50%                                                  | 1,36,000                                                | 1,60,000                                                                     |
| Earnings for equity shareholders (EAIT)                          | 1,36,000                                                | 1,60,000                                                                     |
| Number of Equity Shares (in numbers)                             | 30,000                                                  | 40,000                                                                       |
| Earnings per Share (EPS)                                         | 4.53                                                    | 4.00                                                                         |
| Price/ Earnings Ratio                                            | 8                                                       | 10                                                                           |
| Probable Price Per Share                                         | 36.24<br>(8 x 4.53)                                     | 40<br>(10 x 4)                                                               |

## Working Notes:

|                                                                                    | (₹)       |
|------------------------------------------------------------------------------------|-----------|
| 1. Calculation of Present Rate of Earnings                                         |           |
| Equity Share capital (30,000 x ₹ 10)                                               | 3,00,000  |
| 10% Debentures $\left(40,000 \times \frac{100}{10}\right)$                         | 4,00,000  |
| Reserves (given)                                                                   | 7,00,000  |
|                                                                                    | 14,00,000 |
| Earnings before interest and tax (EBIT) given                                      | 2,80,000  |
| Rate of Present Earnings = $\left(\frac{2,80,000}{14,00,000} \times 100\right)$    | 20%       |
| 2. Number of Equity Shares to be issued in Plan $\left(\frac{4,00,000}{40}\right)$ | 10,000    |

|                                                       |                                                                    |
|-------------------------------------------------------|--------------------------------------------------------------------|
| Thus, after the issue total number of shares          | $30,000 + 10,000$ $= 40,000$                                       |
| 3. Debt/Equity Ratio if ₹ 4,00,000 is raised as debt: | $\left( \frac{8,00,000}{18,00,000} \times 100 \right)$ $= 44.44\%$ |

As the debt equity ratio is more than 32% the P/E ratio shall be 8 in plan (i)

4.

| Sources of Capital       | Plan I      | Plan II     | Plan III    | Plan IV     |
|--------------------------|-------------|-------------|-------------|-------------|
| Present Equity Shares    | 13,00,000   | 13,00,000   | 13,00,000   | 13,00,000   |
| New Issue                | 7,80,000    | 5,20,000    | 3,90,000    | 3,90,000    |
| Equity share capital (₹) | 2,08,00,000 | 1,82,00,000 | 1,69,00,000 | 1,69,00,000 |
| No. of Equity shares     | 20,80,000   | 18,20,000   | 16,90,000   | 16,90,000   |
| 12% Long term loan (₹)   | —           | 26,00,000   | —           | —           |
| 9% Debentures (₹)        | —           | —           | 39,00,000   | —           |
| 6% Preference Shares (₹) | —           | —           | —           | 39,00,000   |

#### Computation of EPS and Financial Leverage

| Sources of Capital                               | Plan I    | Plan II   | Plan III  | Plan IV   |
|--------------------------------------------------|-----------|-----------|-----------|-----------|
| EBIT (₹)                                         | 52,00,000 | 52,00,000 | 52,00,000 | 52,00,000 |
| Less: Interest on 12% Loan (₹)                   | —         | 3,12,000  | —         | —         |
| Less: Interest on 9% debentures (₹)              | —         | —         | 3,51,000  | —         |
| EBT (₹)                                          | 52,00,000 | 48,88,000 | 48,49,000 | 52,00,000 |
| Less: Tax@ 40%                                   | 20,80,000 | 19,55,200 | 19,39,600 | 20,80,000 |
| EAT (₹)                                          | 31,20,000 | 29,32,800 | 29,09,400 | 31,20,000 |
| Less: Preference Dividends (₹)                   | —         | —         | —         | 2,34,000  |
| (a) Net Earnings available for equity shares (₹) | 31,20,000 | 29,32,800 | 29,09,400 | 28,86,000 |
| (b) No. of equity shares                         | 20,80,000 | 18,20,000 | 16,90,000 | 16,90,000 |
| (c) EPS (a ÷ b) (₹)                              | 1.50      | 1.61      | 1.72      | 1.71      |

|                                                                  |      |      |      |       |
|------------------------------------------------------------------|------|------|------|-------|
| Financial leverage $\left(\frac{\text{EBIT}}{\text{EBT}}\right)$ | 1.00 | 1.06 | 1.07 | 1.08* |
|------------------------------------------------------------------|------|------|------|-------|

$$* \text{ Financial Leverage in the case of Preference dividend} = \left( \frac{\text{EBIT}}{(\text{EBIT} - \text{Interest}) - \left(\frac{D_p}{(1-t)}\right)} \right)$$

$$= \left( \frac{52,00,000}{(52,00,000 - 0) - \left(\frac{2,34,000}{(1-.40)}\right)} \right) = \left( \frac{52,00,000}{48,10,000} \right) = 1.08$$

#### 5. Determination of Cash inflows

| Elements                                       | (₹)       |
|------------------------------------------------|-----------|
| Sales Revenue                                  | 45,00,000 |
| Less: Operating Cost                           | 14,00,000 |
|                                                | 31,00,000 |
| Less: Depreciation $(90,00,000 - 10,00,000)/5$ | 16,00,000 |
| Net Income                                     | 15,00,000 |
| Tax @ 40%                                      | 6,00,000  |
| Earnings after Tax (EAT)                       | 9,00,000  |
| Add: Depreciation                              | 16,00,000 |
| Cash inflow after tax per annum                | 25,00,000 |
| Less: Loss of Commission Income                | 6,60,000  |
| Net Cash inflow after tax per annum            | 18,40,000 |
| In 5 <sup>th</sup> Year:                       |           |
| New Cash inflow after tax                      | 18,40,000 |
| Add: Salvage Value of Machine                  | 10,00,000 |
| Net Cash inflow in year 5                      | 28,40,000 |

#### Calculation of Net Present Value (NPV)

| Year                | CFAT      | PV Factor @10% | Present Value of Cash inflows |
|---------------------|-----------|----------------|-------------------------------|
| 1 to 4              | 18,40,000 | 3.169          | 58,30,960                     |
| 5                   | 28,40,000 | 0.620          | <u>17,60,800</u>              |
|                     |           |                | 75,91,760                     |
| Less: Cash Outflows |           |                | <u>90,00,000</u>              |
| NPV                 |           |                | <u>(14,08,240)</u>            |

$$\text{Profitability Index} = \frac{\text{Sum of discounted cash inflows}}{\text{Present value of cash outflows}} = \frac{75,91,760}{90,00,000} = 0.844$$

**Advise:** Since the net present value is negative and profitability index is also less than 1, therefore, the hospital should not purchase the MRI machine.

**6. Calculation of Expected Cash Flow, Standard Deviation & Co-efficient of variation**

(a) Project X

| Probability (P) | Cash Flows (x) | P.x      | P.x <sup>2</sup> |
|-----------------|----------------|----------|------------------|
| 0.20            | 5,00,000       | 1,00,000 | 50,00,00,00,000  |
| 0.30            | 3,00,000       | 90,000   | 27,00,00,00,000  |
| 0.15            | 1,50,000       | 22,500   | 3,37,50,00,000   |
| 0.20            | 50,000         | 10,000   | 50,00,00,000     |
| 0.15            | 10,000         | 1,500    | 1,50,00,000      |
|                 |                | 2,24,000 | 80,89,00,00,000  |

$$\text{Expected Cash flow} = \sum P.x = 2,24,000 = \bar{X}$$

$$\begin{aligned} \text{Standard Deviation} &= \sqrt{\sum P.x^2 - (\sum P.x)^2} \\ &= \sqrt{80,89,00,00,000 - (2,24,000)^2} \\ &= \sqrt{30,71,40,00,000} \end{aligned}$$

$$\sigma_x = 1,75,254$$

$$\begin{aligned} \text{Co-efficient of variation} &= \frac{\sigma_x}{\bar{X}} \\ &= \frac{1,75,254}{2,24,000} \end{aligned}$$

$$\text{COV}_x = 0.7824$$

(b) Project Y

| Probability (P) | Cash Flows (y) | P.y      | P.y <sup>2</sup> |
|-----------------|----------------|----------|------------------|
| 0.3             | 4,00,000       | 1,20,000 | 48,00,00,00,000  |
| 0.2             | 3,50,000       | 70,000   | 24,50,00,00,000  |
| 0.2             | 2,50,000       | 50,000   | 12,50,00,00,000  |
| 0.2             | 75,000         | 15,000   | 1,12,50,00,000   |

|     |       |          |                 |
|-----|-------|----------|-----------------|
| 0.1 | 5,000 | 500      | 25,00,000       |
|     |       | 2,55,500 | 86,12,75,00,000 |

$$\text{Expected Cash flow} = \sum P.y = \bar{y} = 2,55,500$$

$$\begin{aligned} \text{Standard Deviation} &= \sqrt{\sum P.y^2 - (\sum P.y)^2} \\ &= \sqrt{86,12,75,00,000 - (2,55,500)^2} \end{aligned}$$

$$\sigma_y = 1,44,386$$

$$\begin{aligned} \text{Co-efficient of variation} &= \frac{\sigma_y}{\bar{Y}} \\ &= \frac{1,44,386}{2,55,500} \\ \text{COV}_Y &= 0.5651 \end{aligned}$$

#### B. Calculation of Risk Adjusted Discount Rate

| Project | COV    | Risk Premium | RADR          |
|---------|--------|--------------|---------------|
| X       | 0.7824 | 6%           | 6% + 6% = 12% |
| Y       | 0.5651 | 4%           | 6% + 4% = 10% |

#### C. Calculation of NPV

| Year | Project X  |           |            | Project Y  |           |            |
|------|------------|-----------|------------|------------|-----------|------------|
|      | Cash Flows | PVF @ 12% | PV         | Cash Flows | PVF @ 10% | PV         |
| 0    | (1,50,000) | 1         | (1,50,000) | (1,50,000) | 1         | (1,50,000) |
| 5    | 2,24,000   | 0.5674    | 1,27,098   | 2,55,500   | 0.6209    | 1,58,640   |
| NPV  |            |           | (22,902)   |            |           | 8,640      |

\*∴ NPV of project Y is higher, Project Y should be selected.

7.  $P_0 = ₹ 10$   $n = 2,00,000$ ,  $E = ₹ 5,00,000$

$K_e = 15\%$ ,  $\Delta n = 26,089$ ,  $I = ?$

$$P_0 = \frac{P_1}{1+K_e}$$

$$10 = \frac{P_1}{1.15}$$

$$\therefore P_1 = 11.5$$

$$\Delta n = \frac{I - E + nD_1}{P_1}$$

$$26,089 = \frac{I - 5,00,000}{11.5}$$

$$I = 8,00,024$$

Now,

$$P_0 = ₹ 10, n = ₹ 2,00,000,$$

$$E = ₹ 5,00,000, I = 8,00,024,$$

$$K_e = 15\%, \Delta n 47,619, D_1 = ?$$

$$P_0 = \frac{P_1 + D_1}{1 + K_e}$$

$$10 = \frac{P_1 + D_1}{1.15}$$

$$P_1 + D_1 = 11.5$$

$$\therefore P_1 = 11.5 - D_1 \dots\dots\dots 1$$

$$\therefore \Delta n = \frac{I - E + nD_1}{P_1}$$

$$47,619 = \frac{8,00,024 - 5,00,000 + 2,00,000D_1}{P_1}$$

$$47,619 P_1 = 2,00,000 D_1 + 3,00,024$$

From 1,

$$47619 (11.5 - D_1) = 2,00,000 D_1 + 3,00,024$$

$$5,47,618.5 - 47,619D_1 = 2,00,000D_1 + 3,00,024$$

$$\therefore 2,47,594.5 = 2,00,000D_1 + 47,619 D_1$$

$$\therefore 2,47,594.5 = 2,47,619 D_1$$

$$\therefore D_1 = \frac{2,47,594.5}{2,47,619} = 0.99 \approx ₹ 1$$

$$\therefore P_1 = 11.5 - D_1$$

$$P_1 = 11.5 - 1$$

$$P_1 = 10.5$$

$$\therefore n.P_0 = \frac{(n + \Delta n)P_1 - I + E}{1 + K_e}$$

$$= \frac{(2,00,000 + 47,619)(10.5) - 8,00,024 + 5,00,000}{1.15}$$

$$n.P_0 = ₹ 19,99,979 \approx ₹ 20,00,000$$

Using direct calculation,

$$n.P_0 = 2,00,000 \times 10 = ₹ 20,00,000$$

8. **Monthly Cash Budget (April-September)** (₹)

|                                        | April     | May       | June      | July      | August    | September |
|----------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Opening cash balance                   | -         | 10,50,000 | -         | 1,37,500  | 5,25,000  | 7,25,000  |
| <b>A. Cash inflows</b>                 |           |           |           |           |           |           |
| Equity shares                          | 50,00,000 | -         | -         | -         | -         | -         |
| Loans (Refer to working note 1)        | 6,50,000  | 1,25,000  | -         | -         | -         | -         |
| Receipt from debtors                   | -         | -         | 15,00,000 | 17,50,000 | 17,50,000 | 20,00,000 |
| Total (A)                              | 56,50,000 | 11,75,000 | 15,00,000 | 18,87,500 | 22,75,000 | 27,25,000 |
| <b>B. Cash Outflows</b>                |           |           |           |           |           |           |
| Plant and Machinery                    | 10,00,000 | -         | -         | -         | -         | -         |
| Land and Building                      | 20,00,000 | -         | -         | -         | -         | -         |
| Furniture                              | 5,00,000  | -         | -         | -         | -         | -         |
| Motor Vehicles                         | 5,00,000  | -         | -         | -         | -         | -         |
| Stock of raw materials (Minimum stock) | 5,00,000  | -         | -         | -         | -         | -         |

|                                                                     |                  |                  |                  |                  |                  |                  |
|---------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Miscellaneous expenses                                              | 50,000           | -                | -                | -                | -                | -                |
| Payment to creditors for credit purchases (Refer to working note 2) | -                | 10,25,000        | 12,12,500        | 12,12,500        | 14,00,000        | 14,00,000        |
| Wages and salaries                                                  | -                | 1,00,000         | 1,00,000         | 1,00,000         | 1,00,000         | 1,00,000         |
| Admn. expenses                                                      | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    |
| Total : (B)                                                         | <u>46,00,000</u> | <u>11,75,000</u> | <u>13,62,500</u> | <u>13,62,500</u> | <u>15,50,000</u> | <u>15,50,000</u> |
| Closing balance (A)-(B)                                             | 10,50,000        | -                | 1,37,500         | 5,25,000         | 7,25,000         | 11,75,000        |

**Budgeted Income Statement for six-month period ending 30<sup>th</sup> September**

| Particulars                                              | (₹)                | Particulars         | (₹)                |
|----------------------------------------------------------|--------------------|---------------------|--------------------|
| To Purchases                                             | 83,37,500          | By Sales            | 1,12,50,000        |
| To Wages and Salaries                                    | 6,00,000           | By Closing stock    | 5,00,000           |
| To Gross profit c/d                                      | 28,12,500          |                     |                    |
|                                                          | <b>1,17,50,000</b> |                     | <b>1,17,50,000</b> |
| To Admn. expenses                                        | 3,00,000           | By Gross profit b/d | 28,12,500          |
| To Depreciation<br>(10% on ₹ 40 lakhs for six months)    | 2,00,000           |                     |                    |
| To Accrued interest on loan<br>(Refer to working note 3) | 45,250             |                     |                    |
| To Miscellaneous expenses                                | 50,000             |                     |                    |
| To Net profit c/d                                        | 22,17,250          |                     |                    |
|                                                          | <b>28,12,500</b>   |                     | <b>28,12,500</b>   |

**Projected Balance Sheet as on 30<sup>th</sup> September, 2021**

| Liabilities                          | Amount (₹)  | Assets              | Amount (₹)      |
|--------------------------------------|-------------|---------------------|-----------------|
| Share Capital:                       |             | Fixed Assets:       |                 |
| Authorised capital                   |             | Land and Building   | 20,00,000       |
| 10,00,000 equity shares of ₹ 10 each | 1,00,00,000 | Less: Depreciation  | <u>1,00,000</u> |
|                                      |             |                     | 19,00,000       |
|                                      |             | Plant and Machinery | 10,00,000       |
|                                      |             | Less: Depreciation  | <u>50,000</u>   |
|                                      |             |                     | 9,50,000        |

|                                                                            |                 |                  |                                      |                           |                  |                  |
|----------------------------------------------------------------------------|-----------------|------------------|--------------------------------------|---------------------------|------------------|------------------|
| Issued, subscribed and paid up capital 5,00,000 equity shares of ₹ 10 each |                 | 50,00,000        | Furniture<br>Less: Depreciation      | 5,00,000<br><u>25,000</u> | 4,75,000         |                  |
| Reserve and Surplus:                                                       |                 |                  | Motor Vehicles<br>Less: Depreciation | 5,00,000<br><u>25,000</u> | <u>4,75,000</u>  | 38,00,000        |
| Profit and Loss                                                            |                 | 22,17,250        | Current Assets:                      |                           |                  |                  |
| Long-term loans                                                            |                 | 7,75,000         | Stock                                |                           | 5,00,000         |                  |
| Current liabilities and provisions:                                        |                 |                  | Sundry debtors                       |                           | 42,50,000        |                  |
| Sundry creditors                                                           | 15,87,500       |                  | Cash                                 |                           | <u>11,75,000</u> | 59,25,000        |
| Accrued interest                                                           | 45,250          |                  |                                      |                           |                  |                  |
| Outstanding expenses                                                       | <u>1,00,000</u> | <u>17,32,750</u> |                                      |                           |                  |                  |
|                                                                            |                 | <u>97,75,000</u> |                                      |                           |                  | <u>97,75,000</u> |

**Working Notes:**

Subsequent Borrowings Needed

(₹)

|                          | April            | May           | June             | July             | August           | September        |
|--------------------------|------------------|---------------|------------------|------------------|------------------|------------------|
| <b>A. Cash Inflow</b>    |                  |               |                  |                  |                  |                  |
| Equity shares            | 50,00,000        |               |                  |                  |                  |                  |
| Loans                    | 6,50,000         |               |                  |                  |                  |                  |
| Receipt from debtors     | -                | -             | <u>15,00,000</u> | <u>17,50,000</u> | <u>17,50,000</u> | <u>20,00,000</u> |
| Total (A)                | <u>56,50,000</u> | -             | <u>15,00,000</u> | <u>17,50,000</u> | <u>17,50,000</u> | <u>20,00,000</u> |
| <b>B. Cash Outflow</b>   |                  |               |                  |                  |                  |                  |
| Purchase of fixed assets | 40,00,000        |               |                  |                  |                  |                  |
| Stock                    | 5,00,000         |               |                  |                  |                  |                  |
| Miscellaneous expenses   | 50,000           |               |                  |                  |                  |                  |
| Payment to creditors     | -                | 10,25,000     | 12,12,500        | 12,12,500        | 14,00,000        | 14,00,000        |
| Wages and salaries       | -                | 1,00,000      | 1,00,000         | 1,00,000         | 1,00,000         | 1,00,000         |
| Administrative expenses  | <u>50,000</u>    | <u>50,000</u> | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    | <u>50,000</u>    |

|                    |                  |                  |                  |                  |                  |                  |
|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Total              | <u>46,00,000</u> | <u>11,75,000</u> | <u>13,62,500</u> | <u>13,62,500</u> | <u>15,50,000</u> | <u>15,50,000</u> |
| Surplus/ (Deficit) | 10,50,000        | (11,75,000)      | 1,37,500         | 3,87,500         | 2,00,000         | 4,50,000         |
| Cumulative balance | 10,50,000        | (1,25,000)       | 12,500           | 4,00,000         | 6,00,000         | 10,50,000        |

1. There is shortage of cash in May of ₹ 1,25,000 which will be met by borrowings in May.

2. Payment to Creditors

Purchases = Cost of goods sold - Wages and salaries

Purchases for April = (75% of 15,00,000) - ₹ 1,00,000 = ₹ 10,25,000

(**Note:** Since gross margin is 25% of sales, cost of manufacture i.e. materials plus wages and salaries should be 75% of sales)

Hence, Purchases = Cost of manufacture minus wages and salaries of ₹ 1,00,000)

The creditors are paid in the first month following purchases.

Therefore, payment in May is ₹ 10,25,000

The same procedure will be followed for other months.

April (75% of 15,00,000) - ₹ 1,00,000 = ₹ 10,25,000

May (75% of 17,50,000) - ₹ 1,00,000 = ₹ 12,12,500

June (75% of 17,50,000) - ₹ 1,00,000 = ₹ 12,12,500

July (75% of 20,00,000) - ₹ 1,00,000 = ₹ 14,00,000

August (75% of 20,00,000) - ₹ 1,00,000 = ₹ 14,00,000

September (75% of 22,50,000) - ₹ 1,00,000 = ₹ 15,87,500

Minimum Stock ₹ 5,00,000

Total Purchases ₹ 83,37,500

3. Accrued Interest on Loan

12% interest on ₹ 6,50,000 for 6 months 39,000

Add: 12% interest on ₹ 1,25,000 for 5 months 6,250

45,250

**9. Computation of Operating Cycle****(1) Raw Material Storage Period (R)**

$$\begin{aligned}\text{Raw Material Storage Period (R)} &= \frac{\text{Average Stock of Raw Material}}{\text{Daily Average Consumption of Raw material}} \\ &= \frac{(14,40,000 + 16,00,000) / 2}{86,40,000 / 365} = 64.21 \text{ Days}\end{aligned}$$

$$\begin{aligned}\text{Raw Material Consumed} &= \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ &= ₹ 14,40,000 + ₹ 88,00,000 - ₹ 16,00,000 = ₹ 86,40,000\end{aligned}$$

**(2) Conversion/Work-in-Process Period (W)**

$$\begin{aligned}\text{Conversion/Processing Period} &= \frac{\text{Average Stock of WIP}}{\text{Daily Average Production cost}} \\ &= \frac{(4,80,000 + 8,00,000) / 2}{1,23,20,000 / 365} = 18.96 \text{ days}\end{aligned}$$

|                            |                    |
|----------------------------|--------------------|
| <b>Production Cost:</b>    | <b>₹</b>           |
| Opening Stock of WIP       | 4,80,000           |
| Add: Raw Material Consumed | 86,40,000          |
| Add: Wages                 | 24,00,000          |
| Add: Production Expenses   | <u>16,00,000</u>   |
|                            | 1,31,20,000        |
| Less: Closing Stock of WIP | <u>8,00,000</u>    |
| Production Cost            | <u>1,23,20,000</u> |

**(3) Finished Goods Storage Period (F)**

$$\begin{aligned}\text{Finished Goods Storage Period} &= \frac{\text{Average Stock of Finished Goods}}{\text{Daily Average Cost of Good Sold}} \\ &= \frac{(20,80,000 + 24,00,000) / 2}{1,20,00,000 / 365} = 68.13 \text{ Days}\end{aligned}$$

|                                 |                    |
|---------------------------------|--------------------|
| <b>Cost of Goods Sold</b>       | <b>₹</b>           |
| Opening Stock of Finished Goods | 20,80,000          |
| Add: Production Cost            | <u>1,23,20,000</u> |
|                                 | 1,44,00,000        |

**(4) Receivables Collection Period (D)**

**(5) Payables Payment Period (C)**

**(6) Duration of Operating Cycle (O)**

### Computation of Working Capital

(i) Number of Operating Cycles per Year

(ii) Total Operating Expenses

(iii) Working Capital Required

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## 10. (a) Comparison between Financial Lease and Operating Lease

|    | Financial Lease                                                                                                                                                            | Operating Lease                                                                                                                       |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1. | The risk and reward incident to ownership are passed on to the lessee. The lessor only remains the legal owner of the asset.                                               | The lessee is only provided the use of the asset for a certain time. Risk incident to ownership belong wholly to the lessor.          |
| 2. | The lessee bears the risk of obsolescence.                                                                                                                                 | The lessor bears the risk of obsolescence.                                                                                            |
| 3. | The lessor is interested in his rentals and not in the asset. He must get his principal back along with interest. Therefore, the lease is non-cancellable by either party. | As the lessor does not have difficulty in leasing the same asset to other willing lessee, the lease is kept cancelable by the lessor. |
| 4. | The lessor enters into the transaction only as financier. He does not bear the cost of repairs, maintenance or operations.                                                 | Usually, the lessor bears cost of repairs, maintenance or operations.                                                                 |
| 5. | The lease is usually full payout, that is, the single lease repays the cost of the asset together with the interest.                                                       | The lease is usually non-payout, since the lessor expects to lease the same asset over and over again to several users.               |

## (b) Salient features of Samurai Bonds

- Samurai bonds are denominated in Japanese Yen JPY
- Issued in Tokyo
- Issuer Non- Japanese Company
- Regulations: Japanese
- Purpose: Access of capital available in Japanese market
- Issue proceeds can be used to fund Japanese operation
- Issue proceeds can be used to fund a company's local opportunities.
- It can also be used to hedge foreign exchange risk.

## SECTION B: ECONOMICS FOR FINANCE

## QUESTIONS

1. (a) What is the Value-added Method in the National Income Accounting?
- (b) In a three-sector model what role does the government play?
- (c) Calculate Net National Product at Market Price

| Items                          | ₹ in Thousand Cr. |
|--------------------------------|-------------------|
| Compensation in employees      | 800               |
| Profit                         | 300               |
| Rent                           | 200               |
| Mixed income of self employed  | 600               |
| Net Factor income from abroad  | 25                |
| Interest                       | 60                |
| Import                         | 40                |
| Export                         | 15                |
| Consumption of fixed Capital   | 30                |
| Net Indirect taxes             | 20                |
| Net current transfer to abroad | 10                |

2. (a) What are the Challenges in compilation of in National Income Accounting?
- (b) Does government intervention always result in correcting market failure?
- (c) (i) Calculate Narrow Money (M1) from the following data.

|                                             |             |
|---------------------------------------------|-------------|
| Currency with Public                        | ₹ 10000 Cr  |
| Demand deposit with banking system          | ₹ 500000Cr  |
| Other deposits with RBI                     | ₹ 200000Cr  |
| Time deposits with banking system           | ₹ 250000 Cr |
| Saving Deposits of Post office Saving banks | ₹ 300000 Cr |

- (ii) What will be the value of average propensity to save when
  - (i)  $C = 500$  at  $Y = 2000$
  - (ii)  $S = 650$  at  $Y = 1500$
3. (a) What do you understand by Arbitrage?
- (b) What are the factors that causes leakages in the multiplier?

- (c) How changes in high powered money and currency ratio influence the money supply in an economy?
- (d) What type of Policy is preferable during the time of recession?
- 4. (a) Distinguish between the Cambridge and classical version of quantity theory of money?
- (b) What is meant by crowding out?
- (c) How does appreciation and depreciation of currency affect real economy?
- (d) How do trade Policy influence international trade?
- 5. (a) What is the Characteristic of Private Goods?
- (b) Domestic Industries and Consumers are affected by Import Quota, Comment.
- (c) What determine the size of money multiplier?
- (d) In the theory of International Trade what is meant by factor endowment?

Or

Define Narrow Money?

### ANSWERS

1. (a) The value-added method measures the contribution of each producing enterprise in the domestic territory of the country in an accounting year and entails consolidation of production of each industry less intermediate purchases from all other industries. This method of measurement shows the unduplicated contribution by each industry to the total output.

The values of the following items are also included:

- (i) Own account production of fixed assets by government, enterprises, and households.
  - (ii) Imputed value of production of goods for self- consumption, and
  - (iii) Imputed rent of owner-occupied houses.
  - (iv) Change in stock (inventory)
- (b) The three-sector Keynesian model is commonly constructed assuming that government purchases are autonomous. The equilibrium national income is determined at a point where both aggregate demand and aggregate supply are equal, that is,

$$AD = Y = AS$$

$$C + I + G = Y = C + S + T$$

The autonomous expenditure components namely, investment and government spending do not directly depend on income and are exogenous variables determined by factors outside the model.

The government influences the level of income through taxes, transfer payments, government purchases and government borrowing.

- (c)  $NDP_{FC} = \text{Compensation of employees} + \text{Mixed Income of self employed} + \text{Rent} + \text{Interest} + \text{Profit}$

$$= 800 + 600 + 200 + 60 + 300$$

$$= ₹ 19,600 \text{ Cr.}$$

National Income ( $NNP_{FC}$ ) =  $NDP_{FC} + NFIA$  (Factor Income from abroad – factor income to abroad)

$$= 1960 (-25-10)$$

$$= ₹ 1915 \text{ Cr.}$$

$$NNP_{MP} = NNP_{FC} + \text{Net Indirect taxes}$$

$$NNP_{MP} = 1915 + 20$$

$$= ₹ 1935 \text{ Cr.}$$

2. (a) The Challenges in compiling in National Income Accounting is as under:

- (a) production for self-consumption,
- (b) absence of recording of incomes due to illiteracy and ignorance,
- (c) lack of proper occupational classification, and
- (d) accurate estimation of consumption of fixed capital
- (e) Inadequacy of data and lack of reliability of available data,
- (f) presence of non-monetized sector

- (b) We cannot be sure whether the government interventions would be effective or whether it would make the functioning of the economy less efficient. Government failures where government intervention in the economy to correct a market failure creates inefficiency and leads to a misallocation of scarce resources occur very often. Government failure occurs when:

- intervention is ineffective causing wastage of resources expended for the intervention
- intervention produces fresh and more serious problems

There are costs and benefits associated with any Government intervention in a market, and it is important that policy makers consider all of the costs and benefits of a policy intervention.

- (c) (i)  $M1 = \text{Currency with public} + \text{Demand deposits with banking system} + \text{Other Deposits with the RBI}$   
 $= 10000 + 500000 + 200000$   
 $= ₹ 710,000 \text{ Cr}$
- (ii) (i)  $APS = S/Y$ ,  $S = Y - C = 2000 - 500 = 1500$ , Therefore,  $APS = S/Y = 1500/2000 = 0.75$
- (ii) When  $S = 650$  and  $Y = 1500$ ,  $APS = S/Y = 650/1500 = 0.433$
3. (a) Arbitrage refers to the practice of making risk-less profits by intelligently exploiting price differences of an asset at different dealing locations. There is potential for arbitrage in the forex market if exchange rates are not consistent between currencies. When price differences occur in different markets, participants purchase foreign exchange in a low-priced market for resale in a high-priced market and makes profit in this process. Due to the operation of price mechanism, the price is driven up in the low-priced market and pushed down in the high-priced market. This activity will continue until the prices in the two markets are equalized, or until they differ only by the amount of transaction costs involved in the operation. Since forex markets are efficient, any profit spread on a given currency is quickly arbitrated away
- (b) Multiplier refers to the phenomenon whereby a change in an injection of expenditure will lead to a proportionately larger change (or multiple changes) in the equilibrium level of national income. The investment multiplier explains how many times the equilibrium aggregate income increases as a result of an increase in autonomous investment.
- progressive rates of taxation which result in no appreciable increase in consumption despite increase in income
  - high liquidity preference and idle saving or holding of cash balances and an equivalent fall in marginal propensity to consume
  - increased demand for consumer goods being met out of the existing stocks or through imports
  - additional income spent on purchasing existing wealth or purchase of government securities and shares from shareholders or bond holders
  - undistributed profits of corporations
  - part of increment in income used for payment of debts
  - case of full employment additional investment will only lead to inflation,
  - scarcity of goods and services despite having high MPC

- (c) The excess reserves (ER) which are funds that a bank keeps back beyond what is required by regulation form a very important determinant of money supply. The additional units of high-powered money that goes into 'excess reserves' of the commercial banks do not lead to any additional loans, and therefore, these excess reserves do not lead to creation of money. Therefore, if the central bank injects money into the banking system and these are held as excess reserves by the banking system, there will be no effect on deposits or currency and hence no effect on money supply.
- (d) A recession is said to occur when overall economic activity declines, or in other words, when the economy 'contracts'. A recession sets in with a period of declining real income, as measured by real GDP simultaneously with a situation of rising unemployment. If an economy experiences a fall in aggregate demand during a recession, it is said to be in a demand-deficient recession. Due to decline in real GDP, the aggregate demand falls and therefore, lesser quantity of goods and services will be produced. To combat such a slump in overall economic activity, the government can resort to expansionary fiscal policies.
4. (a) The demand for money was primarily determined by the need to conduct transactions which will have a positive relationship to the money value of aggregate expenditure. Since the latter is equal to money national income, the Cambridge money demand function is stated as:

Where  **$M_d = k PY$**

$M_d$  = is the demand for money balances,

$Y$  = real national income

$P$  = average price level of currently produced goods and services

$PY$  = nominal income

$K$  = proportion of nominal income ( $PY$ ) that people want to hold as cash balances

The term 'k' in the above equation is called 'Cambridge k' is a parameter reflecting economic structure and monetary habits, namely the ratio of total transactions to income and the ratio of desired money balances to total transactions. The equation above explains that the demand for money ( $M$ ) equals k proportion of the total money income.

Fisher's version, also termed as 'equation of exchange' or 'transaction approach' is formally stated as follows

**$MV = PT$**

Where,

$M$  = the total amount of money in circulation (on an average) in an economy

$V$  = transactions velocity of circulation i.e. the average number of times across all

transactions a unit of money (say Rupee) is spent in purchasing goods and services

$P$  = average price level ( $P = MV/T$ )

$T$  = the total number of transactions.

- (b) The crowding out view is that a rapid growth of government spending leads to a transfer of scarce productive resources from the private sector to the public sector where productivity might be lower. An increase in the size of government spending during recessions will 'crowd-out' private spending in an economy and lead to reduction in an economy's ability to self-correct from the recession, and possibly also reduce the economy's prospects of long-run economic growth.
- (c) Currency appreciation raises the price of exports, decrease exports; increase imports, adversely affect the competitiveness of domestic industry, cause larger deficits, and worsens the trade balance.

A depreciation of domestic currency primarily increases the price of foreign goods relative to goods produced in the home country and diverts spending from foreign goods to domestic goods.

When a country's currency depreciates, production for exports and of import substitutes become more profitable. Therefore, factors of production will be induced to move into the tradable goods sectors and out of the non- tradable goods sectors. The reverse will be true when the currency appreciates. These types of resource movements involve economic wastes.

- (d) Trade policy encompasses all instruments that governments may use to promote or restrict imports and exports. Trade policy also includes the approach taken by countries in trade negotiations. While participating in the multilateral trading system and/or while negotiating bilateral trade agreements, countries assume obligations that shape their national trade policies. The instruments of trade policy that countries typically use to restrict imports and/ or to encourage exports can be broadly classified into price- related measures such as tariffs and non- price measures or non-tariff measures (NTMs).
5. (a) Most of the goods produced and consumed in an economy are private goods. A few examples are food items, clothing, movie ticket, television, cars, houses etc.
- Private goods refer to those goods that yield utility to people. Since they are scarce anyone who wants to consume them must purchase them.
  - Owners of private goods can exercise private property rights and can prevent others from using the good or consuming their benefits.
  - Consumption of private goods is 'rivalrous' that is the purchase and consumption of a private good by one individual prevents another individual from consuming it.

- Private goods are 'excludable' i.e., it is possible to exclude or prevent consumers who have not paid for them from consuming them or having access to them
  - Private goods do not have the free-rider problem. This means that private goods will be available to only those persons who are willing to pay for them.
- (b) With a quota, the government, of course, receives no revenue. The profits received by the holders of such import licenses are known as 'quota rents'. While tariffs directly interfere with prices that can be charged for an imported good in the domestic market, import quota interferes with the market prices indirectly. Obviously, an import quota always raises the domestic price of the imported good. The license holders are able to buy imports and resell them at a higher price in the domestic market and they will be able to earn a 'rent' on their operations over and above the profit they would have made in a free market.
- (c) The money multiplier is the reciprocal of the reserve ratio. Deposits, unlike currency held by people, keep only a fraction of the high-powered money in reserves and the rest is lent out and culminate in money creation. If  $R$  is the reserve ratio in a country for all commercial banks, then each unit of (say Rupee) money reserves generate  $1/R$  money.
- Therefore, for any value of  $R$ , the Money Multiplier is  $1/R$
- For example, if  $R = 10\%$ , the value of money multiplier will be 10. If the reserve ratio is only 5 %, then money multiplier is 20. Thus, the higher the reserve ratio, the less of each deposit banks loan out, and the smaller the money multiplier.
- (d) In a general sense of the term, 'factor endowment' refers to the overall availability of usable resources including both natural and man-made means of production. Nevertheless, in the exposition of the modern theory, only the two most important factors—labour and capital—are taken into account. The Heckscher-Ohlin theory of trade states that comparative advantage in cost of production is explained exclusively by the differences in factor endowments of the nations.

**Or**

M1(narrow money) is defined as the sum of currency held by the public demand deposits of the banks and other deposits with the RBI. Banks include commercial and cooperative banks.