



(iv) Return on owner's equity

(5 Marks)

(c) The following is the extract of the Balance Sheet of M/s KD Ltd.:

Particulars	Amount (₹)
Ordinary shares (Face Value ₹ 10/- per share)	5,00,000
Share Premium	1,00,000
Retained Profits	6,00,000
8% Preference Shares (Face Value ₹ 25/- per share)	4,00,000
12% Debentures (Face value ₹ 100/- each)	6,00,000
	22,00,000

The ordinary shares are currently priced at ₹ 39 ex-dividend and preference share is priced at ₹ 18 cum-dividend. The debentures are selling at 120 percent ex-interest. The applicable tax rate to KD Ltd. is 30 percent. KD Ltd.'s cost of equity has been estimated at 19 percent. Calculate the WACC (weighted average cost of capital) of KD Ltd. on the basis of market value.

(5 Marks)

(d) Determine the Risk Adjusted Net Present Value of the following projects:

	A	B	C
Net cash outlays (₹)	70,000	1,20,000	2,20,000
Project life	5 years	5 years	5 years
Annual cash inflow (₹)	30,000	42,000	70,000
Coefficient of Variation	2.2	1.6	1.2

The company selects the risk-adjusted discount rate on the basis of the Coefficient of variation.

Coefficient of Variation	Applicable Risk adjusted discount rate (i)	PVIFA (i,5)
0	10%	3.791
0.4	12%	3.605
0.8	14%	3.433
1.2	16%	3.274
1.6	18%	3.127
2	22%	2.864
>2.0	25%	2.689

Which project should be selected by the company based on Risk Adjusted NPV?

(5 Marks)

**Answer****(a) (i) Computation of Average Cash balance:**

Annual cash outflow (U) = 9,00,000 x 4 = ₹ 36,00,000

Fixed cost per transaction (P) = ₹ 60

Opportunity cost of one rupee p.a. (S) =  $\frac{12}{100} = 0.12$

Optimum cash balance (C) =  $\sqrt{\frac{2UP}{S}} = \sqrt{\frac{2 \times 36,00,000 \times 60}{0.12}} = ₹ 60,000$

∴ Average Cash balance =  $\frac{(0 + 60,000)}{2} = ₹ 30,000$

**(ii) Number of conversions p.a.**

Annual cash outflow = ₹ 36,00,000

Optimum cash balance = ₹ 60,000

∴ No. of conversions p.a. =  $\frac{36,00,000}{60,000} = 60$

**(iii) Time interval between two conversions**

No. of days in a year = 360

No. of conversions p.a. = 60

∴ Time interval =  $\frac{360}{60} = 6$  days

**(b) (i) Computation of Net Profit Margin**

Debt = (10,00,000 x 50%) = ₹ 5,00,000

Interest cost = 5,00,000 x  $\left(\frac{10}{100}\right) = ₹ 50,000$

Direct cost = 50,000 x 10 = ₹ 5,00,000

Sales = 5,00,000 x 150% = ₹ 7,50,000

(₹)

Gross profit = 7,50,000 – 5,00,000 = 2,50,000

Less: Operating expenses = 1,00,000

∴ EBIT = 1,50,000

Less: Interest = 50,000

$$\begin{aligned}
 \therefore \text{EBT} &= 1,00,000 \\
 \text{Less: Tax @ 30\%} &= \underline{30,000} \\
 \therefore \text{PAT} &= \underline{70,000} \\
 \text{Net profit margin} &= \left( \frac{70,000}{7,50,000} \right) \times 100 = 9.33\%
 \end{aligned}$$

**(ii) Net Operating Profit margin**

$$\begin{aligned}
 \text{Net operating profit margin} &= \left( \frac{\text{EBIT}}{\text{Sales}} \right) \times 100 \\
 &= \left( \frac{1,50,000}{7,50,000} \right) \times 100 = 20\%
 \end{aligned}$$

**(iii) Return on Assets**

$$\begin{aligned}
 \text{Return on Assets} &= \left[ \left( \frac{\text{PAT} + \text{Interest}}{\text{Total Assets}} \right) \right] \times 100 \\
 &= \left[ \left( \frac{1,20,000}{10,00,000} \right) \right] \times 100 = 12\%
 \end{aligned}$$

**(OR)**

$$\begin{aligned}
 \text{Return on Assets} &= \frac{\text{EBIT}}{\text{Assets}} \times 100 \\
 &= \frac{1,50,000}{10,00,000} \times 100 = 15\%
 \end{aligned}$$

**(OR)**

$$= \frac{70,000}{10,00,000} \times 100 = 7\%$$

**(OR)**

$$= \left[ \frac{1,50,000(1-0.3)}{10,00,000} \right] \times 100 = 10.5\%$$

**(iv) Return on owner's equity**

$$\text{Return} = \left( \frac{\text{PAT}}{\text{Owner's equity}} \right) \times 100$$

$$= \left( \frac{70,000}{5,00,000} \right) \times 100 = 14\%$$

**(c) Computation of WACC on the basis of market value**

W.N. 1

Cum-dividend price of Preference shares = ₹ 18

Less: Dividend  $(8/100) \times 25$  = ₹ 2

∴ Market Price of Preference shares = ₹ 16

$$K_p = \frac{2}{16} = 0.125 \text{ (or) } 12.5\%$$

$$\text{No. of Preference shares} = \left( \frac{4,00,000}{25} \right) = 16,000$$

W.N. 2

$$\text{Market price of Debentures} = \left( \frac{120}{100} \right) \times 100 = ₹120$$

$$K_d = \left[ \frac{12 (1 - 0.3)}{120} \right] = 0.07 \text{ (or) } 7\%$$

$$\text{No. of Debentures} = \left( \frac{6,00,000}{100} \right) = 6,000$$

W.N.3

Market Price of Equity shares = ₹39

$K_e$  (given) = 19% or 0.19

$$\text{No. of Equity shares} = \frac{5,00,000}{10} = 50,000$$

Sources	Market Value (₹)	Nos.	Total Market value (₹)	Weight	Cost of Capital	Product
Equity Shares	39	50,000	19,50,000	0.6664	0.19	0.1266
Preference Shares	16	16,000	2,56,000	0.0875	0.125	0.0109
Debentures	120	6,000	7,20,000	0.2461	0.07	0.0172
					WACC =	0.1547

**WACC = 0.1547 or 15.47%**

**(d) Selection of project on the basis of Risk Adjusted Net Present Value**

Particulars	A	B	C
Co efficient of Variation	2.2	1.6	1.2
Applicable discount rate (%)	25	18	16
Annual cash inflow (₹)	30,000	42,000	70,000
Relevant PVIFA	2.689	3.127	3.274
<b>PV of cash inflow (₹)</b>	<b>80,670</b>	<b>1,31,334</b>	<b>2,29,180</b>
Less: Cash outflow (₹)	70,000	1,20,000	2,20,000
<b>Risk adjusted NPV (₹)</b>	<b>10,670</b>	<b>11,334</b>	<b>9,180</b>

**Conclusion:** Project B should be selected as its Risk adjusted NPV is high.

**Question 2**

The following information is available for SS Ltd.

Profit volume (PV) ratio	30%
Operating leverage	2.00
Financial leverage	1.50
Loan	₹ 1,25,000
Post-tax interest rate	5.6%
Tax rate	30%
Market Price per share (MPS)	₹ 140
Price Earnings Ratio (PER)	10

You are required to:

- (1) Prepare the Profit-Loss statement of SS Ltd. and
- (2) Find out the number of equity shares.

**(10 Marks)**

**Answer****(1) Preparation of Profit – Loss Statement****Working Notes:**

1. Post tax interest	5.60%
Tax rate	30%
Pre tax interest rate = (5.6/70) x 100	8%
Loan amount	₹ 1,25,000
Interest amount = 1,25,000 x 8%	₹ 10,000

$$\text{Financial Leverage (FL)} = \left( \frac{\text{EBIT}}{\text{EBT}} \right) = \left[ \frac{\text{EBIT}}{(\text{EBIT} - \text{Interest})} \right] = \left[ \frac{\text{EBIT}}{(\text{EBIT} - 10,000)} \right]$$

$$1.5 = \left[ \frac{\text{EBIT}}{(\text{EBIT} - 10,000)} \right]$$

$$1.5 \text{ EBIT} - 15000 = \text{EBIT}$$

$$1.5 \text{ EBIT} - \text{EBIT} = 15,000$$

$$0.5 \text{ EBIT} = 15,000$$

$$\therefore \text{EBIT} = \text{₹ } 30,000$$

$$\text{EBT} = \text{EBIT} - \text{Interest} = 30,000 - 10,000 = \text{₹ } 20,000$$

$$2. \text{ Operating Leverage (OL)} = \frac{\text{Contribution}}{\text{EBIT}}$$

$$2 = \frac{\text{Contribution}}{30,000}$$

$$\text{Contribution} = \text{₹ } 60,000$$

$$3., \text{ Fixed cost} = \text{Contribution} - \text{Profit} \\ = 60,000 - 30,000 = \text{₹ } 30,000$$

$$4., \text{ Sales} = \frac{\text{Contribution}}{\text{PV Ratio}} \\ = \frac{60,000}{30\%} = \text{₹ } 2,00,000$$

5. If PV ratio is 30%, then the variable cost is 70% on sales.

$$\therefore \text{Variable cost} = 2,00,000 \times 70\% = \text{₹ } 1,40,000$$

**Profit – Loss Statement**

Particulars	₹
Sales	2,00,000
Less: Variable cost	1,40,000
Contribution	60000
Less: Fixed cost	30,000
EBIT	30,000
Less: Interest	10,000

EBT	20,000
Less: Tax @ 30%	6,000
EAT	<b>14,000</b>

**(2) Calculation of no. of Equity shares**

Market Price per Share (MPS) = ₹140

Price Earnings Ratio (PER) = 10

WKT,

$$\text{EPS} = \frac{\text{MPS}}{\text{PER}} = \frac{140}{10} = \text{₹ } 14$$

Total earnings (EAT) = ₹ 14,000

∴ No. of Equity Shares = 14,000 / 14 = **1000**

**Question 3**

A firm is in need of a small vehicle to make deliveries. It is intending to choose between two options. One option is to buy a new three wheeler that would cost ₹ 1,50,000 and will remain in service for 10 years.

The other alternative is to buy a second hand vehicle for ₹ 80,000 that could remain in service for 5 years. Thereafter the firm, can buy another second hand vehicle for ₹ 60,000 that will last for another 5 years.

The scrap value of the discarded vehicle will be equal to its written down value (WDV). The firm pays 30% tax and is allowed to claim depreciation on vehicles @ 25% on WDV basis.

The cost of capital of the firm is 12%.

You are required to advise the best option.

Given:

<i>t</i>	1	2	3	4	5	6	7	8	9	10
PVIF ( <i>t</i> , 12%)	0.892	0.797	0.711	0.635	0.567	0.506	0.452	0.403	0.360	0.322

**(10 Marks)**

**Answer****Selection of Investment Decision**

Tax shield on Purchase of New vehicle			
Year	WDV	Dep. @ 25%	Tax shield @ 30%
1	1,50,000	37,500	11,250

2	1,12,500	28,125	8,437
3	84,375	21,094	6,328
4	63,281	15,820	4,746
5	47,461	11,865	3,560
6	35,596	8,899	2,670
7	26,697	6,674	2,002
8	20,023	5,006	1,502
9	15,017	3,754	1,126
10	11,263	2,816	845
11	8,447	Scrap value	

**Tax shield on Purchase of Second hand vehicles**

Year	WDV	Dep. @ 25%	Tax shield @ 30%
1	80,000	20,000	6,000
2	60,000	15,000	4,500
3	45,000	11,250	3,375
4	33,750	8,437	2,531
5	25,313	6,328	1,898
6	60,000	15,000	4,500
7	45,000	11,250	3,375
8	33,750	8,437	2,531
9	25,313	6,328	1,898
10	18,985	4,746	1,424

Scrap value = ₹ 18,985

Scrap value = ₹ 14,239

**Calculation of PV of Net outflow of New Vehicle**

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	1,50,000	1	1,50,000
1	(11,250)	0.892	(10,035)
2	(8,437)	0.797	(6,724)
3	(6,328)	0.711	(4,499)
4	(4,746)	0.635	(3,014)
5	(3,560)	0.567	(2,018)
6	(2,670)	0.506	(1,351)
7	(2,002)	0.452	(905)

8	(1,502)	0.403	(605)
9	(1,126)	0.360	(405)
10	(845 + 8447)	0.322	(2,992)
		<b>PVNOF</b>	<b>1,17,452</b>

#### Calculation of PV of Net outflow of Second hand Vehicles

Year	Cash OF/IF	PV Factor	PV of OF/IF
0	80,000	1	80,000
1	(6,000)	0.892	(5,352)
2	(4,500)	0.797	(3,587)
3	(3,375)	0.711	(2,400)
4	(2,531)	0.635	(1,607)
5	(60000 – 18985 – 1898) = 39,117	0.567	22,179
6	(4,500)	0.506	(2,277)
7	(3,375)	0.452	(1,525)
8	(2,531)	0.403	(1,020)
9	(1,898)	0.360	(683)
10	(1424 + 14239) = (15,663)	0.322	(5,043)
		<b>PVNOF</b>	<b>78,686</b>

**Advise:** The PV of net outflow is low in case of buying the second hand vehicles. Therefore, it is advisable to buy second hand vehicles.

#### Question 4

A hospital is considering to purchase a diagnostic machine costing ₹ 80,000. The projected life of the machine is 8 years and has an expected salvage value of ₹ 6,000 at the end of 8 years. The annual operating cost of the machine is ₹ 7,500. It is expected to generate revenues of ₹ 40,000 per year for eight years. Presently, the hospital is outsourcing the diagnostic work and is earning commission income of ₹ 12,000 per annum.

Consider tax rate of 30% and Discounting Rate as 10%.

Advise:

Whether it would be profitable for the hospital to purchase the machine?

Give your recommendation as per Net Present Value method and Present Value Index method under below mentioned two situations:

- If Commission income of ₹ 12,000 p.a. is before taxes.
- If Commission income of ₹ 12,000 p.a. is net of taxes.

Given:

<i>t</i>	1	2	3	4	5	6	7	8
PVIF ( <i>t</i> , 10%)	0.909	0.826	0.751	0.683	0.621	0.564	0.513	0.467

(10 Marks)

Answer

### Analysis of Investment Decisions

Determination of Cash inflows	Situation-(i) Commission Income before taxes	Situation-(ii) Commission Income after taxes
<i>Cash flow up-to 7<sup>th</sup> year:</i>		
Sales Revenue	40,000	40,000
Less: Operating Cost	(7,500)	(7,500)
	32,500	32,500
Less: Depreciation $(80,000 - 6,000) \div 8$	(9,250)	(9,250)
Net Income	23,250	23,250
Tax @ 30%	(6,975)	(6,975)
Earnings after Tax (EAT)	16,275	16,275
Add: Depreciation	9,250	9,250
Cash inflow after tax per annum	25,525	25,525
Less: Loss of Commission Income	(8,400)	(12,000)
Net Cash inflow after tax per annum	17,125	13,525
<i>In 8<sup>th</sup> Year:</i>		
Net Cash inflow after tax	17,125	13,525
Add: Salvage Value of Machine	6,000	6,000
<b>Net Cash inflow in year 8</b>	<b>23,125</b>	<b>19,525</b>

### Calculation of Net Present Value (NPV) and Profitability Index (PI)

	Particulars	PV factor @10%	Situation-(i) [Commission Income before taxes]	Situation-(ii) [Commission Income after taxes]
A	Present value of cash inflows (1 <sup>st</sup> to 7 <sup>th</sup> year)	4.867	83,347.38 (17,125 × 4.867)	65,826.18 (13,525 × 4.867)

B	Present value of cash inflow at 8 <sup>th</sup> year	0.467	10,799.38 (23,125 × 0.467)	9,118.18 (19,525 × 0.467)
C	PV of cash inflows		94,146.76	74,944.36
D	Less: Cash Outflow	1.00	(80,000)	(80,000)
E	<b>Net Present Value (NPV)</b>		<b>14,146.76</b>	<b>(5,055.64)</b>
F	<b>PI = (C÷D)</b>		<b>1.18</b>	<b>0.94</b>

**Recommendation:** The hospital may consider purchasing of diagnostic machine in situation (i) where commission income is 12,000 before tax as NPV is positive and PI is also greater than 1. Contrary to situation (i), in situation (ii) where the commission income is net of tax, the recommendation is reversed to not purchase the machine as NPV is negative and PI is also less than 1.

### Question 5

(a) The following are the costs and values for the firms A and B according to the traditional approach.

	Firm A	Firm B
Total value of firm, V (in ₹)	50,000	60,000
Market value of debt, D (in ₹)	0	30,000
Market value of equity, E (in ₹)	50,000	30,000
Expected net operating income (in ₹)	5,000	5,000
Cost of debt (in ₹)	0	1,800
Net Income (in ₹)	5,000	3,200
Cost of equity, $K_e = NI/V$	10.00%	10.70%

- (i) Compute the Equilibrium value for Firm A and B in accordance with the M-M approach. Assume that (a) taxes do not exist and (b) the equilibrium value of  $K_e$  is 9.09%.
- (ii) Compute Value of Equity and Cost of Equity for both the firms. **(4 Marks)**
- (b) MR Ltd. is having the following capital structure, which is considered to be optimum as on 31.03.2022.

Equity share capital (50,000 shares)	₹ 8,00,000
12% Pref. share capital	₹ 50,000
15% Debentures	<u>₹ 1,50,000</u>
	₹ 10,00,000

The earnings per share (EPS) of the company were ₹ 2.50 in 2021 and the expected growth in equity dividend is 10% per year. The next year's dividend per share (DPS) is 50% of EPS of the year 2021. The current market price per share (MPS) is ₹ 25.00. The 15% new debentures can be issued by the company. The company's debentures are currently selling at ₹ 96 per debenture. The new 12% Pref. share can be sold at a net price of ₹ 91.50 (face value ₹ 100 each). The applicable tax rate is 30%.

You are required to calculate

- (a) After tax cost of
  - (i) New debt,
  - (ii) New pref. share capital and
  - (iii) Equity shares assuming that new equity shares come from retained earnings.
- (b) Marginal cost of capital,

How much can be spent for capital investment before sale of new equity shares assuming that retained earnings for next year investment is 50% of 2021? **(6 Marks)**

**Answer**

**(a) (i) Computation of Equilibrium value of Firms A & B under MM Approach:**

As per MM approach  $K_0$  is equal to  $K_{eu}$

$$\therefore K_0 = K_{eu} (1 - t) = 9.09 (1 - 0) = 9.09$$

Particulars	A	B
EBIT (NOI) (₹)	5000	5000
$K_0$ (%)	9.09	9.09
Equilibrium value (₹) (NOI/ $K_0$ ) X 100	55005.5	55005.5
	$\frac{5,000}{9.09} \times 100$	$\frac{5,000}{9.09} \times 100$

**(ii) Computation of value of equity and cost of equity of Firms A & B**

Particulars	A	B
Equilibrium value (₹)	55,005.5	55,005.5
Less: Value of Debt	-	30,000
Value of Equity	55,005.5	25,005.5

Cost of Equity of Firm A (unlevered) = 9.09

Cost of Debt of Firm B ( $K_d$ ) (levered) =  $(1800/30000) \times 100 = 6\%$

Cost of Equity of Firm B (Levered) =  $K_0 + (K_0 - K_d) \times (\text{Debt} / \text{Equity})$

$$= 9.09 + (9.09 - 6) \times (30000/25005.5)$$

$$= 9.09 + 3.09 \times 1.2 = 9.09 + 3.71 = \mathbf{12.80\%}$$

(OR)

$$\text{Cost of Equity of Firm B (Levered)} = \left( \frac{\text{NI}}{\text{Value of Equity}} \right) \times 100$$

$$= \left( \frac{3200}{25005.5} \right) \times 100 = \mathbf{12.8\%}$$

(b) (a) (i) After tax cost of new Debt:

$$K_d = 1 \frac{(1-t)}{P_1} = 15 \frac{(1-0.3)}{96}$$

$$= 0.1094 \text{ (or) } \mathbf{10.94\%}$$

(ii) After tax cost of New Preference share capital:

$$K_p = \frac{PD}{P_0} = \left( \frac{12}{91.5} \right) = 0.1311 \text{ (or) } \mathbf{13.11\%}$$

(iii) After tax cost of Equity shares:

$$K_e = \left( \frac{D_1}{P_0} \right) + g = \left[ \frac{(2.50 \times 50\%)}{25} \right] + 0.10$$

$$= \mathbf{0.15 \text{ (or) } 15\%}$$

(b) Marginal Cost of Capital

Type of capital	Proportions	Specific cost	Product
Equity Shares	0.80	0.15	0.12
Preference Shares	0.05	0.1311	0.0066
Debentures	0.15	0.1094	0.0164
$\therefore$ Marginal cost of capital			<b>0.1430</b>

(c) Amount that can be spend for capital investment

$$\text{Retained earnings} = 50\% \text{ of EPS} \times \text{No. of outstanding Equity shares}$$

$$= 1.25 \times 50,000$$

$$= \mathbf{₹ 62,500}$$

Proportion of equity (Retained earnings here) capital is 80% of total capital. Therefore,

₹ 62,500 is 80% of total capital.

$$\therefore \text{Amount of Capital Investment} = \frac{62,500}{0.80} = ₹ 78,125$$

### Question 6

- (a) *These bonds are issued by non-US Banks and non-US corporations in US. What this bond is called and what are the other features of this Bond?* **(4 Marks)**
- (b) *Elucidate the fundamental tasks of treasury department of a firm.* **(4 Marks)**
- (c) *The firm has more capital than its requirements. What is this situation called? Give two consequences of it.* **(2 Marks)**

OR

*What are the important factors considered for deciding the source and quantum of capital?* **(2 Marks)**

### Answer

- (a) The Bond is called as Yankee Bond.

Features of the bond:

- These bonds are denominated in Dollars
- Bonds are to be registered in SEC (Securities and Exchange Commission)
- Bonds are issued in tranches
- Time taken can be up to 14 weeks

- (b) Fundamental tasks of treasury department of a firm:

- (i) **Cash management:** It involves efficient cash collection process and managing payment of cash both inside the organization and to third parties. Treasury will also manage surplus funds in an investment portfolio.
- (ii) **Currency management:** The treasury department manages the foreign currency risk exposure of the company. In a large multi-national company, the first step will usually be to set off intra-group indebtedness. The use of matching receipts and payments in the same currency will save transaction costs and will save the organization from any unfavorable exchange movement.
- (iii) **Fund management:** Treasury department is responsible for planning and sourcing the company's short, medium and long-term cash needs. It also facilitates temporary investment of surplus funds by mapping the time gap between funds inflow and outflow.
- (iv) **Banking:** It is important that a company maintains a good relationship with its bankers. Treasury department carry out negotiations with bankers with respect to

interest rates, foreign exchange rates etc. and act as the initial point of contact with them.

- (v) Corporate finance: Treasury department is involved with both acquisition and divestment activities within the group. In addition, it will often have responsibility for investors' relations.
- (c) The situation is called as Over Capitalization.

Consequences of Over Capitalization:

- Considerable reduction in the rate of dividend and interest payments.
- Reduction in the market price of shares
- Resorting to "Window dressing"
- Some companies may opt for reorganization. However, sometimes the matter gets worse and the company may go into liquidation.

**(OR)**

The source and quantum of capital is decided keeping in mind the following factors:

- (i) Control: Capital structure should be designed in such a manner that existing shareholders continue to hold majority stake
- (ii) Risk: Capital structure should be designed in such a manner that financial risk of a company does not increase beyond tolerable limit.
- (iii) Cost: Overall cost of capital remains minimum.

## SECTION – B: ECONOMICS FOR FINANCE

Question No. 7 is compulsory.

Answer any **three** from the rest.

**Question 7**

- (a) The equilibrium level of income (Y) of an economy is ₹ 2,000 crores.  
The autonomous consumption expenditure (a) is equal to ₹ 100 crores and investment expenditure (I) is ₹ 500 crores.  
You are required to calculate:
- Consumption expenditure at equilibrium level of National Income.
  - Marginal Propensity to Consume (MPC) and Marginal Propensity to Save (MPS).
  - Equilibrium level of income if saving function is  $S = -10 + 0.2Y$ . **(3 Marks)**
- (b) What are the two forms, through which foreign capital may flow into an economy, as an investment? **(2 Marks)**
- (c) Define 'Money Multiplier'. Use of e-wallets is increasing at fast pace nowadays. How this enhanced use of e-wallets is affecting money multiplier and money supply? **(3 Marks)**
- (d) What is the difference between price ceiling and price floor? **(2 Marks)**

**Answer**

- (a) (i) **Consumption expenditure at equilibrium level:**

$$Y = C + I$$

$$C = Y - I$$

By putting value, we get

$$= ₹ 2000 - ₹ 500$$

$$C = ₹ 1500 \text{ Crores}$$

- (ii) **MPC and MPS:**

$$C = a + bY$$

$$1500 = 100 + b \times 2000$$

$$b = \frac{1400}{2000}$$

$$= 0.7$$

$$\text{MPC (b)} = 0.7$$

$$\text{MPS} = 1 - \text{MPC}$$

$$= 1 - 0.7$$

$$\text{MPS} = 0.3$$

**(iii) Equilibrium level of income**

$$S = Y - C$$

$$-10 + 0.2Y = Y - C$$

$$0.2Y - Y = -C + 10$$

$$-0.8Y = -1500 + 10$$

$$0.8Y = 1490$$

$$Y = 1490/0.8 = ₹ 1862.5 \text{ crores}$$

$$S = I$$

$$-10 + 0.2Y = 500$$

$$0.2Y = 500 + 10$$

$$0.2Y = 510$$

$$Y = 510/0.2$$

$$Y = ₹2550 \text{ crores}$$

**(OR)****(b) Forms of foreign capital into an economy**

The two forms through which foreign capital may flow into an economy as investments are:

**Foreign portfolio investment (FPI)** in bonds, stocks and securities, and **Foreign direct investment (FDI)** in industrial, commercial, and similar other enterprises.

Foreign direct investment is defined as a process whereby the resident of one country (i.e., home country) acquires ownership of an asset in another country (i.e., the host country) and such movement of capital involves ownership, control as well as management of the asset in the host country.

Foreign portfolio investment is the flow of 'financial capital' with stake in a firm at below 10 percent and does not involve manufacture of goods or provision of services, ownership management or control of the asset on the part of the investor.

**(c) Money multiplier:**

Money multiplier  $m$  is defined as a **ratio that relates the changes in the money supply to a given change in the monetary base**. It is the ratio of the stock of money to the stock of high-powered money. It denotes by how much the money supply will change for a given change in high-powered money.

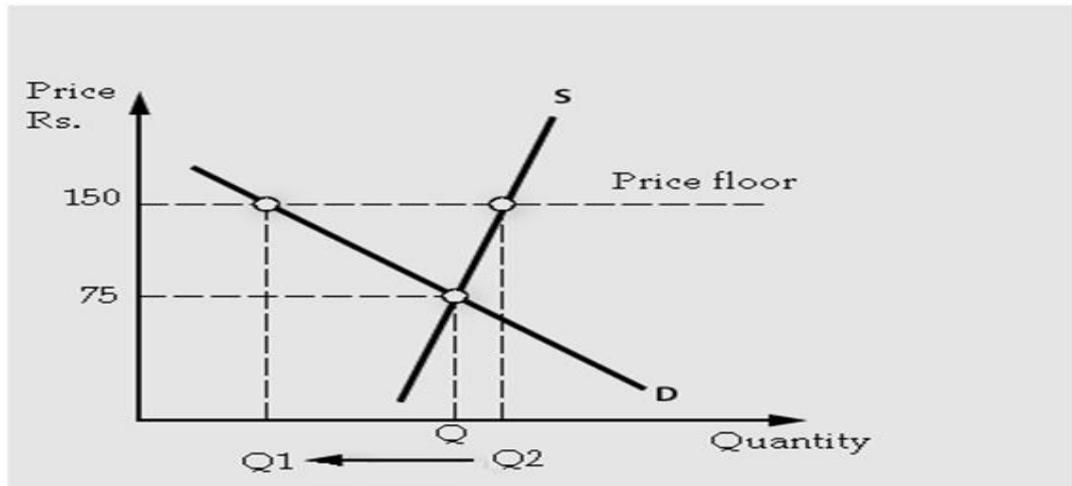
**Money multiplier (m) = Money Supply / Monetary base**

**E wallet** will affect the money supply in the real world. People hold less cash and more deposits thus reducing the currency-deposit ratio; increasing the money multiplier causing the money supply to increase.

**(d) Price Ceiling:** When prices of certain essential commodities rise excessively, government may resort to controls in the form of price ceilings for making a resource or commodity available to all at reasonable prices. For example: maximum prices of food grains and essential items are set by government during times of scarcity. A price ceiling which is set below the prevailing market clearing price will generate excess demand over supply.

**Price Floor:** Government usually intervenes in many primary markets which are subject to extreme as well as unpredictable fluctuations in price. For example, in India, in the case of many crops the government has initiated the Minimum Support Price (MSP) programme as well as procurement by government agencies at the set support prices.

The objective is to guarantee steady and assured incomes to farmers. In case the market price falls below the MSP, then the guaranteed MSP will prevail. The following diagram will illustrate the effects of a price floor.



**Market Outcome of Minimum Support Price**

When price floors are set above market clearing price, suppliers are encouraged to over-supply and there would be an excess of supply over demand. At price ₹ 150/ which is much above the market determined equilibrium price of ₹ 75, the market demand is only Q1, but the market supply is Q2.

#### Question 8

(a) (i) *The Rupee dollar exchange rate for two different periods of a particular financial year are as follows:*

(1) *In the month of January it is \$ 1 = ₹ 65; and*

(2) *In the month of April it is \$ 1 = ₹ 70*

*Answer:*

A. *What does this indicate?*

B. *Who will be benefited, either residents of India or foreigners?*

C. *Explain the impact of exchange fluctuations in terms of appreciation of currency on inflation.* **(3 Marks)**

(ii) *One of the biggest problem with using discretionary policy to counteract fluctuations is the different types of lags involved in fiscal policy action. What are these lags?*

**(2 Marks)**

(b) (i) The following data is available for a company:

Particulars	Amount (in ₹ Crore)
Gross Value Added ( $GVA_{MP}$ )	2,750
Sales	3,450
Closing Stock	750
Interest	200
Opening Stock	900
Net indirect taxes	550
Rent	310
Mixed income	380
Compensation to employees	600
Consumption of fixed capital	320

Based on the above information, compute the following:

- (i) Amount of Intermediate Consumption.
- (ii) Net Domestic Product at Factor Cost ( $NDP_{FC}$ ),
- (iii) Profit of the company. (3 Marks)
- (ii) Explain briefly the Deflationary Gap. (2 Marks)

#### Answer

- (a) (i) A. It indicates the **depreciation of Rupee and appreciation of Dollar**
- B. Exports become cheaper and more attractive to foreigners; imports will be discouraged as they become costlier to import.

C. **Impact on inflation:**

An appreciation may **cause reduction in the levels of inflation** because imports are cheaper. Lower price of imported capital goods, components and raw materials lead to a **decrease in cost of production** which reflects on decrease in prices. Additionally, decrease in aggregate demand tends to **lower demand pull inflation. Living standards of people are likely to improve** due to availability of cheaper consumer goods.

(ii) **Lags in fiscal Policy**

**Lags in fiscal policy:**

One of the biggest problems with using discretionary fiscal policy to counteract fluctuations is the different types of lags involved in fiscal-policy action. There are significant lags are:

**Recognition lag:** The economy is a complex phenomenon, and the state of the macro-economic variables is usually not easily comprehensible. Just as in the case

of any other policy, the government must first recognize the need for a policy change.

**Decision lag:** Once the need for intervention is recognized, the government has to evaluate the possible alternative policies. Delays are likely to occur to decide on the most appropriate policy.

**Implementation lag:** even when appropriate policy measures are decided on, there are possible delays in bringing in legislation and implementing them.

**Impact lag:** impact lag occurs when the outcomes of a policy are not visible for some time.

(b) (i)  $GVA_{MP} = \text{Sales} + \text{Change in Stock} - \text{Intermediate Consumption}$

$$2750 = 3450 + (750-900) - \text{Intermediate Consumption}$$

$$2750 = 3300 - \text{Intermediate Consumption}$$

$$\text{Intermediate Consumption} = 3300 - 2750$$

$$\text{Intermediate Consumption} = ₹ 550 \text{ Crores}$$

(ii) Net Domestic Product at Factor cost =  $NDP_{MP} - \text{Net indirect taxes}$

$$NDP_{MP} = GVA_{MP} - \text{Consumption of fixed capital}$$

$$= 2750 - 320 = ₹2430 \text{ Crores}$$

$$NDP_{FC} = 2430 - 550 = ₹1880 \text{ crores}$$

(iii) Operating surplus = Rent + Interest + Profit

$$\text{Profit} = \text{Operating surplus} - \text{Rent} - \text{Interest}$$

$$NDP_{FC} = \text{Compensation to employees} + \text{Operating surplus} + \text{Mixed income}$$

$$1880 = 600 + \text{Operating surplus} + 380$$

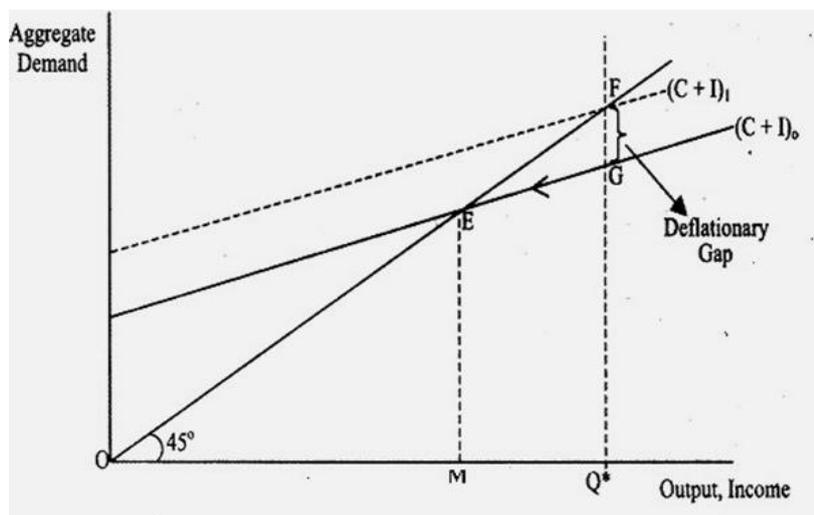
$$\text{Operating surplus} = 1880 - 600 - 380 = ₹900 \text{ Crores}$$

$$\text{Profit} = 900 - 310 - 200 = ₹ 390 \text{ crores}$$

(ii) **Deflationary Gap:** If the **aggregate demand is for an amount of output less than the full employment level of output**, then we say there is deficient demand. Deficient demand gives rise to a 'deflationary gap'.

Deflationary gap is thus a measure of the extent of deficiency of aggregate demand, and it causes the economy's income, output, and employment to decline, thus pushing the economy to under-employment equilibrium. The macro-equilibrium

occurs at a level of GDP less than potential GDP; thus, there is cyclical unemployment i.e. rate of unemployment is higher than the natural rate.



**Deficient Demand: Deflationary Gap**

**Question 9**

- (a) (i) Explain the operation of Cash Reserve Ratio. **(3 Marks)**
- (ii) "Net Exports" can be negative or positive. How is it significant for the economy of a country? **(2 Marks)**
- (b) (i) Tariffs are basically taxes or duties on goods and services which are imported or exported. Briefly explain Preferential, Applied and Escalated tariff. **(3 Marks)**
- (ii) Write down the name of fiscal function of the Government in Economic System, for the following cases:
- Government imposes higher taxes on tobacco products in Union Budget.
  - Government scheme providing free ration to BPL families.
  - Government providing subsidy to farmers in purchasing of Urea for agricultural purpose.
  - Increase in Government expenditure in the time of recession. **(2 Marks)**

**Answer**

- (a) (i) **Operation of Cash Reserve Ratio (CRR):**

Cash Reserve Ratio (CRR) refers to the **average daily balance that a bank is required to maintain with the Reserve Bank of India** as a share of its total net demand and time liabilities (NDTL).

Higher the CRR with the RBI, lower will be the liquidity in the system and vice versa. During slowdown in the economy, the RBI reduces the CRR in order to enable the

banks to expand credit and increases the supply of money available in the economy. In order to contain credit expansion during period's high inflation, the RBI increases the CRR.

- (ii) **The Net Exports:** Net exports are the **difference between exports and imports** of a country during the accounting year. It can be positive or negative.

The net export component of GDP is equal to the value of exports (X) minus the value of imports (M). The gap between exports and imports is also called the trade balance. If a country's exports are larger than its imports, then a country is said to have a trade surplus else it will be trade deficit.

Net exports are the difference between exports and imports of a country during the accounting year. It can be positive or negative. Export stimulates economic growth by creating jobs which could potentially reduce poverty and augmenting factor incomes and in so doing raising the standard of livelihood and overall demand for goods and services.

- (b) (i) Tariffs are basically taxes or duties imposed on goods and services which are imported or exported. It is defined as a financial charge in the form of a tax, imposed at the border on goods going from one customs territory to another. Different tariffs are generally applied to different commodities.

**Preferential Tariff:** Nearly all countries are part of at least one preferential trade agreement, under which they promise to give another country's products lower tariffs than their MFN rate. These agreements are reciprocal.

**Applied Tariff:** An 'applied tariff' is the duty that is actually charged on imports on a Most-Favoured Nation (MFN) basis. A WTO member can have an applied tariff for a product that differs from the bound tariff for that product as long as the applied level is not higher than the bound level.

**Escalated Tariff:** Escalated Tariff structure refers to the system wherein the nominal tariff rates on imports of manufactured goods are higher than the nominal tariff rates on intermediate inputs and raw materials, i.e. the tariff on a product increases as that product moves through the value-added chain.

- (ii) **Fiscal Functions of Government**

- (i) Allocation function
- (ii) Redistribution/distribution function
- (iii) Allocation function
- (iv) Stabilization function

#### Question 10

- (a) (i) *Discuss with example the following types of Foreign Direct Investment.*
- (A) *Horizontal Direct Foreign Investment*
  - (B) *Vertical Direct Foreign Investment*

- (C) *Two-way Direct Foreign Investment* **(3 Marks)**
- (ii) *Mention the name of the externalities (along with reason in brief) covered in the following acts:*
- (i) *A Road Construction Company provides training to its employees to learn latest technology for durable road construction.*
- (ii) *People taking COVID Booster Dose happily.* **(2 Marks)**
- (b) (i) *What do you understand by "Liquidity Adjustment Facility (LAF)"?* **(3 Marks)**
- (ii) *Markets are amazingly competent in organizing the activities of an economy as they are generally efficient and capable of achieving optimal allocation of resources. However, market failure occurs. Discuss briefly any two reasons leading to market failure.* **(2 Marks)**

**Answer**

- (a) (i) **(A) Horizontal Direct Foreign Investment:** A horizontal direct investment is said to take place when the investor establishes the same type of business operation in a foreign country as it operates in its home country, for example, a cell phone service provider based in the United States moving to India to provide the same service.
- (B) Vertical Direct Foreign Investment:** A Vertical Investment is one under which the investor establishes or acquires a business activity in a foreign country which is different from the investor's main business activity yet in some way supplements its major activity. For example, an automobile manufacturing company may acquire an interest in a foreign company that supplies parts or raw materials required for the company.
- (C) Two – way Direct Foreign Investment:** Two- Way Direct Foreign Investments' which are reciprocal investments between countries. These investments occur when some industries are more advanced in one nation (for example, the computer industry in the United States), while other industries are more efficient in other nations (such as the automobile industry in Japan).
- (ii) (i) As an example of **positive production externality** received in production, we can cite the case of a firm which offers training to its employees for increasing their skills. The firm generates positive benefits on other firms when they hire such workers as they change their jobs.
- (ii) A **positive consumption externality** initiated in consumption that confers external benefits on others may be received in consumption or in production. For example, if people taking COVID Booster Dose happily against contagious diseases, they would confer a social benefit to others as well by preventing others from getting infected.
- (b) (i) **Liquidity Adjustment Facility (LAF):** In line with the financial sector reforms, the system of sector-specific refinance schemes (except export credit refinance scheme) was withdrawn. From June 2000, the RBI has introduced Liquidity

## Adjustment Facility (LAF)

The LAF consists of overnight as well as term repo auctions. The aim of term repo is to help develop the inter-bank term money market. This move is expected to set market-based benchmarks for pricing of loans and deposits, and hence improve transmission of monetary policy.

The introduction of LAF is an important landmark since it triggered a rapid transformation in the monetary policy operating environment in India. As a key element in the operating framework of the RBI, its objective is to assist banks to adjust their day-to-day mismatches in liquidity. Currently, the RBI provides financial accommodation to the commercial banks through repos/reverse repos under the Liquidity Adjustment Facility (LAF).

## (ii) Reasons leading to market failure:

**Market power:** Market power or Monopoly power is the **ability of a firm to profitably raise the market price of a good or service over its marginal cost.** The firms that have market power are price makers and therefore can charge a price that gives them positive economic profits.

**Externalities:** It is something that **one individual does, may have at the margin some effect on others.** It is not the part of the market price mechanism. There is an externality when a consumption or production activity has an indirect effect on other's consumption or production activities and as such effects are not reflected directly in market prices.

**Public goods:** Public goods have no meaningful demand curve for them. Because of the peculiar characteristics of public goods such as indivisibility, non-excludability and non-rivalry, competitive private markets will fail to generate economically efficient outputs of public goods. If individual's make no offer to pay for public goods, there will be market failure.

**Incomplete information:** Asymmetric information, adverse selection and moral hazard affect the ability of markets to efficiently allocate resources and therefore, lead to market failure.

**Question 11**

- (a) (i) *How are the following transactions treated in National Income Calculation?*
- (A) *B sold a used car to C and receive ₹ 80,000. How much of the sale proceeds will be included in National Income calculation?*
- (B) *Fees paid to real estate agents and lawyers.*
- (C) *Electric power sold to a consumer household.*
- (ii) *What are the guiding principles of World Trade Organization (WTO).*
- (b) (i) *Discuss with examples the major aspects of market failures.* **(3 Marks)**
- (ii) *Briefly explain the concept of "Liquidity Trap".* **(2 Marks)**

OR

*Why empirical analysis of money supply is important?***(2 Marks)****Answer**

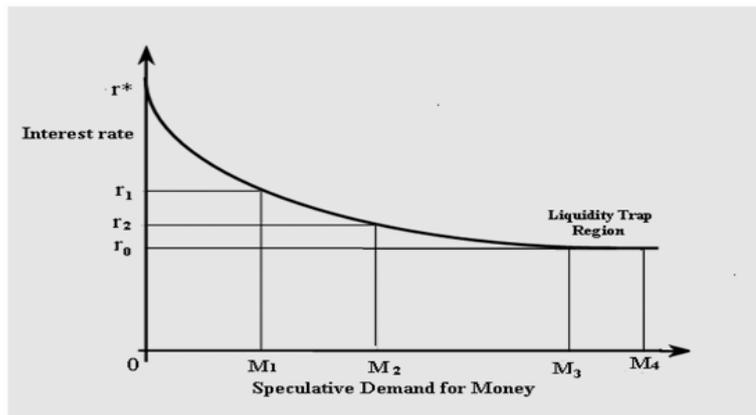
- (a) (i) (A) **Sale of used car:** No part of the used car sales proceed of Rs80,000 will be included in national income calculation because sales of used car represents transfer of existing assets which was proceed during some earlier year and was accounted in the national Income calculation of that year
- (B) **Fees paid to real estate agents and lawyers:** Fees paid to real estate agents and lawyers represent current production and, therefore, are included in national income.
- (C) **Electric power sold to a consumer household:** Electric power sold to a consumer does not require any further processing and does not undergo any further transformation before use. Once a final goods has been sold, it passes out of the active economic flow.
- (ii) Right from its inception, the WTO has been driven by a number of fundamental principles which are the foundations of the multilateral trading system. Following are the major **guiding principles**:
- Trade without discrimination
  - The National Treatment Principle (NTP)
  - Freer trade
  - Predictability
  - Principle of general prohibition of quantitative restrictions
  - Greater competitiveness
  - Tariffs as legitimate measures for the protection of domestic industries
  - Transparency in Decision Making
  - Progressive Liberalization:
  - Market Access
  - Special privileges to less developed countries
  - Protection of Health & Environment
  - A transparent, effective, and verifiable dispute settlement mechanism.
- (b) (i) **Major aspects of market failures**
- There are two aspects of market failures namely, demand-side market failures and supply side market failures.
- Demand- side market failures are said to occur **when the demand curves do not take into account the full willingness of consumers to pay for a product.** For

example, though we experience the benefit, none of us will be willing to pay to view a wayside fountain because we can view it without paying.

Supply-side market failures happen **when supply curves do not incorporate the full cost of producing the product**. For example, a thermal power plant that uses coal may not have to include or pay completely for the costs to the society caused by fumes it discharges into the atmosphere as part of the cost of producing electricity.

(ii) **Liquidity trap**

At a very high interest rate, say  $r^*$ , the opportunity cost of holding money (in terms of foregone interest) is high and therefore, people will hold no money in speculative balances. When interest rates fall to very low levels, the expectation is that since the interest rate is very low it cannot go further lower and that in all possibility it will move upwards. In other words, investors would maintain cash savings rather than hold bonds. The speculative demand becomes perfectly elastic with respect to interest rate and the speculative money demand curve becomes parallel to the X axis. This situation is called a 'Liquidity trap'.



**Aggregate Speculative Demand for Money**

[OR]

**The empirical analysis of money supply is important for two reasons:**

- (1) **It facilitates analysis of monetary developments** in order to provide a deeper understanding of the causes of money growth.
- (2) It is essential from a monetary policy perspective as it provides a framework to evaluate whether the stock of money in the economy is consistent with the standards for price stability and to understand the nature of deviations from the standards. The central banks all over the world adopt monetary policy to **stabilize price level** and **GDP growth** by directly controlling the supply of money. This is achieved mainly by managing the quantity of monetary base. **The success of monetary policy depends to a large extent** on the controllability of the monetary base and the money supply.