PAPER – 8 : FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

SECTION – A: FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Attempt any **four** questions out of the remaining **five** questions.*

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer

Question 1

(a) Following figures and ratios are related to a company Q Ltd. :

(i)	*Sales for the year (all credit)*	*₹ 30,00,000*
(ii)	*Gross Profit ratio*	*25 per cent*
(iii)	*Fixed assets turnover (based on cost of goods sold)*	*1.5*
(iv)	*Stock turnover (based on cost of goods sold)*	*6*
(v)	*Liquid ratio*	*1 : 1*
(vi)	*Current ratio*	*1. 5 : 1*
(vii)	*Receivables (Debtors) collection period*	*2 months*
(viii)	*Reserves and surplus to share capital*	*0.6 : 1*
(ix)	*Capital gearing ratio*	*0.5*
(x)	*Fixed assets to net worth*	*1.20 : 1*

You are required to calculate :

Closing stock, Fixed Assets, Current Assets, Debtors and Net worth. ***(5 Marks)***

(b) Alpha Ltd. has furnished the following information :

- Earning Per Share (EPS)	*₹ 4*
- Dividend payout ratio	*25%*
- Market price per share	*₹ 50*
- Rate of tax	*30%*
- Growth rate of dividend	*10%*

The company wants to raise additional capital of ₹ 10 lakhs including debt of ₹ 4 lakhs. The cost of debt (before tax) is 10% up to ₹ 2 lakhs and 15% beyond that. Compute the after tax cost of equity and debt and also weighted average cost of capital. ***(5 Marks)***

(c) Kanoria Enterprises wishes to evaluate two mutually exclusive projects X and Y.

The particulars are as under :

	Project X (₹)	*Project Y (₹)*
Initial Investment	*1,20,000*	*1,20,000*
Estimated cash inflows (per annum for 8 years)		
Pessimistic	*26,000*	*12,000*
Most Likely	*28,000*	*28,000*
Optimistic	*36,000*	*52,000*

The cut off rate is 14%. The discount factor at 14% are :

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Discount factor	*0.877*	*0.769*	*0.675*	*0.592*	*0.519*	*0.456*	*0.400*	*0.351*	*0.308*

Advise management about the acceptability of projects X and Y. ***(5 Marks)***

(d) The following information is supplied to you :

Total Earning	*₹ 40 Lakhs*
No. of Equity Shares (of ₹ 100 each)	*4,00,000*
Dividend Per Share	*₹ 4*
Cost of Capital	*16%*
Internal rate of return on investment	*20%*
Retention ratio	*60%*

Calculate the market price of a share of a company by using :

(i) Walter's Formula

(ii) Gordon's Formula ***(5 Marks)***

Answer

(a) (i) Calculation of Closing Stock:

Cost of Goods Sold = Sales – Gross Profit (25% of Sales)

= ₹ 30,00,000 – ₹ 7,50,000

= ₹ 22,50,000

Closing Stock = Cost of Goods Sold / Stock Turnover

= ₹ 22,50,000/6 = ₹ 3,75,000

(ii) Calculation of Fixed Assets:

Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover

= ₹ 22,50,000/1.5

= ₹ 15,00,000

(iii) Calculation of Current Assets:

Current Ratio = 1.5 and Liquid Ratio = 1

Stock = 1.5 – 1 = 0.5

Current Assets = Amount of Stock × 1.5/0.5

= ₹ 3,75,000 × 1.5/0.5 = ₹ 11,25,000

(iv) Calculation of Debtors:

Debtors = Sales × Debtors Collection period /12

= ₹ 30,00,000 × 2 /12

= ₹ 5,00,000

(v) Calculation of Net Worth:

Net worth = Fixed Assets /1.2

= ₹ 15,00,000/1.2 = **₹ 12,50,000**

(b) (i) Cost of Equity Share Capital (K_e)

$$K_e = \frac{D_0(1+g)}{P_0} + g = \frac{25\% \text{ of } ₹\ 4\ (1+0.10)}{₹\ 50} + 0.10 = \frac{₹\ 1.10}{₹\ 50} + 0.10 = \textbf{0.122 or 12.2\%}$$

(ii) Cost of Debt (K_d)

$$K_d = \frac{\text{Interest}}{\text{Net Proceeds}} \times 100 \times (1 - t)$$

Interest on first ₹ 2,00,000 @ 10% = ₹ 20,000

Interest on next ₹ 2,00,000 @ 15% = ₹30,000

$$K_d = \frac{50,000}{4,00,000} \times (1 - 0.3) = \textbf{0.0875 or 8.75 \%}$$

(iii) Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.20	7.32

Debt	4,00,000	0.40	8.75	3.50
Total	10,00,000	1.00		**10.82**

Alternatively Cost of Equity Share Capital (K_e) can be calculated as

$$K_e = \frac{D}{P_0} + g = \frac{25\% \text{ of } ₹\,4}{₹\,50} + 0.10 = \frac{₹\,1.00}{₹\,50} + 0.10 = 0.120 \text{ or } 12.00\%$$

Accordingly

Weighted Average Cost of Capital (WACC)

Source of capital	Amount (₹)	Weights	Cost of Capital (%)	WACC (%)
Equity shares	6,00,000	0.60	12.00	7.20
Debt	4,00,000	0.40	8.75	3.50
Total	10,00,000	1.00		**10.70**

(c) The possible outcomes of Project x and Project y are as follows

Estimates	Project X				Project Y			
	Estimated Annual Cash inflows (₹)	PVF @ 14% for 8 years	PV of Cash flow (₹)	NPV (₹)	Estimated Annual Cash inflows (₹)	PVF @ 14% for 8 years	PV of Cash flow (₹)	NPV (₹)
Pessimistic	26,000	4.639	1,20,614	**614**	12,000	4.639	55,668	**(-64,332)**
Most likely	28,000	4.639	1,29,892	**9,892**	28,000	4.639	1,29,892	**9,892**
Optimistic	36,000	4.639	2,41,228	**47,004**	52,000	4.639	2,41,228	**1,21,228**

In pessimistic situation project X will be better as it gives low but positive NPV whereas Project Y yield highly negative NPV under this situation. In most likely situation both the project will give same result. However, in optimistic situation Project Y will be better as it will gives very high NPV. So, project X is a risk less project as it gives positive NPV in all the situation whereas Y is a risky project as it will result into negative NPV in pessimistic situation and highly positive NPV in optimistic situation. So acceptability of project will largely depend on the risk taking capacity (Risk seeking/ Risk aversion) of the management.

(d) Earning Per share(E) = $\frac{₹\,40 \text{ Lakhs}}{4,00,000}$ = ₹ **10**

Calculation of Market price per share by

(i) Walter's formula: Market Price $(P) = \dfrac{D + \frac{r}{K_e}(E - D)}{K_e}$

Where,

P = Market Price of the share.

E = Earnings per share.

D = Dividend per share.

K_e = Cost of equity/ rate of capitalization/ discount rate.

R = Internal rate of return/ return on investment

$$P = \frac{4 + \frac{0.20}{0.16}(10 - 4)}{0.16} = \frac{4 + 7.5}{0.16} = ₹\ 71.88$$

(ii) Gordon's formula: When the growth is incorporated in earnings and dividend, the present value of market price per share (P_o) is determined as follows

Gordon's theory: $P_o = \dfrac{E(1 - b)}{k - br}$

Where,

P_0 = Present market price per share.

E = Earnings per share

b = Retention ratio (i.e. % of earnings retained)

r = Internal rate of return (IRR)

Growth rate (g) = br

$$\text{Now } P_o = \frac{10(1 - .60)}{.16 - (.60 \times .20)} = ₹\ \frac{4}{.04} = ₹\ 100$$

Question 2

RM Steels Limited requires ₹ 10,00,000 for construction of a new plant. It is considering three financial plans :

(i) The company may issue 1,00,000 ordinary shares at ₹ 10 per share;

(ii) The company may issue 50,000 ordinary shares at ₹ 10 per share and 5000 debentures of ₹ 100 denominations bearing a 8 per cent rate of interest; and

(iii) The company may issue 50,000 ordinary shares at ₹ 10 per share and 5,000 preference shares at ₹ 100 per share bearing a 8 per cent rate of dividend.

If RM Steels Limited's earnings before interest and taxes are ₹ 20,000; ₹ 40,000; ₹ 80,000; ₹ 1,20,000 and ₹ 2,00,000, you are required to compute the earnings per share under each of the three financial plans ?

Which alternative would you recommend for RM Steels and why? Tax rate is 50%. ***(10 Marks)***

Answer

(i) Computation of EPS under three-financial plans

Plan I: Equity Financing

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
No. of equity shares	1,00,000	1,00,000	1,00,000	1,00,000	1,00,000
EPS	**0.10**	**0.20**	**0.40**	**0.60**	**1**

Plan II: Debt – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	40,000	40,000	40,000	40,000	40,000
EBT	(20,000)	0	40,000	80,000	1,60,000
Less: Tax @ 50%	10,000*	0	20,000	40,000	80,000
PAT	(10,000)	0	20,000	40,000	80,000
No. of equity shares	50,000	50,000	50,000	50,000	50,000
EPS	**(₹ 0.20)**	**0**	**0.40**	**0.80**	**1.60**

* The Company can set off losses against the overall business profit or may carry forward it to next financial years.

Plan III: Preference Shares – Equity Mix

	(₹)	(₹)	(₹)	(₹)	(₹)
EBIT	20,000	40,000	80,000	1,20,000	2,00,000
Less: Interest	0	0	0	0	0
EBT	20,000	40,000	80,000	1,20,000	2,00,000

Less: Tax @ 50%	10,000	20,000	40,000	60,000	1,00,000
PAT	10,000	20,000	40,000	60,000	1,00,000
Less: Pref. dividend	40,000*	40,000*	40,000	40,000	40,000
PAT after Pref. dividend.	(30,000)	(20,000)	0	20,000	60,000
No. of Equity shares	50,000	50,000	50,000	50,000	50,000
EPS	**(0.60)**	**(0.40)**	**0**	**0.40**	**1.20**

* In case of cumulative preference shares, the company has to pay cumulative dividend to preference shareholders, when company earns sufficient profits.

(ii) From the above EPS computations tables under the three financial plans we can see that when EBIT is ₹ 80,000 or more, Plan II: Debt-Equity mix is preferable over the Plan I and Plan III, as rate of EPS is more under this plan. On the other hand an EBIT of less than ₹ 80,000, Plan I: Equity Financing has higher EPS than Plan II and Plan III. Plan III Preference share Equity mix is not acceptable at any level of EBIT, as EPS under this plan is lower.

The choice of the financing plan will depend on the performance of the company and other macro economic conditions. If the company is expected to have higher operating profit Plan II: Debt – Equity Mix is preferable. Moreover, debt financing gives more benefit due to availability of tax shield.

Question 3

AT Limited is considering three projects A, B and C. The cash flows associated with the projects are given below:

Cash flows associated with the Three Projects (₹)

Project	C_0	C_1	C_2	C_3	C_4
A	*(10,000)*	*2,000*	*2,000*	*6,000*	*0*
B	*(2,000)*	*0*	*2,000*	*4,000*	*6,000*
C	*(10,000)*	*2,000*	*2,000*	*6,000*	*10,000*

You are required to :

(a) Calculate the payback period of each of the three projects.

(b) If the cut-off period is two years, then which projects should be accepted?

(c) Projects with positive NPVs if the opportunity cost of capital is 10 percent.

(d) "Payback gives too much weight to cash flows that occur after the cut-off date". True or false?

(e) "If a firm used a single cut-off period for all projects, it is likely to accept too many short lived projects." True or false?

P.V. Factor @ 10 %

Year	*0*	*1*	*2*	*3*	*4*	*5*
P.V.	*1.000*	*0.909*	*0.826*	*0.751*	*0.683*	*0.621*

(10 Marks)

Answer

(a) Payback Period of Projects

Projects	C_0(₹)	C_1(₹)	C_2(₹)	C_3(₹)	Payback
A	(10,000)	2000	2000	6,000	2,000+2,000+6,000 =10,000 i.e 3 years
B	(2,000)	0	2,000	NA	0+2,000 = 2,000 i.e 2 years
C	(10,000)	2000	2000	6,000	2,000+2,000+6,000 = 10,000 i.e 3 years

(b) If standard payback period is **2 years**, Project B is the **only acceptable project.**

(c) Calculation of NPV

Year	PVF @ 10%	Project A		Project B		Project C	
		Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)	Cash Flows (₹)	PV of cash flows (₹)
0	1	(10,000)	(10,000)	(2,000)	(2,000)	(10,000)	(10,000)
1	0.909	2,000	1,818	0	0	2,000	1,818
2	0.826	2,000	1,652	2,000	1,652	2,000	1,652
3	0.751	6,000	4506	4,000	3004	6,000	4,506
4	0.683	0	0	6,000	4,098	10,000	6,830
NPV			(-2,024)		6,754		4,806

So, Projects with positive NPV are Project B and Project C

(d) False. Payback gives no weightage to cash flows after the cut-off date.

(e) True. The payback rule ignores all cash flows after the cutoff date, meaning that future years' cash inflows are not considered. Thus, payback is biased towards short-term projects.

Question 4

The capital structure of the Shiva Ltd. consists of equity share capital of ₹ 20,00,000 (Share of ₹ 100 per value) and ₹ 20,00,000 of 10% Debentures, sales increased by 20% from 2,00,000 units to 2,40,000 units, the selling price is ₹ 10 per unit; variable costs amount to ₹ 6 per unit and fixed expenses amount to ₹ 4,00,000. The income tax rate is assumed to be 50%.

(a) You are required to calculate the following:

(i) The percentage increase in earnings per share;

(ii) Financial leverage at 2,00,000 units and 2,40,000 units.

(iii) Operating leverage at 2,00,000 units and 2,40,000 units.

(b) Comment on the behaviour of operating and Financial leverages in relation to increase in production from 2,00,000 units to 2,40,000 units. ***(10 Marks)***

Answer

(a)

Sales in units	**2,00,000 (₹)**	**2,40,000 (₹)**
Sales Value @ ₹ 10 Per Unit	20,00,000	24,00,000
Variable Cost @ ₹ 6 per unit	(12,00,000)	(14,40,000)
Contribution	8,00,000	9,60,000
Fixed expenses	(4,00,000)	(4,00,000)
EBIT	4,00,000	5,60,000
Debenture Interest	(2,00,000)	(2,00,000)
EBT	2,00,000	3,60,000
Tax @ 50%	(1,00,000)	(1,80,000)
Profit after tax (PAT)	1,00,000	1,80,000
No of Share	20,000	20,000
Earnings per share (EPS)	5	9
(i) The percentage Increase in **EPS**	$\frac{4}{5}\times 100 = 80\%$	
(ii) **Financial Leverage** = $\frac{\text{EBIT}}{\text{EBT}}$	$\frac{₹\ 4,00,000}{₹\ 2,00,000}=2$	$\frac{₹\ 5,60,000}{₹\ 3,60,000}=1.56$
(iii) **Operating leverage** = $\frac{\text{Contribution}}{\text{EBIT}}$	$\frac{₹\ 8,00,000}{₹\ 4,00,000}=2$	$\frac{₹\ 9,60,000}{₹\ 5,60,000}=1.71$

(b) When production is increased from 2,00,000 units to 2,40,000 units both financial leverage and operating leverages reduced from 2 to 1.56 and 1.71 respectively. Reduction in financial leverage and operating leverages signifies reduction in business risk and financial risk.

Question 5

Bita Limited manufactures used in the steel industry. The following information regarding the company is given for your consideration:

(i) Expected level of production 9000 units per annum.

(ii) Raw materials are expected to remain in store for an average of two months before issue to production.

(iii) Work-in-progress (50 percent complete as to conversion cost) will approximate to 1/2 month's production.

(iv) Finished goods remain in warehouse on an average for one month.

(v) Credit allowed by suppliers is one month.·

(vi) Two month's credit is normally allowed to debtors.

(vii) A minimum cash balance of ₹67,500 is expected to be maintained.

(viii) Cash sales are 75 percent less than the credit sales.

(ix) Safety margin of 20 percent to cover unforeseen contingencies.

(x) The production pattern is assumed to be even during the year.

(xi) The cost structure for Bita Limited's product is as follows:

	₹
Raw Materials	*80 per unit*
Direct Labour	*20 per unit*
Overheads (including depreciation ₹20)	*80 per unit*
Total Cost	*180 per unit*
Profit	*20 per unit*
Selling Price	*200 per unit*

You are required to estimate the working capital requirement of Bita limited. ***(10 Marks)***

Answer

Statement showing Estimate of Working Capital Requirement

	(Amount in ₹)	(Amount in ₹)
A. Current Assets		
(i) **Inventories:**		
- Raw material inventory $\left(\frac{9,000\text{ units} \times ₹\,80}{12\text{ months}} \times 2\text{ month}\right)$		1,20,000

- **Work in Progress:**		
Raw material $\left(\frac{9,000\text{ units} \times ₹\ 80}{12\text{ months}} \times 0.5\text{ month}\right)$	30,000	
Wages $\left(\frac{9,000\text{ units} \times ₹\ 20}{12\text{ months}} \times 0.5\text{ month}\right) \times 50\%$	3,750	
Overheads $\left(\frac{9,000\text{ units} \times ₹\ 60}{12\text{ months}} \times 0.5\text{ month}\right) \times 50\%$ (Other than Depreciation)	11,250	**45,000**
Finished goods (inventory held for 1 months) $\left(\frac{9,000\text{ units} \times ₹\ 160}{12\text{ months}} \times 1\text{ month}\right)$		**1,20,000**
(ii) **Debtors (for 2 months)** $\left(\frac{9,000\text{ units} \times ₹\ 160}{12\text{ months}} \times 2\text{ month}\right) \times 80\%$ or $\left(\frac{11,52,000}{12\text{ months}} \times 2\text{ month}\right)$		**1,92,000**
(iii) Cash balance expected		67,500
Total Current assets		5,44,500
B. Current Liabilities		
(i) Creditors for Raw material (1 month) $\left(\frac{9,000\text{ units} \times ₹\ 80}{12\text{ months}} \times 1\text{ month}\right)$		60,000
Total current liabilities		60,000
Net working capital (A – B)		4,84,500
Add: Safety margin of 20 percent		96,900
Working capital Requirement		5,81,400

Working Notes:

1. If Credit sales is x then cash sales is x-75% of x i.e. x/4.
   Or x+0.25x = ₹ 18,00,000
   Or x=₹ 14,40,000

So, credit Sales is ₹ 14,40,000

Hence, Cash cost of credit sales $\left(\frac{₹\,14,40,000}{5}\times 4\right)$ = ₹ 11,52,000

2. It is assumed that safety margin of 20% is on net working capital.
3. No information is given regarding lag in payment of wages, hence ignored assuming it is paid regularly.
4. Debtors/Receivables is calculated based on total cost.

[If Debtors/Receivables is calculated based on sales, then debtors will be

$\left(\frac{9,000\ \text{units}\times ₹\,200}{12\ \text{months}}\times 2\,\text{month}\right)\times 80\%$ **or** $\left(\frac{14,40,000}{12\ \text{months}}\times 2\,\text{month}\right)$ = **₹2,40,000**

Then Total Current assets will be **₹ 5,92,500** and accordingly Net working capital and Working capital requirement will be **₹ 5,32,500** and **₹ 6,39,000** respectively**].**

Question 6

(a) Explain the steps of Sensitivity Analysis. ***(4 Marks)***

(b) What is the process of Debt Securitisation ? ***(4 Marks)***

(c) Explain any two steps involved in Decision tree Analysis. ***(2 Marks)***

OR

Give any two limitations of leasing. ***(2 Marks)***

Answer

(a) Steps involved in Sensitivity Analysis

Sensitivity Analysis is conducted by following the steps as below:

1.Finding variables, which have an influence on the NPV (or IRR) of the project

2.Establishing mathematical relationship between the variables.

3.Analysis the effect of the change in each of the variables on the NPV (or IRR) of the project.

(b) Process of Debt Securitisation

(i) ***The origination function*** – A borrower seeks a loan from a finance company, bank, HDFC. The credit worthiness of borrower is evaluated and contract is entered into with repayment schedule structured over the life of the loan.

(ii) ***The pooling function*** – Similar loans on receivables are clubbed together to create an underlying pool of assets. The pool is transferred in favour of Special purpose Vehicle (SPV), which acts as a trustee for investors.

(iii) ***The securitisation function*** – SPV will structure and issue securities on the basis of asset pool. The securities carry a coupon and expected maturity which can be asset based/ mortgage based. These are generally sold to investors through merchant bankers. Investors are – pension funds, mutual funds, insurance funds. The process of securitization is generally without recourse i.e. investors bear the credit risk and issuer is under an obligation to pay to investors only if the cash flows are received by him from the collateral. The benefits to the originator are that assets are shifted off the balance sheet, thus giving the originator recourse to off-balance sheet funding.

(c) Steps involved in Decision Tree analysis:

Step 1- Define Investment: Decision three analysis can be applied to a variety of business decision-making scenarios.

Step 2- Identification of Decision Alternatives: It is very essential to clearly identity decision alternatives. For example, if a company is planning to introduce a new product, it may be local launch, national launch or international launch.

Step 3- Drawing a Decision Tree: After identifying decision alternatives, at the relevant data such as the projected cash flows, probability distribution expected present value etc. should be put in diagrammatic form called decision tree.

Step 4- Evaluating the Alternatives: After drawing out the decision the next step is the evaluation of alternatives.

Or

Limitations of Leasing

(1) The lease rentals become payable soon after the acquisition of assets and no moratorium period is permissible as in case of term loans from financial institutions. The lease arrangement may, therefore, not be suitable for setting up of the new projects as it would entail cash outflows even before the project comes into operation.

(2) The leased assets are purchased by the lessor who is the owner of equipment. The seller's warranties for satisfactory operation of the leased assets may sometimes not be available to lessee.

(3) Lessor generally obtains credit facilities from banks etc. to purchase the leased equipment which are subject to hypothecation charge in favour of the bank. Default in payment by the lessor may sometimes result in seizure of assets by banks causing loss to the lessee.

(4) Lease financing has a very high cost of interest as compared to interest charged on term loans by financial institutions/banks.

SECTION – B: ECONOMICS FOR FINANCE

*Question No. **7** is compulsory.*

*Answer any **three** from the rest.*

Question 7

(a) Given Consumption function C = 300 + O.75Y;
Investment = ₹ 800; Net Imports = ₹ 100
Calculate equilibrium level of output. ***(3 Marks)***

(b) Explain 'depreciation' and 'appreciation' of home currency under floating exchange rate. ***(2 Marks)***

(c) Compute M1 supply of money from the data given below:

Currency with public	*2,13,279.8 Crores*
Time deposits with bank	*3,45,000.7 Crores*
Demand deposits with bank	*1,62,374.5 Crores*
Post office savings deposit	*382.9 Crores*
Other deposits of RBI	*765.1 Crores*

(3 Marks)

(d) Define 'Market power'. What is its disadvantage? ***(2 Marks)***

Answer

(a) Y = C+I+G+(X-M)

Y = (300+0.75Y) +800+ 0+ (-100)

Y = 300+0.75Y +800 -100 = 0.25 Y =1000

Y= ₹ 4000

(b) Under a floating rate system, home currency depreciates when its value falls with respect to the value of another currency or a basket of other currencies i.e there is an increase in the home currency price of the foreign currency. For example, if the Rupee dollar exchange rate in the month of January is $1 = ₹ 70 and ₹ 72 in June, then the Indian Rupee has depreciated in its value with respect to the US dollar and the value of US dollar has appreciated in terms of the Indian Rupee.

On the contrary, home currency appreciates when its value increases with respect to the value of another currency or a basket of other currencies i.e. there is a decrease in the home currency price of foreign currency. For example, if the Rupee dollar exchange rate in the month of January is $1 = ₹ 72 and ₹ 70 in June, then the Indian Rupee has

appreciated in its value with respect to the US dollar and the value of US dollar has depreciated in terms of the Indian Rupee.

(c) Calculation of M1

M1 = Currency and coins with the people + demand deposits of banks (current and saving accounts) + other deposits of the RBI.

M1 = 2,13,279.8 + 1,62,374.5 + 765.1

= 3,76,419.4 Crores

(d) Market power is the ability of a price making firm to profitably raise the market price of a good or service over its marginal cost and thus earn supernormal profits or positive economic profits.

Market power is an important cause of market failure. Market failure occurs when the free market outcomes do not maximize net benefits of an economic activity and therefore there is deadweight losses and inefficient allocation of resources. Excess market power causes a single producer or a small number of producers to strategically reduce their supply and charge higher prices compared to competitive market. Market power can cause markets to be inefficient because it keeps price and output away from the equilibrium of supply and demand. Market power thus results in suboptimal outcomes such as deadweight loss, underproduction of goods and services, higher prices and loss of consumer surplus.

Question 8

(a) Compute GNP at factor cost and NDP at market price using expenditure method from the following data:

	(₹ in Crores)	
Personal Consumption expenditure	*2900*	
Imports	*300*	
Gross public Investment	*500*	
Consumption of fixed capital	*60*	
Exports	*200*	
Inventory Investment	*170*	
Government purchases of goods & services	*1100*	
Gross Residential construction Investment	*450*	
Net factor Income from abroad	*(-)30*	
Gross business fixed Investment	*410*	
Subsidies	*80*	***(5 Marks)***

(b) (i) Why is there a need for the government to resort to resource allocation ? ***(3 Marks)***

(ii) Why is the central bank referred to as a "banker's bank" ? ***(2 Marks)***

Answer

(a) GDP_{MP} = Personal consumption expenditure + Government purchase of goods and services + gross public investment + inventory investment +gross residential construction investment + Gross business fixed investment + [export – import]

= 2900 + 1100 + 500 + 170+450 + 410 + (200-300)

= ₹ 5430 Crores

GNP_{FC} = GDP_{MP} + Net Factor Income from Abroad - Net Indirect Taxes

= ₹ 5430 + (-30) +80 = 5480 Crores

NDP_{MP} = GDP_{MP} - Consumption of fixed capital = 5430- 60 = 5370 Crores

(b) (i) Market failures provide the rationale for government's allocative function. Market failures are situations in which a particular market, left to itself, is inefficient and leads to misallocation of society's scarce resources. In the absence of appropriate government intervention in resource allocation, the resources are likely to be misallocated with too much production of certain goods or too little production of certain other goods. The allocation responsibility of the governments involves suitable corrective action when private markets fail to provide the right and desirable combination of goods and services to ensure optimal outcomes in terms of social welfare.

(ii) A central bank of a country is called a 'bankers' bank because it acts as a banker to the community of commercial banks and provides them with financial services to facilitate their efficient functioning.

- The central bank acts as a custodian of cash reserves of commercial banks in the country.
- The central bank provides efficient means of funds transfer for all banks. All commercial banks maintain accounts with the central bank and it enables smooth and swift clearing and settlements of inter-bank transactions and interbank payments.
- The central bank acts as a lender of last resort. It provides liquidity to banks when the latter face shortage of liquidity. The scheduled commercial banks can borrow from the discount window against the collateral of securities like commercial bills, government securities, treasury bills, or other eligible papers.

Question 9

(a) (i) Explain the classical theory of Comparative Advantage as given by David Ricardo.

(3 Marks)

(ii) What will be the total credit created by the commercial banking system for an initial deposit of ₹ 3000 at a Required Reserve Ratio (RRR) of 0.05 and 0.08 respectively? Also compute credit multiplier. ***(2 Marks)***

(b) (i) Describe the limitations of fiscal policy. ***(3 Marks)***

(ii) What are the conceptual difficulties in the measurement of national income? ***(2 Marks)***

Answer

(a) (i) The law of comparative advantage states that even if one nation is less efficient than (has an absolute disadvantage with respect to) the other nation in the production of both commodities, there is still scope for mutually beneficial trade. The first nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller (this is the commodity of its comparative advantage) and import the commodity in which its absolute disadvantage is greater (this is the commodity of its comparative disadvantage). Labour differs in its productivity internationally and different goods have different labour requirements, so comparative labor productivity advantage was Ricardo's predictor of trade.

The theory can be explained with a simple example

Output per Hour of Labour

Commodity	Country A	Country B
Wheat (bushels/hour)	6	1
Cloth (yards/hour)	4	2

Country B has absolute disadvantage in the production of both wheat and cloth. However, since B's labour is only half as productive in cloth but six times less productive in wheat compared to country A, country B has a comparative advantage in cloth. On the other hand, country A has an absolute advantage in both wheat and cloth with respect to the country B, but since its absolute advantage is greater in wheat (6:1) than in cloth (4:2), country A has a comparative advantage in wheat. According to the law of comparative advantage, both nations can gain if country A specialises in the production of wheat and exports some of it in exchange for country B's cloth. Simultaneously, country B should specialise in the production of cloth and export some of it in exchange for country A's wheat.

If country A could exchange 6W for 6C with country B, then, country A would gain 2C (or save one-half hour of labour time) since the country A could only exchange 6W for 4C domestically. The 6W that the country B receives from the country A would require six hours of labour time to produce in country B. With trade, country B can instead use these six hours to produce 12C and give up only 6C for 6W from the country A. Thus, the country B would gain 6C or save three hours of labour time and country A would gain 2C. However, the gains of both countries are not equal.

Country A would gain if it could exchange 6W for more than 4C from country B; because 6W for 4 C is what it can exchange domestically (both require the same one hour labour time). The more C it gets, the greater would be the gain from trade. Conversely, in country B, 6W = 12C (in the sense that both require 6 hours to produce). Anything less than 12C that country B must give up to obtain 6W from country A represents a gain from trade for country B. To summarize, country A gains to the extent that it can exchange 6W for more than 4C from the country B. country B gains to the extent that it can give up less than 12C for 6W from the country A. Thus, the range for mutually advantageous trade is 4C < 6W < 12C.

(ii) The credit multiplier is the reciprocal of the required reserve ratio.

$$\text{Credit Multiplier} = \frac{1}{\text{Required Reserve Ratio}}$$

For RRR = 0.05 Credit Multiplier = 1/ 0.05 = 20

For RRR = 0.08 Credit Multiplier = 1/ 0.08 = 12.5

Credit Creation = Initial Deposit x 1/RRR

For RRR = 0.05, Credit creation will be 3000x 1/0.05 = 60,000/

For RRR = 0.08, Credit creation will be 3000x 1/0.08 = 37,500/

(b) (i) The following are the significant limitations in respect of choice and implementation of fiscal policy.

1. 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 such as recognition lag, decision lag, implementation lag and impact lag
2. Fiscal policy changes may at times be badly timed due to the various lags so that it is highly possible that an expansionary policy is initiated when the economy is already on a path of recovery and vice versa.
3. There are difficulties in instantaneously changing governments' spending and taxation policies.
4. It is practically difficult to reduce government spending on various items such as defence and social security as well as on huge capital projects which are already midway.
5. Public works cannot be adjusted easily along with movements of the trade cycle because many huge projects such as highways and dams have long gestation period. Besides, some urgent public projects cannot be postponed for reasons of expenditure cut to correct fluctuations caused by business cycles.

6. Due to uncertainties, there are difficulties of forecasting when a period of inflation or deflation may set in and also promptly determining the accurate policy to be undertaken.
7. There are possible conflicts between different objectives of fiscal policy such that a policy designed to achieve one goal may adversely affect another. For example, an expansionary fiscal policy may worsen inflation in an economy
8. Supply-side economists are of the opinion that certain fiscal measures will cause disincentives. For example, increase in profits tax may adversely affect the incentives of firms to invest and an increase in social security benefits may adversely affect incentives to work and save.
9. Deficit financing increases the purchasing power people. The production of goods and services, especially in under developed countries may not catch up simultaneously to meet the increased demand. This will result in prices spiraling beyond control.
10. Increase is government borrowing creates perpetual burden on even future generations as debts have to be repaid. If the economy lags behind in productive utilization of borrowed money, sufficient surpluses will not be generated for servicing debts. External debt burden has been a constant problem for India and many developing countries.
11. 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.
12. If governments compete with the private sector to borrow money for spending, it is likely that interest rates will go up, and firms' willingness to invest may be reduced. Individuals too may be reluctant to borrow and spend and the desired increase in aggregate demand may not be realized.

(ii) There are many conceptual difficulties related to measurement which are difficult to resolve. A few examples are:

(a) lack of an agreed definition of national income,

(b) accurate distinction between final goods and intermediate goods,

(c) issue of transfer payments,

(d) services of durable goods,

(e) difficulty of incorporating distribution of income

(f) valuation of a new good at constant prices, and

(g) valuation of government services

(h) valuation of services rendered without remuneration

Question 10

(a) (i) How does international trade Increase economic efficiency? Explain.

(ii) What is meant by expansionary fiscal policy? Under what circumstances do government pursue expansionary policy? ***(3 Marks)***

(b) (i) "Money has four functions: a medium, a measure, a standard and a store." Elucidate. ***(2 Marks)***

(ii) When investment in an economy increases from ₹ 10,000 crores to ₹ 14,000 crores and as a result of this national income rises from ₹ 80,000 crores to ₹ 92,000 crores, compute investment multiplier. ***(2 Marks)***

Answer

(a) (i) International trade is a powerful stimulus to economic efficiency and contributes to economic growth and rising incomes.

(i) The wider market made possible owing to trade induces companies to reap the quantitative and qualitative benefits of extended division of labour. As a result, they would enlarge their manufacturing capabilities and benefit from economies of large scale production.

(ii) The gains from international trade are reinforced by the increased competition that domestic producers are confronted with on account of internationalization of production and marketing requiring businesses to invariably compete against global businesses. Competition from foreign goods compels manufacturers, especially in developing countries, to enhance competitiveness and profitability by adoption of cost reducing technology and business practices. Efficient deployment of productive resources to their best uses is a direct economic advantage of foreign trade. Greater efficiency in the use of natural, human, industrial and financial resources ensures productivity gains. Since international trade also tends to decrease the likelihood of domestic monopolies, it is always beneficial to the community.

(iii) Trade provides access to new markets and new materials and enables sourcing of inputs and components internationally at competitive prices. Also, international trade enables consumers to have access to wider variety of goods and services that would not otherwise be available. It also enables nations to acquire foreign exchange reserves necessary for imports which are crucial for sustaining their economies.

(iv) International trade enhances the extent of market and augments the scope for mechanization and specialisation.

(v) Exports stimulate economic growth by creating jobs, reducing poverty and augmenting factor incomes and in so doing raising standards of livelihood and overall demand for goods and services.

(vi) Employment generating investments, including foreign direct investment, inevitably follow trade.

(vii) Opening up of new markets results in broadening of productive base and facilitates export diversification.

(viii) Trade also contributes to human resource development, facilitates fundamental and applied research and exchange of know-how and best practices between trade partners.

(ix) Trade strengthens bonds between nations by bringing citizens of different countries together in mutually beneficial exchanges and thus promotes harmony and cooperation among nations.

(ii) An expansionary fiscal policy is designed to stimulate the economy during the contractionary phase of a business cycle or when there is an anticipation of a business cycle contraction. This is accomplished by increasing aggregate expenditure and aggregate demand through an increase in all types of government spending and / or a decrease in taxes.

The objectives of expansionary fiscal policy are reduction in cyclical unemployment, increase in consumer demand and prevention of recession and possible depression. In other words, it aims to close a 'recessionary gap' or a contractionary gap wherein the aggregate demand is not sufficient to create conditions of full employment. This is accomplished by increasing aggregate expenditure and aggregate demand through an increase in all types of government spending and / or a decrease in taxes. Government uses subsidies, transfer payments, welfare programmes, corporate and personal income tax cuts and increased spending on public works such as on infrastructure development to put more money into consumers' hands to give them more purchasing power.

(b) (i) Money performs many important functions in an economy.

(i) Money is a convenient medium of exchange or it is an instrument that facilitates easy exchange of goods and services. Money, though not having any inherent power to directly satisfy human wants, by acting as a medium of exchange, it commands purchasing power and its possession enables us to purchase goods and services to satisfy our wants. By acting as an intermediary, money increases the ease of trade and reduces the inefficiency and transaction costs involved in a barter exchange. By decomposing the single barter transaction into two separate transactions of sale and purchase, money eliminates the need for double coincidence of wants. Money also

facilitates separation of transactions both in time and place and this in turn enables us to economize on time and efforts involved in transactions.

(ii) Money is a 'common measure of value'. The monetary unit is the unit of measurement in terms of which the value of all goods and services is measured and expressed. It is convenient to trade all commodities in exchange for a single commodity. So also, it is convenient to measure the prices of all commodities in terms of a single unit, rather than record the relative price of every good in terms of every other good. A common unit of account facilitates a system of orderly pricing which is crucial for rational economic choices. Goods and services which are otherwise not comparable are made comparable through expressing the worth of each in terms of money.

(iii) Money serves as a unit or standard of deferred payment i.e money facilitates recording of deferred promises to pay. Money is the unit in terms of which future payments are contracted or stated. However, variations in the purchasing power of money due to inflation or deflation, reduces the efficacy of money in this function.

(iv) Like nearly all other assets, money is a store of value. People prefer to hold it as an asset, that is, as part of their stock of wealth. The splitting of purchases and sale into two transactions involves a separation in both time and space. This separation is possible because money can be used as a store of value or store of means of payment during the intervening time. Again, rather than spending one's money at present, one can store it for use at some future time. Thus, money functions as a temporary abode of purchasing power in order to efficiently perform its medium of exchange function. Money also functions as a permanent store of value. Money is the only asset which has perfect liquidity.

(b) (ii) Investment Multiplier K = $\Delta Y/\Delta I$

= 12,000/ 4,000 = 3

Question 11

(a) (i) Describe the determinants of demand for money as identified by Milton Friedman in his re-statement of Quantity Theory of demand for money. ***(3 Marks)***

(ii) What is meant by 'Mixed tariffs'? ***(2 Marks)***

(b) (i) Using suitable diagram, explain, how the nominal exchange rate between two countries is determined'? ***(3 Marks)***

(ii) What is meant by quasi public goods? ***(2 Marks)***

OR

Distinguish between Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI). ***(2 Marks)***

Answer

(a) (i) According to Milton Friedman, Demand for money is affected by the same factors as demand for any other asset, namely

1. Permanent income.
2. Relative returns on assets. (which incorporate risk)

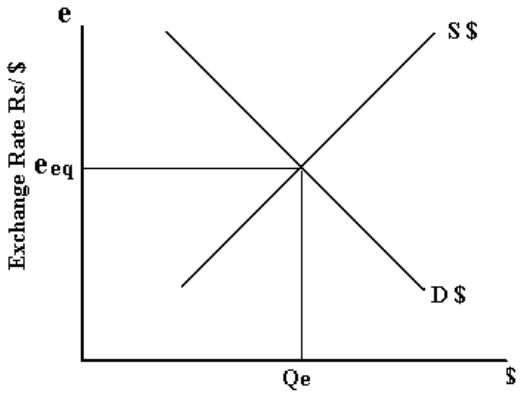
Friedman maintains that it is permanent income – and not current income as in the Keynesian theory – that determines the demand for money. Permanent income which is Friedman's measure of wealth is the present expected value of all future income. To Friedman, money is a good as any other durable consumption good and its demand is a function of a great number of factors.

Friedman identified the following four determinants of the demand for money. The nominal demand for money:

- is a function of total wealth, which is represented by permanent income divided by the discount rate, defined as the average return on the five asset classes in the monetarist theory world, namely money, bonds, equity, physical capital and human capital.
- is positively related to the price level, P. If the price level rises the demand for money increases and vice versa.
- rises, if the opportunity costs of money holdings (i.e. returns on bonds and stock) decline and vice versa.
- is influenced by inflation, a positive inflation rate reduces the real value of money balances, thereby increasing the opportunity costs of money holdings.

(ii) Mixed tariffs are expressed either on the basis of the value of the imported goods (an ad valorem rate) or on the basis of a unit of measure of the imported goods (a specific duty) depending on which generates the most income (or least income at times) for the nation. For example, duty on cotton: 5 per cent ad valorem 0r ₹ 3000/ per tonne, whichever is higher.

(b) (i) Under a floating exchange rate system, the supply of and demand for foreign exchange in the domestic foreign exchange market determine the external value of the domestic currency, or in other words, a country's nominal exchange rate. Similar to any standard market, the exchange market also faces a downward-sloping demand curve and an upward-sloping supply curve.



Determination of Nominal Exchange Rate

The equilibrium rate of exchange is determined by the interaction of the supply and demand for a particular foreign currency. In the figure above, the demand curve (D$) and supply curve (S$) of dollars intersect to determine equilibrium exchange rate e_{eq} with Qe as the equilibrium quantity of dollars exchanged.

(ii) A quasi-public good or near-public good has many but not all the characteristics of a public good. These are goods which have an element of non-excludability and non-rivalry.

Quasi public goods are:

(i) Not completely non rival. For example, public roads wi-fi networks and public parks do not get congested so as to reduce the space available for others when extra consumers use them only up to an optimal point. When more people use it beyond that, the amount others can benefit from these is reduced to some extent, because there will be increased congestion.

(ii) It is easy to keep people away from quasi public goods by charging a price or fee. For example, it is possible to exclude some users by building toll booths to charge for road usage on congested routes. Other examples are education, and health services. It is easy to keep people away from them by charging a price or fee. However, it is undesirable to keep people away from such goods because the society would be better off if more people consume them. This particular characteristic namely, the combination of virtually infinite benefits and the ability to charge a price results in some quasi-public goods being sold through markets and others being provided by government.

OR

Foreign direct investment takes place when 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 what economists call 'financial capital' rather than 'real capital' and does not involve ownership or control on the part of the investor.

Foreign direct investment (FDI) VS Foreign portfolio investment (FPI)

Foreign direct investment (FDI)	Foreign portfolio investment (FPI)
Investment involves creation of physical assets	Investment is only in financial assets
Has a long term interest and therefore remain invested for long	Only short term interest and generally remain invested for short periods
Relatively difficult to withdraw	Relatively easy to withdraw
Not inclined to be speculative	Speculative in nature
Often accompanied by technology transfer	Not accompanied by technology transfer
Direct impact on employment of labour and wages.	No direct impact on employment of labour and wages
Enduring interest in management and control	No abiding interest in management and control
Securities are held with significant degree of influence by the investor on the management of the enterprise	Securities are held purely as a financial investment and no significant degree of influence on the management of the enterprise