PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

SECTION A: FINANCIAL MANAGEMENT
QUESTIONS

Ratio Analysis

1. MT Limited has the following Balance Sheet as on March 31, 2019 and March 31, 2020:

Balance Sheet

	₹ in lakhs	
	March 31, 2019	**March 31, 2020**
Sources of Funds:		
Shareholders' Funds	2,500	2,500
Loan Funds	3,500	3,000
	6,000	5,500
Applications of Funds:		
Fixed Assets	3,500	3,000
Cash and bank	450	400
Receivables	1,400	1,100
Inventories	2,500	2,000
Other Current Assets	1,500	1,000
Less: Current Liabilities	(1,850)	(2,000)
	6,000	5,500

The Income Statement of the MT Ltd. for the year ended is as follows:

	₹ in lakhs	
	March 31, 2019	**March 31, 2020**
Sales	22,500	23,800
Less: Cost of Goods sold	(20,860)	(21,100)
Gross Profit	1,640	2,700
Less: Selling, General and Administrative expenses	(1,100)	(1,750)
Earnings before Interest and Tax (EBIT)	540	950
Less: Interest Expense	(350)	(300)
Earnings before Tax (EBT)	190	650
Less: Tax	(57)	(195)
Profits after Tax (PAT)	133	455

Required:

CALCULATE for the year 2019-20-

(a) Inventory turnover ratio

(b) Financial Leverage

(c) Return on Capital Employed (ROCE)

(d) Return on Equity (ROE)

(e) Average Collection period.

[Take 1 year = 365 days]

Cost of Capital

2. PK Ltd. has the following book-value capital structure as on March 31, 2020.

	(₹)
Equity share capital (10,00,000 shares)	2,00,00,000
11.5% Preference shares	60,00,000
10% Debentures	1,00,00,000
	3,60,00,000

The equity shares of the company are sold for ₹ 200. It is expected that the company will pay next year a dividend of ₹ 10 per equity share, which is expected to grow by 5% p.a. forever. Assume a 35% corporate tax rate.

Required:

(i) COMPUTE weighted average cost of capital (WACC) of the company based on the existing capital structure.

(ii) COMPUTE the new WACC, if the company raises an additional ₹50 lakhs debt by issuing 12% debentures. This would result in increasing the expected equity dividend to ₹12.40 and leave the growth rate unchanged, but the price of equity share will fall to ₹ 160 per share.

Capital Structure Decisions

3. CALCULATE the level of earnings before interest and tax (EBIT) at which the EPS indifference point between the following financing alternatives will occur.

(i) Equity share capital of ₹60,00,000 and 12% debentures of ₹40,00,000.

Or

(ii) Equity share capital of ₹40,00,000, 14% preference share capital of ₹20,00,000 and 12% debentures of ₹40,00,000.

Assume the corporate tax rate is 35% and par value of equity share is ₹100 in each case.

Leverage

4. The following information is related to YZ Company Ltd. for the year ended 31st March, 2020:

Equity share capital (of ₹ 10 each)	₹ 50 lakhs
12% Bonds of ₹ 1,000 each	₹ 37 lakhs
Sales	₹ 84 lakhs
Fixed cost (excluding interest)	₹ 6.96 lakhs
Financial leverage	1.49
Profit-volume Ratio	27.55%
Income Tax Applicable	40%

You are required to CALCULATE:

(i) Operating Leverage;

(ii) Combined leverage; and

(iii) Earnings per share.

Show calculations up-to two decimal points.

Capital Budgeting

5. A company is considering the proposal of taking up a new project which requires an investment of ₹800 lakhs on machinery and other assets. The project is expected to yield the following earnings (before depreciation and taxes) over the next five years:

Year	Earnings (₹ in lakhs)
1	320
2	320
3	360
4	360
5	300

The cost of raising the additional capital is 12% and assets have to be depreciated at 20% on written down value basis. The scrap value at the end of the five year period may be taken as zero. Income-tax applicable to the company is 40%.

You are required to CALCULATE the net present value of the project and advise the management to take appropriate decision. Also CALCULATE the Internal Rate of Return of the Project.

Note: Present values of Re. 1 at different rates of interest are as follows:

Year	10%	12%	14%	16%	20%
1	0.91	0.89	0.88	0.86	0.83
2	0.83	0.80	0.77	0.74	0.69
3	0.75	0.71	0.67	0.64	0.58
4	0.68	0.64	0.59	0.55	0.48
5	0.62	0.57	0.52	0.48	0.40

Management of Receivables (Debtors)

6. TM Limited, a manufacturer of colour TV sets is considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be sold to the customers in addition to other sales are as follows:

Quantity sold (No. of TV Sets)

Credit Period (Days)	A	B	C
0	10,000	10,000	-
30	10,000	15,000	-
60	10,000	20,000	10,000
90	10,000	25,000	15,000

The selling price per TV set is ₹15,000. The expected contribution is 50% of the selling price. The cost of carrying receivable averages 20% per annum.

You are required to COMPUTE the credit period to be allowed to each customer.

(Assume 360 days in a year for calculation purposes).

Risk Analysis in Capital Budgeting

7. G Ltd. using certainty-equivalent approach in the evaluation of risky proposals. The following information regarding a new project is as follows:

Year	Expected Cash flow	Certainty-equivalent quotient
0	(8,00,000)	1.0
1	6,40,000	0.8
2	5,60,000	0.7

3	5,20,000	0.6
4	4,80,000	0.4
5	3,20,000	0.3

Riskless rate of interest on the government securities is 6 per cent. DETERMINE whether the project should be accepted?

Dividend Decisions

8. Following information relating to Jee Ltd. is given:

Particulars	
Profit after tax	₹ 10,00,000
Dividend pay-out ratio	50%
Number of Equity Shares	50,000
Cost of Equity	10%
Rate of Return on Investment	12%

(i) CALCULATE market value per share as per Walter's Model?

(ii) What is the optimum dividend pay-out ratio according to Walter's Model and Market value of equity share at that pay-out ratio?

Management of working Capital

9. Day Ltd., a newly formed company has applied to the Private Bank for the first time for financing it's Working Capital Requirements. The following information is available about the projections for the current year:

Estimated Level of Activity	Completed Units of Production 31,200 plus unit of work in progress 12,000
Raw Material Cost	₹ 40 per unit
Direct Wages Cost	₹ 15 per unit
Overhead	₹ 40 per unit (inclusive of Depreciation ₹10 per unit)
Selling Price	₹ 130 per unit
Raw Material in Stock	Average 30 days consumption
Work in Progress Stock	Material 100% and Conversion Cost 50%
Finished Goods Stock	24,000 Units
Credit Allowed by the supplier	30 days
Credit Allowed to Purchasers	60 days

Direct Wages (Lag in payment)	15 days
Expected Cash Balance	₹ 2,00,000

Assume that production is carried on evenly throughout the year (360 days) and wages and overheads accrue similarly. All sales are on the credit basis. You are required to CALCULATE the Net Working Capital Requirement on Cash Cost Basis.

Miscellaneous

10. (i) "The profit maximization is not an operationally feasible criterion." IDENTIFY.

(ii) EXPLAIN the basics of debt securitisation process.

SUGGESTED HINTS/ANSWERS

1. Ratios for the year 2019-2020

(a) Inventory turnover ratio

$$= \frac{\text{COGS}}{\text{Average Inventory}} = \frac{₹\,21,100}{\frac{₹\,(2,500 + 2,000)}{2}} = 9.4$$

(b) Financial leverage

$$= \frac{\text{EBIT}}{\text{EBT}} = \frac{₹\,950}{₹\,650} = 1.46$$

(c) ROCE

$$= \frac{\text{EBIT}\,(1-t)}{\text{Average Capital Employed}} = \frac{₹\,950\,(1-0.3)}{₹\left(\frac{6,000 + 5,500}{2}\right)} = \frac{₹\,665}{₹\,5,750} \times 100 = 11.56\,\%$$

[Here Return on Capital Employed (ROCE) is calculated after Tax]

(d) ROE

$$= \frac{\text{Profits after tax}}{\text{Average shareholders' funds}} = \frac{₹\,455}{₹\,2,500} \times 100 = 18.2\%$$

(e) Average Collection Period

$$\text{Average Sales per day} = \frac{₹\,23,800}{365} = ₹\,65.20\,\text{lakhs}$$

$$\text{Average collection period} = \frac{\text{Average Receivables}}{\text{Average sales per day}}$$

$$= \frac{\frac{₹(1,400 + 1,100)}{2}}{₹\,65.2} = \frac{₹\,1,250}{₹\,65.2} = 19.17 \text{days}$$

2. (i) Computation of Weighted Average Cost of Capital based on existing capital structure

Source of Capital	Existing Capital structure (₹)	Weights (a)	After tax cost of capital (%) (b)	WACC (%) (a) × (b)
Equity share capital (W.N.1)	2,00,00,000	0.555	10.00	5.55
11.5% Preference share capital	60,00,000	0.167	11.50	1.92
10% Debentures (W.N.2)	1,00,00,000	0.278	6.50	1.81
	3,60,00,000	1.000		9.28

Working Notes (W.N.):

1. Cost of equity capital:

$$K_e = \frac{\text{Expected Dividend}(D_1)}{\text{Current Market Price per share}(P_0)} + \text{Growth}(g)$$

$$= \frac{₹10}{₹200} + 0.05 = 10\%$$

2. Cost of 10% Debentures:

$$= \frac{I(1-t)}{NP} = \frac{₹10,00,000(1-0.35)}{₹1,00,00,000} = 0.065 \text{ or } 6.5\%$$

(ii) Computation of Weighted Average Cost of Capital based on new capital structure

Source of Capital	New Capital structure (₹)	Weights (b)	After tax cost of capital (%) (a)	WACC (%) (a) × (b)
Equity share capital (W.N. 3)	2,00,00,000	0.488	12.75	6.10
Preference share	60,00,000	0.146	11.50	1.68

10% Debentures (W.N. 2)	1,00,00,000	0.244	6.50	1.59
12% Debentures (W.N.4)	50,00,000	0.122	7.80	0.95
	4,10,00,000	1.00		10.32

Working Notes (W.N.):

3. Cost of equity capital:

$$K_e = \frac{\text{Expected Dividend } (D_1)}{\text{Current Market Price per share } (P_0)} + \text{Growth } (g)$$

$$= \frac{₹12.4}{₹160} + 0.05 = 0.1275 \text{ or } 12.75\%$$

4. Cost of 12% Debentures

$$= \frac{₹6,00,000(1-0.35)}{₹50,00,000} = 0.078 \text{ or } 7.8\%$$

$$K_d = \frac{₹2,40,000(1-0.35)}{₹20,00,000} = 0.078 \text{ or } 7.8\%$$

3. Computation of level of earnings before interest and tax (EBIT)

In case, alternative (i) is accepted, then the EPS of the firm would be:

$$\text{EPS}_{\text{Alternative (i)}} = \frac{(\text{EBIT} - \text{Interest})\ (1 - \text{tax rate})}{\text{No. of equity shares}}$$

$$= \frac{(\text{EBIT} - 0.12 \times ₹40,00,000)\ (1-0.35)}{60,000 \text{ shares}}$$

In case, alternative (ii) is accepted, then the EPS of the firm would be:

$$\text{EPS}_{\text{Alternative (ii)}} = \frac{(\text{EBIT} - 0.12 \times ₹40,00,000)\ (1-0.35) - (0.14 \times ₹20,00,000)}{40,000 \text{ shares}}$$

In order to determine the indifference level of EBIT, the EPS under the two alternative plans should be equated as follows:

$$\frac{(\text{EBIT} - 0.12 \times ₹40,00,000)\ (1-0.35)}{60,000 \text{ shares}} = \frac{(\text{EBIT} - 0.12 \times ₹40,00,000)\ (1-0.35) - (0.14 \times ₹20,00,000)}{40,000 \text{ shares}}$$

$$\text{Or} \quad \frac{0.65\ \text{EBIT} - ₹3,12,000}{3} = \frac{0.65\ \text{EBIT} - ₹5,92,000}{2}$$

$$\text{Or} \quad 1.30\ \text{EBIT} - ₹6,24,000 = 1.95\ \text{EBIT} - ₹17,76,000$$

$$\text{Or} \quad (1.95 - 1.30)\ \text{EBIT} = ₹17,76,000 - ₹6,24,000 = ₹11,52,000$$

Or EBIT = $\frac{₹11,52,000}{0.65}$

Or EBIT = ₹17,72,308

4. Computation of Profits after Tax (PAT)

Particulars	Amount (₹)
Sales	84,00,000
Contribution (Sales × P/V ratio)	23,14,200
Less: Fixed cost (excluding Interest)	(6,96,000)
EBIT (Earnings before interest and tax)	16,18,200
Less: Interest on debentures (12% × ₹37 lakhs)	(4,44,000)
Less: Other fixed Interest (balancing figure)	(88,160)
EBT (Earnings before tax)	10,86,040*
Less: Tax @ 40%	4,34,416
PAT (Profit after tax)	6,51,624

(i) Operating Leverage:

$= \frac{\text{Contribution}}{\text{EBIT}} = \frac{₹23,14,200}{₹16,18,200} = 1.43$

(ii) Combined Leverage:

= Operating Leverage × Financial Leverage

= 1.43 × 1.49 = 2.13

Or,

$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBIT}} \times \frac{\text{EBIT}}{\text{EBT}}$

$\text{Combined Leverage} = \frac{\text{Contribution}}{\text{EBT}} = \frac{₹23,14,200}{₹10,86,040} = 2.13$

$^{*}\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{₹16,18,200}{\text{EBT}} = 1.49$

So, $\text{EBT} = \frac{₹16,18,200}{1.49} = ₹10,86,040$

Accordingly, other fixed interest

= ₹ 16,18,200 - ₹ 10,86,040 - ₹ 4,44,000 = ₹ 88,160

(iii) Earnings per share (EPS):

$$= \frac{\text{PAT}}{\text{No. of shares outstanding}} = \frac{₹\ 6,51,624}{5,00,000 \text{ equity shares}} = ₹\ 1.30$$

5. (i) Calculation of Net Cash Flow

(₹ in lakhs)

Year	Profit before dep. and tax	Depreciation (20% on WDV)	PBT	PAT	Net cash flow
(1)	(2)	(3)	(4)	(5)	(3) + (5)
1	320	800 × 20% = 160	160	96	256
2	320	(800 – 160)× 20% = 128	192	115.20	243.20
3	360	(640 – 128)× 20% = 102.4	257.6	154.56	256.96
4	360	(512 – 102.4)× 20% = 81.92	278.08	166.85	248.77
5	300	(409.6 – 81.92) = 327.68*	–27.68	–16.61	311.07

*this is treated as a short term capital loss.

(ii) Calculation of Net Present Value (NPV)

(₹ in lakhs)

Year	Net Cash Flow	12%		16%		20%	
		D.F	P.V	D.F	P.V	D.F	P.V
1	256	0.89	227.84	0.86	220.16	0.83	212.48
2	243.20	0.80	194.56	0.74	179.97	0.69	167.81
3	256.96	0.71	182.44	0.64	164.45	0.58	149.03
4	248.77	0.64	159.21	0.55	136.82	0.48	119.41
5	311.07	0.57	177.31	0.48	149.31	0.40	124.43
			941.36		850.71		773.16
	Less: Initial Investment		800.00		800.00		800.00
		NPV	141.36		50.71		-26.84

(iii) Advise: Since Net Present Value of the project at 12% = 141.36 lakhs, therefore the project should be implemented.

(iv) Calculation of Internal Rate of Return (IRR)

$$IRR = 16\% + \frac{50.71 \times 4}{50.71 - (-26.84)}$$

$$= 16\% + \frac{2.03}{77.55} = 16\% + 2.62\% = 18.62\%.$$

6. In case of customer A, there is no increase in sales even if the credit is given. Hence comparative statement for B & C is given below:

Particulars	Customer B				Customer C			
1. Credit period (days)	0	30	60	90	0	30	60	90
2. Sales Units	10,000	15,000	20,000	25,000	-	-	10,000	15,000
	₹ in lakh				₹in lakh			
3. Sales Value	1,500	2,250	3,000	3,750	-	-	1,500	2,250
4. Contribution at 50% (A)	750	1,125	1,500	1,875	-	-	750	1,125
5. Receivables:- $\frac{\text{Credit Period} \times \text{Sales}}{360}$	-	187.5	500	937.5	-	-	250	562.5
6. Debtors at cost	-	93.75	250	468.75	-	-	125	281.25
7. Cost of carrying debtors at 20% (B)	-	18.75	50	93.75	-	-	25	56.25
8. Excess of contributions over cost of carrying debtors (A – B)	750	1,106.25	1,406.25	1,781.25	-	-	725	1,068.75

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

7. Determination of Net Present Value (NPV)

Year	Expected Cash flow (₹)	Certainty-equivalent (CE)	Adjusted Cash flow (Cash flow × CE) (₹)	PV factor (at 0.06)	Total PV (₹)
0	(8,00,000)	1.0	(8,00,000)	1.000	(8,00,000)
1	6,40,000	0.8	5,12,000	0.943	4,82,816
2	5,60,000	0.7	3,92,000	0.890	3,48,880
3	5,20,000	0.6	3,12,000	0.840	2,62,080

4	4,80,000	0.4	1,92,000	0.792	1,52,064
5	3,20,000	0.3	96,000	0.747	71,712
	NPV = (13,17,552 – 8,00,000)				5,17,552

As the Net Present Value is positive the project should be accepted.

8. (i) Walter's model is given by –

$$P = \frac{D + (E - D)(r / K_e)}{K_e}$$

Where,

P = Market price per share,

E = Earnings per share = ₹ 10,00,000 ÷ 50,000 = ₹ 20

D = Dividend per share = 50% of 20 = ₹ 10

r = Return earned on investment = 12%

K_e = Cost of equity capital = 10%

$$\therefore P = \frac{10 + (20 - 10) \times \frac{0.12}{0.10}}{0.10} = \frac{22}{0.10} = ₹ 220$$

(ii) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is Nil. So, at a pay-out ratio of zero, the market value of the company's share will be:

$$\frac{0 + (20 - 0) \times \frac{0.12}{0.10}}{0.10} = \frac{24}{0.10} = ₹ 240$$

9. Calculation of Net Working Capital requirement:

	(₹)	(₹)
A. Current Assets:		
Inventories:		
Stock of Raw material (Refer to Working note (iii)	1,44,000	
Stock of Work in progress (Refer to Working note (ii)	7,50,000	
Stock of Finished goods (Refer to Working note (iv)	20,40,000	
Debtors for Sales(Refer to Working note (v)	1,02,000	
Cash	2,00,000	
Gross Working Capital	32,36,000	32,36,000

B. Current Liabilities:		
Creditors for Purchases (Refer to Working note (vi)	1,56,000	
Creditors for wages (Refer to Working note (vii)	23,250	
	1,79,250	1,79,250
Net Working Capital (A - B)		**30,56,750**

Working Notes:

(i) Annual cost of production

	(₹)
Raw material requirements {(31,200 × ₹ 40) + (12,000 x ₹ 40)}	17,28,000
Direct wages {(31,200 ×₹ 15) +(12,000 X ₹ 15 x 0.5)}	5,58,000
Overheads (exclusive of depreciation) {(31,200 × ₹ 30) + (12,000 x ₹ 30 x 0.5)}	11,16,000
Gross Factory Cost	34,02,000
Less: Closing W.I.P [12,000 (₹ 40 + ₹ 7.5 + ₹15)]	(7,50,000)
Cost of Goods Produced	26,52,000
Less: Closing Stock of Finished Goods (₹ 26,52,000 × 24,000/31,200)	(20,40,000)
Total Cash Cost of Sales*	6,12,000

[*Note: Alternatively, Total Cash Cost of Sales = (31,200 units – 24,000 units) x (₹ 40 + ₹ 15 + ₹ 30) = ₹ 6,12,000]

(ii) Work in progress stock

	(₹)
Raw material requirements (12,000 units × ₹40)	4,80,000
Direct wages (50% × 12,000 units × ₹ 15)	90,000
Overheads (50% × 12,000 units × ₹ 30)	1,80,000
	7,50,000

(iii) Raw material stock

It is given that raw material in stock is average 30 days consumption. Since, the company is newly formed; the raw material requirement for production and work in progress will be issued and consumed during the year. Hence, the raw material consumption for the year (360 days) is as follows:

	(₹)
For Finished goods (31,200 × ₹ 40)	12,48,000
For Work in progress (12,000 × ₹ 40)	4,80,000
	17,28,000

Raw material stock = $\frac{₹17,28,000}{360\,days} \times 30\,days = ₹1,44,000$

(iv) Finished goods stock:

24,000 units @ ₹ (40+15+30) per unit = ₹20,40,000

(v) Debtors for sale: $₹\,6,12,000 \times \frac{60\,days}{360\,days} = ₹\,1,02,000$

(vi) Creditors for raw material Purchases [Working Note (iii)]:

Annual Material Consumed (₹12,48,000 + ₹4,80,000)	₹17,28,000
Add: Closing stock of raw material [(₹17,28,000 x 30 days) / 360 days]	₹ 1,44,000
	₹18,72,000

Credit allowed by suppliers = $\frac{₹18,72,000}{360\,days} \times 30\,days = ₹\,1,56,000$

(vii) Creditors for wages:

Outstanding wage payment = [(31,200 units x ₹ 15) + (12,000 units x ₹ 15 x .50)] x 15 days / 360 days

$= \frac{₹\,5,58,000}{360\,days} \times 15\,days = ₹\,23,250$

10. (i) The profit maximisation is not an operationally feasible criterion." This statement is true because profit maximisation can be a short-term objective for any organisation and cannot be its sole objective. Profit maximization fails to serve as an operational criterion for maximizing the owner's economic welfare. It fails to provide an operationally feasible measure for ranking alternative courses of action in terms of their economic efficiency. It suffers from the following limitations:

(a) Vague term: The definition of the term profit is ambiguous. Does it mean short term or long term profit? Does it refer to profit before or after tax? Total profit or profit per share?

(b) Timing of Return: The profit maximization objective does not make distinction between returns received in different time periods. It gives no consideration to the time value of money, and values benefits received today and benefits received after a period as the same.

(c) It ignores the risk factor.

(d) The term maximization is also vague.

(ii) Process of Debt Securitisation:

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

(b) *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.

(c) *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.

SECTION: B: ECONOMICS FOR FINANCE

QUESTIONS

1. (a) Calculate the Operating Surplus with the help of following data-

Particulars	₹ (In Crore)
Sales	4,000
Compensation to employees	800
Intermediate consumption	600
Rent	400
Interest	300
Net indirect taxes	500
Consumption of fixed capital	200
Mixed income	400

(b) Why do pensions and other security payments get excluded while calculating National Income?

2. (a) Suppose you are given following information-

Consumption function $C = 10 + 0.8Y_d$

Tax $T = 50$

Investment spending $I = 135$

Government Spending $G = 60$

Exports $X = 35$

Imports $M = 0.05\ Y$

Where Y and Y_d are income and personal disposable income respectively.

Find the equilibrium level of income and net exports.

(b) How are the following transactions treated in national income calculation? What is the rationale in each case?

i. Electricity sold to a steel plant.

ii. Electric power sold to a consumer household.

iii. A car manufacturer procuring parts and components from the market.

iv. A computer producer buys a robot produced in the same country and uses it in production of computers.

3. (a) Government's stabilization intervention may be through monetary policy as well as fiscal policy. How ?

   (b) How do government correct market failure resulting from demerits goods?

4. (a) Reflect on the externalities presents in each of the following. Also examine their market implications-

   i. A decision to stop smoking

   ii Switching from conventional farming to organic farming

   iii Started to drive a car and increased road congestion

   iv Water polluted by industries

   v Building Lighthouse

   (b) Suppose country X is passing through recession, what type of tax policy should be framed during this period?

5. How does the monetary policy influence the price level and the national income?

6. (a) Answer the following question using Keynesian framework of demand for money.

   An investment consultant suggests holding of cash instead of bonds. What could be the reason to encourage holding of money balances? Explain

   (b) Calculate liquidity aggregate L2 when the following information is given-

Particulars	₹ in crore
Term deposits with term lending institutions	750
Term borrowing by refinancing institutions	450
All deposits with post office savings banks	1320
Term deposits with refinancing institutions	590
Certificate of deposits issued by FIs	290
Public deposits of non-banking financial companies	450
NM3	2650
National saving certificates	240

7. (a) Explain how a tariff levied on an imported product affects both the country exporting a product and the country importing that product.

   (b) Why GATT lost its relevance by 1980?

8 Even if one nation is less efficient than the other nation in the production of all commodities, there is still scope for mutually beneficial trade. Explain in detail.

9. Many apprehensions have been raised in respect of the WTO and its ability to maintain and extend a system of liberal world trade. Comment.

10. (a) Explain the principle motivations of a country seeking FDI?

    (b) Explain the role of Liquidity Adjustment Facility (LAF).

SUGGESTED ANSWERS/ HINTS

1. (a) GVA_{MP} = Gross Value $Output_{MP}$ – Intermediate consumption

= (Sales + change in stock) – Intermediate consumption

= 4000-600 = 3400 crore

$GDP_{MP} = GVA_{MP}$ = 3400 crore

NDP_{MP} = GDP_{MP} – consumption of fixed capital

= 3400 – 200

= 3200 crore

NDP_{FC} = NDP_{MP} – NIT

= 3200 – 500

= 2700 crore

NDP_{FC} = Compensation of employees + Operating surplus + Mixed income

2700 = 800 + Operating Surplus + 400

Operating surplus = 1500 crore

(b) GDP measures what is produced or created over the current time period and excludes all non-production transactions. Only incomes earned by owners of primary factors of production for services rendered in production are included in national income. Transfer payments, both private and government, are made without goods or services being received in return. These payments do not correspond to return for contribution to production because they do not directly absorb resources or create output. Therefore, transfer incomes such as pensions and other social security payments are excluded from national income.

2. (a) Here,

$C = 10 + 0.8Y_d$

$= 10+0.8 (Y- 50)$

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

$= 10 + 0.8(Y- 50) + 135 + 60 + (35 – 0.05Y)$

$Y - 0.8Y + 0.05Y = 10 - 40 + 135 + 60 + 35$

$0.25Y = 200$

$Y = 800$

Net Exports = (X- M) = $35 - 0.05Y$

$35 - 0.05 \times 800 = -5$

Thus, Trade is in deficit.

(b) **i** Being an intermediate good, electricity sold to a steel plant will not be included in national income calculation. The underlying principle is that only finished goods and services which are directly sold to the consumer for final consumption would be included.

ii. Electric power sold to a consumer household would be included in the calculation of GDP since it is a final good consumed by the end user.

iii. The value of parts and components procured from the market by a car manufacturer will not be included in national income calculation because these are intermediate goods used in car production.

iv. The value of the robot bought by a computer producer for use in the production of computers would be included in national income calculation because the computer producer is the "final consumer" of the robot and the robot is not resold in the market after value addition.

3. **(a)** Government's stabilization intervention may be through monetary policy as well as through fiscal policy. Monetary policy has a singular objective of controlling the size of money supply and interest rate in the economy which in turn would affect consumption, investment and prices. On the other hand, Fiscal policy for stabilization purposes attempts to direct the actions of individuals and organizations by means of its expenditure and taxation decisions. On the expenditure side, Government can choose to spend in such a way that it stimulates other economic activities. For example, government expenditure on building infrastructure may initiate a series of productive activities. Production decisions, investments, savings etc can be influenced by its tax policies.

(b) Demerit goods are goods which impose significant negative externalities on the society as a whole and are believed to be socially undesirable. The production and consumption of demerit goods are likely to be more than optimal under free markets. The government should therefore intervene in the marketplace to discourage their production and consumption. The Governments correct market failure resulting from demerit goods in the following way-

- At the extreme, government may enforce complete ban on a demerit good. e.g. Intoxicating drugs. In such cases, the possession, trading or consumption of the

good is made illegal.

- Through persuasion which is mainly intended to be achieved by negative advertising campaigns which emphasize the dangers associated with consumption of demerit goods.
- Through legislations that prohibit the advertising or promotion of demerit goods in whatsoever manner.
- Strict regulations of the market for the good may be put in place so as to limit access to the good, especially by vulnerable groups such as children and adolescents.
- Regulatory controls in the form of spatial restrictions e.g. smoking in public places, sale of tobacco to be away from schools, and time restrictions under which sale at particular times during the day is banned.

4. **(a)** **(i)** A decision to stop smoking – positive consumption externalities – as it causes benefits to other people in society who have been suffering from passive smoking.

(ii) Switching from conventional farming to organic farming- positive production externalities -as it helps the environment as there are fewer chemicals in the environment.

(iii) Started to drive a car and increased road congestion– negative consumption externalities – as individual consume road space they reduce available road space and deny this space to others.

(iv) Water polluted by industries- negative production externalities –as it adds effluent which harms plants, animals and humans.

(v) Building Lighthouse – free rider problem- as all sailors will benefit from its illumination – even if they don't pay towards its upkeep.

(b) During recession the tax policy is framed to encourage private consumption and investment. A general reduction in income taxes leaves higher disposable incomes with people inducing higher consumption. Low corporate taxes increase the prospects of profits for business and promote further investment. The extent of tax reduction required depends on the size of the recessionary gap and the magnitude of the multiplier.

5. The process or channels through which the change of monetary aggregates affects the level of product and prices is known as 'monetary transmission mechanism'. There are mainly four different mechanisms through which monetary policy influences the price level and the national income. These are: (a) the interest rate channel, (b) the exchange rate channel, (c) the quantum channel (e.g., relating to money supply and credit), and (d) the asset price channel i.e. via equity and real estate prices.

Under the interest rate channel, changes in monetary policy are eventually reflected in the real long-term interest rates which influence aggregate demand by altering business investment and durable consumption decisions. This, in turn, gets reflected in aggregate output and prices.

The exchange rate channel works through expenditure switching between domestic and foreign goods. Appreciation of the domestic currency makes domestically produced goods more expensive compared to foreign-produced goods. This causes net exports to fall; correspondingly domestic output and employment also fall.

The Quantum channel operates by altering access of firms and households to bank credit. Most businesses and people mostly depend on bank for borrowing money. "An open market operation" that leads first to a contraction in the supply of bank reserves and then to a contraction in bank credit requires banks to cut back on their lending. This, in turn makes the firms that are especially dependent on banks loans to cut back on their investment spending. Thus, there is decline in the aggregate output and employment following a monetary contraction.

The asset price channel suggests that asset prices respond to monetary policy changes and consequently affect output, employment and inflation.

6. **(a)** The market value of bonds and the market rate of interest are inversely related. The investment consultant considers the current interest rate as low, compared to the 'normal or critical rate of interest', i.e., he expects the rate of interest to rise in future (fall in bond prices), and therefore it is advantageous to hold wealth in the form of liquid cash rather than bonds because:

(i) when interest is low, the loss suffered by way of interest income forgone is small,

(ii) one can avoid the capital losses that would result from the anticipated increase in interest rates, and

(iii) the return on money balances will be greater than the return on alternative assets

(iv) if the interest rate does increase in future, the bond prices will fall and the idle cash balances held can be used to buy bonds at lower price and can thereby make a capital-gain.

(b) L2 = L1 + Term deposits with term lending institutions + Term deposits with refinancing institutions + Term borrowing by refinancing institutions + Certificate of deposits issued by FIs

Where L1 = NM3 + All deposits with post office savings banks

= 2650 + 1320

= 3970 crore

Therefore L2 = 3970 + 750 +590 + 450 + 290

= 6050 crore

7. (a) A tariff levied on an imported product affects both the country exporting a product and the country importing that product. (i) Tariff barriers create obstacles to trade, decrease the volume of imports and exports and therefore of international trade. The prospect of market access of the exporting country is worsened when an importing country imposes a tariff. (ii) By making imported goods more expensive, tariffs discourage domestic consumers from consuming imported foreign goods. Domestic consumers suffer a loss in consumer surplus because they must now pay a higher price for the good and also because compared to free trade quantity, they now consume lesser quantity of the good. (iii) Tariffs encourage consumption and production of the domestically produced import substitutes and thus protect domestic industries. (iv)Producers in the importing country experience an increase in well-being as a result of imposition of tariff. The price increase of their product in the domestic market increases producer surplus in the industry. They can also charge higher prices than would be possible in the case of free trade because foreign competition has reduced. (v) The price increase also induces an increase in the output of the existing firms and possibly addition of new firms due to entry into the industry to take advantage of the new high profits and consequently an increase in employment in the industry. (vi)Tariffs create trade distortions by disregarding comparative advantage and prevent countries from enjoying gains from trade arising from comparative advantage. Thus, tariffs discourage efficient production in the rest of the world and encourage inefficient production in the home country. (vii) Tariffs increase government revenues of the importing country by the value of the total tariff it charges.

(b) The GATT lost its relevance by 1980s because-

(i) It was obsolete to the fast evolving contemporary complex world trade scenario characterized by emerging globalization.

(ii) International investments had expanded substantially.

(iii) Intellectual property rights and trade in services were not covered by GATT.

(iv) World merchandise trade increased by leaps and bounds and was beyond its scope.

(v) The ambiguities in the multilateral system could be heavily exploited.

(vi) Efforts at liberalizing agricultural trade were not successful.

(vii) There were inadequacies in institutional structure and dispute settlement system.

(viii) It was not a treaty and therefore terms of GATT were binding only insofar as they are not incoherent with a nation's domestic rules.

8. Yes, there is still scope for mutually beneficial trade. The first step is that nation should specialize in the production and export of the commodity in which its absolute disadvantage is smaller and import the commodity in which its absolute disadvantage is greater. This can be explained with the help of an example (Theory of Comparative Advantage).

9. The major issues are:

(i) The progress of multilateral negotiations on trade liberalization is very slow and the requirement of consensus among all members acts as a constraint and creates rigidity in the system. As a result, countries find regionalism a plausible alternative.

(ii) The complex network of regional agreements introduces uncertainties and murkiness in the global trade system.

(iii) While multilateral efforts have effectively reduced tariffs on industrial goods, the achievement in liberalizing trade in agriculture, textiles, and apparel, and in many other areas of international commerce has been negligible.

(iv) The latest negotiations, such as the Doha Development Round, have run into problems, and their definitive success is doubtful.

(v) Most countries, particularly developing countries are dissatisfied with the WTO because, in practice, most of the promises of the Uruguay Round agreement to expand global trade has not materialized.

(vi) The developing countries have raised a number of concerns and a few are presented here:

- The real expansion of trade in the three key areas of agriculture, textiles and services has been dismal.
- Protectionism and lack of willingness among developed countries to provide market access on a multilateral basis has driven many developing countries to seek regional alternatives.
- The developing countries have raised a number of issues in the Doha Agenda in respect of the difficulties that they face in implementing the present agreements.
- The North-South divide apparent in the WTO ministerial meets has fuelled the apprehension of developing countries about the prospect of trade expansion under the WTO regime.
- Developing countries complain that they face exceptionally high tariffs on selected products in many markets and this obstructs their vital exports.
- Another major issue concerns 'tariff escalation' where an importing country protects its processing or manufacturing industry by setting lower duties on imports of raw materials and components, and higher duties on finished products.

- There is also possible erosion of preferences i.e. the special tariff concessions granted by developed countries on imports from certain developing countries have become less meaningful because of the narrowing of differences between the normal and preferential rates.
- The least-developed countries find themselves disproportionately disadvantaged and vulnerable with regard to adjustments due to lack of human as well as physical capital, poor infrastructure, inadequate institutions, political instabilities etc.

10. (a) Motivations for a country seeking investments occurs when:

I. Producers have saturated sales in their home market

II. Firms want to ensure market growth and to find new buyers and larger markets with sizable population.

III. Technological developments and economies arising from large scale production necessitate greater ability of the market to support the expected demand on which the investment is based. The minimum size of market needed to support technological development in certain industries is sometimes larger than the largest national market.

IV. There are substantial barriers to exporting from the home country

V. Firms identify country-specific consumer preferences and favourable structure of markets elsewhere.

VI. Firms realize that their products are unique or superior and that there is scope for exploiting this opportunity by extending to other regions.

(b) RBI has introduced Liquidity Adjustment Facility (LAF) in 2000. The Liquidity Adjustment Facility(LAF) is a facility extended by the Reserve Bank of India to the scheduled commercial banks (excluding RRBs) and primary dealers to avail of liquidity in case of requirement (or park excess funds with the RBI in case of excess liquidity) on an overnight basis against the collateral of government securities including state government securities. 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).