PAPER – 8: FINANCIAL MANAGEMENT & ECONOMICS FOR FINANCE

PART A: FINANCIAL MANAGEMENT

QUESTIONS

Ratio Analysis

1. Following information has been provided from the books of M/s Laxmi & Co. for the year ending on 31st March, 2020:

Net Working Capital	₹ 4,80,000
Bank overdraft	₹ 80,000
Fixed Assets to Proprietary ratio	0.75
Reserves and Surplus	₹ 3,20,000
Current ratio	2.5
Liquid ratio (Quick Ratio)	1.5

You are required to PREPARE a summarised Balance Sheet as at 31st March, 2020.

Cost of Capital

2. CALCULATE the WACC using the following data by using:

(a) Book value weights

(b) Market value weights

The capital structure of the company is as under:

Particulars	(₹)
Debentures (₹ 100 per debenture)	5,00,000
Preference shares (₹ 100 per share)	5,00,000
Equity shares (₹ 10 per share)	10,00,000
	20,00,000

The market prices of these securities are:

Debentures	₹ 105 per debenture
Preference shares	₹ 110 per preference share
Equity shares	₹ 24 each.

Additional information:

(i) ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10-year maturity.

(ii) ₹ 100 per preference share redeemable at par, 5% coupon rate, 2% floatation cost and 10-year maturity.

(iii) Equity shares has ₹ 4 floatation cost and market price ₹ 24 per share.

The next year expected dividend is ₹ 1 with annual growth of 5%. The firm has practice of paying all earnings in the form of dividend.

Corporate tax rate is 30%. Use YTM method to calculate cost of debentures and preference shares.

Capital Structure

3. Xylo Ltd. is considering two alternative financing plans as follows:

Particulars	Plan – A (₹)	Plan – B (₹)
Equity shares of ₹ 10 each	8,00,000	8,00,000
Preference Shares of ₹ 100 each	-	4,00,000
12% Debentures	4,00,000	-
	12,00,000	12,00,000

The indifference point between the plans is ₹ 4,80,000. Corporate tax rate is 30%. CALCULATE the rate of dividend on preference shares.

Leverage

4. The capital structure of PS Ltd. for the year ended 31st March, 2020 consisted as follows:

Particulars	Amount in ₹
Equity share capital (face value ₹ 100 each)	10,00,000
10% debentures (₹ 100 each)	10,00,000

During the year 2019-20, sales decreased to 1,00,000 units as compared to 1,20,000 units in the previous year. However, the selling price stood at ₹ 12 per unit and variable cost at ₹ 8 per unit for both the years. The fixed expenses were at ₹ 2,00,000 p.a. and the income tax rate is 30%.

You are required to CALCULATE the following:

(a) The degree of financial leverage at 1,20,000 units and 1,00,000 units.

(b) The degree of operating leverage at 1,20,000 units and 1,00,000 units.

(c) The percentage change in EPS.

Investment Decisions

5. A large profit making company is considering the installation of a machine to process the waste produced by one of its existing manufacturing process to be converted into a marketable product. At present, the waste is removed by a contractor for disposal on payment by the company of ₹ 150 lakh per annum for the next four years. The contract can be terminated upon installation of the aforesaid machine on payment of a compensation of ₹ 90 lakh before the processing operation starts. This compensation is not allowed as deduction for tax purposes.

   The machine required for carrying out the processing will cost ₹ 600 lakh to be financed by a loan repayable in 4 equal instalments commencing from end of the year 1. The interest rate is 14% per annum. At the end of the 4th year, the machine can be sold for ₹ 60 lakh and the cost of dismantling and removal will be ₹ 45 lakh.

   Sales and direct costs of the product emerging from waste processing for 4 years are estimated as under:

   (₹ In lakh)

Year	1	2	3	4
Sales	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	225	225	255	300
Other expenses	120	135	162	210
Factory overheads	165	180	330	435
Depreciation (as per income tax rules)	150	114	84	63

   Initial stock of materials required before commencement of the processing operations is ₹ 60 lakh at the start of year 1. The stock levels of materials to be maintained at the end of year 1, 2 and 3 will be ₹ 165 lakh and the stocks at the end of year 4 will be nil. The storage of materials will utilise space which would otherwise have been rented out for ₹ 30 lakh per annum. Labour costs include wages of 40 workers, whose transfer to this process will reduce idle time payments of ₹ 45 lakh in the year - 1 and ₹ 30 lakh in the year - 2. Factory overheads include apportionment of general factory overheads except to the extent of insurance charges of ₹ 90 lakh per annum payable on this venture. The company's tax rate is 30%.

   Present value factors for four years are as under:

Year	1	2	3	4
PV factors @14%	0.877	0.769	0.674	0.592

   ADVISE the management on the desirability of installing the machine for processing the waste. All calculations should form part of the answer.

Management of Receivables (Debtors)

6. A company wants to follow a more prudent policy to improve its sales for the region which is ₹ 9 lakhs per annum at present, having an average collection period of 45 days. After certain researches, the management consultant of the company reveals the following information:

Credit Policy	Increase in collection period	Increase in sales	Present default anticipated
W	15 days	₹ 60,000	1.5%
X	30 days	₹ 90,000	2%
Y	45 days	₹ 1,50,000	3%
Z	70 days	₹ 2,10,000	4%

The selling price per unit is ₹ 3. Average cost per unit is ₹ 2.25 and variable costs per unit are ₹ 2. The current bad debt loss is 1%. Required return on additional investment is 20%. (Assume 360 days year)

ANALYSE which of the above policies would you recommend for adoption?

Risk Analysis in Capital Budgeting

7. A&R Ltd. is considering one of two mutually exclusive proposals, Projects- X and Y, which require cash outlays of ₹ 42,50,000 and ₹ 41,25,000 respectively. The certainty-equivalent (C.E) approach is used in incorporating risk in capital budgeting decisions. The current yield on government bonds is 5.5% and this is used as the risk-free rate. The expected net cash flows and their certainty equivalents are as follows:

Project X			Project Y	
Year-end	Cash Flow (₹)	C.E.	Cash Flow (₹)	C.E.
1	16,50,000	0.8	16,50,000	0.9
2	15,00,000	0.7	16,50,000	0.8
3	15,00,000	0.5	15,00,000	0.7
4	20,00,000	0.4	10,00,000	0.8
5	21,00,000	0.6	8,00,000	0.9

The Present value (PV) factor @ 5.5% is as follows:

Year	0	1	2	3	4	5
PV factor	1	0.947	0.898	0.851	0.807	0.765

Required:

DETERMINE the project that should be accepted?

Dividend Decisions

8. The following information is given for QB Ltd.

Earnings per share	₹ 120
Dividend per share	₹ 36
Cost of capital	15%
Internal Rate of Return on investment	20%

CALCULATE the market price per share using

(a) Gordon's formula

(b) Walter's formula

Management of working Capital

9. The following figures and ratios are related to a company:

(i)	Sales for the year (all credit)	₹ 90,00,000
(ii)	Gross Profit ratio	35 percent
(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	1.5:1
(vi)	Current ratio	2.5:1
(vii)	Receivables (Debtors) collection period	1 month
(viii)	Reserves and surplus to Share capital	1:1.5
(ix)	Capital gearing ratio	0.7875
(x)	Fixed assets to net worth	1.3 : 1

You are required to PREPARE:

(a) Balance Sheet of the company on the basis of above details.

(b) The statement showing working capital requirement, if the company wants to make a provision for contingencies @ 15 percent of net working capital.

Miscellaneous

10. (a) EXPLAIN agency problem and agency cost. How to address the issues of the same.

(b) COMPARE between Financial Lease and Operating Lease.

SUGGESTED HINTS/ANSWERS

1. Working notes:

(i) Current Assets and Current Liabilities computation:

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{2.5}{1}$$

Or Current assets	=	2.5 Current liabilities
Now, Working capital	=	Current assets – Current liabilities
Or ₹ 4,80,000	=	2.5 Current liability – Current liability
Or 1.5 Current liability	=	₹ 4,80,000
∴ Current Liabilities	=	₹ 3,20,000
So, Current Assets	=	₹ 3,20,000 × 2.5 = ₹ 8,00,000

(ii) Computation of stock

Liquid ratio	=	$\frac{\text{Liquid assets}}{\text{Current liabilities}}$
Or 1.5	=	$\frac{\text{Current assets - Inventories}}{₹\ 3,20,000}$
Or 1.5 × ₹ 3, 20,000	=	₹ 8,00,000 – Inventories
Or Inventories	=	₹ 8,00,000 – ₹ 4, 80,000
Or Stock	=	₹ 3,20,000

(iii) Computation of Proprietary fund; Fixed assets; Capital and Sundry creditors

Fixed Asset to Proprietary ratio	=	$\frac{\text{Fixed assets}}{\text{Proprietary fund}} = 0.75$
∴ Fixed Assets	=	0.75 Proprietary fund (PF)[FA+NWC = PF]
or NWC	=	PF- FA [(i.e. .75 PF)]
and Net Working Capital (NWC)	=	0.25 Proprietary fund
Or ₹ 4,80,000/0.25	=	Proprietary fund
Or Proprietary fund	=	₹ 19,20,000
and Fixed Assets	=	0.75 proprietary fund
	=	0.75 × ₹ 19,20,000 = ₹ 14,40,000

Capital = Proprietary fund – Reserves & Surplus

= ₹ 19,20,000 – ₹ 3,20,000 = ₹ 16,00,000

Sundry Creditors = (Current liabilities – Bank overdraft)

= (₹ 3,20,000 – ₹ 80,000) = ₹ 2,40,000

Balance Sheet as at 31st March, 2020

Liabilities	₹	Assets	₹
Capital	16,00,000	Fixed Assets	14,40,000
Reserves & Surplus	3,20,000	Stock	3,20,000
Bank overdraft	80,000	Other Current Assets	4,80,000
Sundry creditors	2,40,000		
	22,40,000		22,40,000

2. (i) Cost of Equity (K_e)

$$= \frac{D1}{P0-F} + g = \frac{₹\,1}{₹\,24 - ₹\,4} + 0.05 = 0.1 \text{ or } 10\%$$

(ii) Cost of Debt (K_d)

Current market price (P_0) – floatation cost = I(1-t) × PVAF(r,10) + RV × PVIF(r,10)

₹ 105 – 4% of ₹ 105 = ₹ 10 (1-0.3) × PVAF (r,10) + ₹ 100 × PVIF (r,10)

Calculation of NPV at discount rate of 5% and 7%

Year	Cash flows (₹)	Discount factor @ 5%	Present Value	Discount factor @ 7%	Present Value (₹)
0	100.8	1.000	(100.8)	1.000	(100.8)
1 to 10	7	7.722	54.05	7.024	49.17
10	100	0.614	61.40	0.508	50.80
NPV			+14.65		-0.83

Calculation of IRR

$$\text{IRR} = 5\% + \frac{14.65}{14.65-(-0.83)}(7\%-5\%) = 5\% + \frac{14.65}{15.48}(7\%-5\%) = 6.89\%$$

Cost of Debt (K_d) = 6.89%

(iii) Cost of Preference shares (K_p)

Current market price (P_0) – floatation cost = PD × PVAF(r,10) + RV × PVIF(r,10)

₹ 110 – 2% of ₹ 110 = ₹ 5 × PVAF (r,10) + ₹ 100 × PVIF (r,10)

Calculation of NPV at discount rate of 3% and 5%

Year	Cash flows (₹)	Discount factor @ 3%	Present Value	Discount factor @ 5%	Present Value (₹)
0	107.8	1.000	(107.8)	1.000	(107.8)
1 to 10	5	8.530	42.65	7.722	38.61
10	100	0.744	74.40	0.614	61.40
NPV			+9.25		-7.79

Calculation of IRR

$$IRR = 3\% + \frac{9.25}{9.25-(-7.79)}(5\%-3\%) = 3\% + \frac{9.25}{17.04}(5\%-3\%) = 4.08\%$$

Cost of Preference Shares (K_p) = 4.08%

(a) Calculation of WACC using book value weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC (K_o)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures	5,00,000	0.25	0.0689	0.01723
5% Preference shares	5,00,000	0.25	0.0408	0.0102
Equity shares	10,00,000	0.50	0.10	0.05000
	20,00,000	1.00		0.07743

WACC (K_o) = 0.07743 or 7.74%

(b) Calculation of WACC using market value weights

Source of capital	Market Value	Weights	After tax cost of capital	WACC (K_o)
	(₹)	(a)	(b)	(c) = (a)×(b)
10% Debentures (₹ 105× 5,000)	5,25,000	0.151	0.0689	0.0104
5% Preference shares	5,50,000	0.158	0.0408	0.0064

(₹ 110× 5,000)				
Equity shares (₹ 24× 1,00,000)	24,00,000	0.691	0.10	0.0691
	34,75,000	1.000		0.0859

WACC (K_o) = 0.0859 or 8.59%

3. Computation of Rate of Preference Dividend

$$\frac{(\text{EBIT}-\text{Interest})\ (1-t)}{\text{No.of Equity Shares } (N_1)} = \frac{\text{EBIT}\ (1-t)-\text{Preference Dividend}}{\text{No.of Equity Shares } (N_2)}$$

$$\frac{(₹\,4,80,000 - ₹\,48,000)\,x\,(1-0.30)}{80,00,000 \text{ shares}} = \frac{₹\,4,80,000(1-0.30) - \text{Preference Dividend}}{80,00,000 \text{ shares}}$$

$$\frac{(₹\,3,02,400}{80,00,000 \text{ shares}} = \frac{₹\,3,36,000 - \text{Preference Dividend}}{80,00,000 \text{ shares}}$$

₹ 3,02,400 = ₹ 3,36,000 – Preference Dividend

Preference Dividend = ₹ 3,36,000 – ₹ 3,02,400 = ₹ 33,600

$$\text{Rate of Dividend} = \frac{\text{Preference Dividend}}{\text{Preference share capital}} \times 100$$

$$= \frac{₹\,33,600}{4,00,000} \times 100 = 8.4\%$$

4.

Sales in units	**1,20,000 (₹)**	**1,00,000 (₹)**
Sales Value	14,40,000	12,00,000
Variable Cost	(9,60,000)	(8,00,000)
Contribution	4,80,000	4,00,000
Fixed expenses	(2,00,000)	(2,00,000)
EBIT	2,80,000	2,00,000
Debenture Interest	(1,00,000)	(1,00,000)
EBT	1,80,000	1,00,000
Tax @ 30%	(54,000)	(30,000)
Profit after tax (PAT)	1,26,000	70,000

(i) Financial Leverage= $\frac{EBIT}{EBT}$	$= \frac{₹\ 2,80,000}{₹\ 1,80,000} = 1.56$	$= \frac{₹\ 2,00,000}{₹\ 1,00,000} = 2$
(ii) Operating leverage = $\frac{Contribution}{EBIT}$	$\frac{₹\ 4,80,000}{₹\ 2,80,000} = 1.71$	$= \frac{₹\ 4,00,000}{₹\ 2,00,000} = 2$
(iii) Earnings per share (EPS)	$\frac{₹\ 1,26,000}{₹\ 10,000} = ₹\ 12.6$	$\frac{₹\ 70,000}{₹\ 10,000} = ₹\ 7$
Decrease in EPS	= ₹ 12.6 – ₹ 7 = ₹ 5.6	
% decrease in EPS	$= \frac{5.6}{12.6} X\ 100 = 44.44\%$	

5. Statement of Operating Profit from processing of waste ***(₹ in lakh)***

Year	1	2	3	4
Sales :(A)	966	966	1,254	1,254
Material consumption	90	120	255	255
Wages	180	195	255	300
Other expenses	120	135	162	210
Factory overheads (insurance only)	90	90	90	90
Loss of rent on storage space (opportunity cost)	30	30	30	30
Interest @14%	84	63	42	21
Depreciation (as per income tax rules)	150	114	84	63
Total cost: (B)	744	747	918	969
Profit (C)=(A)-(B)	222	219	336	285
Tax (30%)	66.6	65.7	100.8	85.5
Profit after Tax (PAT)	155.4	153.3	235.2	199.5

Statement of Incremental Cash Flows **(₹ in lakh)**

Year	0	1	2	3	4
Material stock	(60)	(105)	-	-	165
Compensation for contract	(90)	-	-	-	-
Contract payment saved	-	150	150	150	150
Tax on contract payment	-	(45)	(45)	(45)	(45)
Incremental profit	-	222	219	336	285
Depreciation added back	-	150	114	84	63
Tax on profits	-	(66.6)	(65.7)	(100.8)	(85.5)

Loan repayment	-	(150)	(150)	(150)	(150)
Profit on sale of machinery (net)	-	-	-	-	15
Total incremental cash flows	(150)	155.4	222.3	274.2	397.5
Present value factor	1.00	0.877	0.769	0.674	0.592
Present value of cash flows	(150)	136.28	170.95	184.81	235.32
Net present value					577.36

Advice: Since the net present value of cash flows is ₹ 577.36 lakh which is positive the management should install the machine for processing the waste.

Notes:

(i) Material stock increases are taken in cash flows.

(ii) Idle time wages have also been considered.

(iii) Apportioned factory overheads are not relevant only insurance charges of this project are relevant.

(iv) Interest calculated at 14% based on 4 equal instalments of loan repayment.

(v) Sale of machinery- Net income after deducting removal expenses taken. Tax on Capital gains ignored.

(vi) Saving in contract payment and income tax thereon considered in the cash flows.

6. A. Statement showing the Evaluation of Debtors Policies (Total Approach)

(Amount in ₹)

Particulars		Present Policy 45 days	Proposed Policy W 60 days	Proposed Policy X 75 days	Proposed Policy Y 90 days	Proposed Policy Z 115 days
I.	**Expected Profit:**					
	(a) Credit Sales	9,00,000	9,60,000	9,90,000	10,50,000	11,10,000
	(b) Total Cost other than Bad Debts					
	(i) Variable Costs [Sales × 2/ 3]	6,00,000	6,40,000	6,60,000	7,00,000	7,40,000
	(ii) Fixed Costs	75,000	75,000	75,000	75,000	75,000
		6,75,000	7,15,000	7,35,000	7,75,000	8,15,000
	(c) Bad Debts	9,000	14,400	19,800	31,500	44,400
	(d) Expected Profit [(a) – (b) – (c)]	2,16,000	2,30,600	2,35,200	2,43,500	2,50,600

II.	**Opportunity Cost of Investments in Receivables**	16,875	23,833	30,625	38,750	52,069
III.	**Net Benefits (I – II)**	1,99,125	2,06,767	2,04,575	2,04,750	1,98,531

Recommendation: The Proposed Policy W (i.e. increase in collection period by 15 days or total 60 days) should be adopted since the net benefits under this policy are higher as compared to other policies.

Working Notes:

(i) Calculation of Fixed Cost = [Average Cost per unit – Variable Cost per unit] × No. of Units sold

= [₹ 2.25 - ₹ 2.00] × (₹ 9,00,000/3)

= ₹ 0.25 × 3,00,000 = ₹ 75,000

(ii) Calculation of Opportunity Cost of Average Investments

Opportunity Cost = Total Cost × $\frac{\text{Collection period}}{360} \times \frac{\text{Rate of Return}}{100}$

Present Policy = 6,75,000 × $\frac{45}{360} \times \frac{20}{100}$ = 16,875

Policy W = 7,15,000 × $\frac{60}{360} \times \frac{20}{100}$ = 23,833

Policy X = 7,35,000 × $\frac{75}{360} \times \frac{20}{100}$ = 30,625

Policy Y = 7,75,000 × $\frac{90}{360} \times \frac{20}{100}$ = 38,750

Policy Z = 8,15,000 × $\frac{115}{360} \times \frac{20}{100}$ = 52,069

B. Another method of solving the problem is **Incremental Approach**. Here we assume that sales are all credit sales. ***(Amount in ₹)***

Particulars		Present Policy 45 days	Proposed Policy W 60 days	Proposed Policy X 75 days	Proposed Policy Y 90 days	Proposed Policy Z 115 days
I.	**Incremental Expected Profit:**					
	(a) Incremental Credit Sales	0	60,000	90,000	1,50,000	2,10,000
	(b) Incremental Costs					
	(i) Variable Costs	6,00,000	40,000	60,000	1,00,000	1,40,000
	(ii) Fixed Costs	75,000	-	-	-	-

	(c) Incremental Bad Debt Losses	9,000	5,400	10,800	22,500	35,400
	(d) Incremental Expected Profit (a – b –c)]		14,600	19,200	27,500	34,600
II.	**Required Return on Incremental Investments:**					
	(a) Cost of Credit Sales	6,75,000	7,15,000	7,35,000	7,75,000	8,15,000
	(b) Collection period	45	60	75	90	115
	(c) Investment in Receivable (a × b/360)	84,375	1,19,167	1,53,125	1,93,750	2,60,347
	(d) Incremental Investment in Receivables	-	34,792	68,750	1,09,375	1,75,972
	(e) Required Rate of Return (in %)		20	20	20	20
	(f) Required Return on Incremental Investments (d × e)	**-**	**6,958**	**13,750**	**21,875**	**35,194**
III.	**Net Benefits (I – II)**	**-**	7,642	5,450	5,625	(594)

Recommendation: The Proposed Policy W should be adopted since the net benefits under this policy are higher than those under other policies.

C. Another method of solving the problem is by computing the **Expected Rate of Return.**

$$\text{Expected Rate of Return} = \frac{\text{Incremental Expected Profit}}{\text{Incremental Investment in Receivables}} \times 100$$

$$\text{For Policy W} = \frac{₹\,14,600}{₹\,34,792} \times 100 = 41.96\%$$

$$\text{For Policy X} = \frac{₹\,19,200}{₹\,68,750} \times 100 = 27.93\%$$

$$\text{For Policy Y} = \frac{₹\,27,500}{₹\,1,09,375} \times 100 = 25.14\%$$

$$\text{For Policy Z} = \frac{₹\,34,600}{₹\,1,75,972} \times 100 = 19.66\%$$

Recommendation: The Proposed Policy W should be adopted since the Expected Rate of Return (41.96%) is more than the Required Rate of Return (20%) and is highest among the given policies compared.

7. Calculation of Net Present Value (NPV) of Project X

Year end	Cash Flow (₹) (a)	C.E. (b)	Adjusted Cash flow (₹) (c) = (a) × (b)	Present value factor at 6% (d)	Total Present value (₹) (e) = (c) × (d)
1	16,50,000	0.8	13,20,000	0.947	12,50,040
2	15,00,000	0.7	10,50,000	0.898	9,42,900
3	15,00,000	0.5	7,50,000	0.851	6,38,250
4	20,00,000	0.4	8,00,000	0.807	6,45,600
5	21,00,000	0.6	12,60,000	0.765	9,63,900
PV of total cash inflows					44,40,690
Less: Initial Investment					(42,50,000)
Net Present Value					**1,90,690**

Calculation of Net Present Value (NPV) of Project Y

Year end	Cash Flow (₹) (a)	C.E. (b)	Adjusted Cash flow (₹) (c) = (a) × (b)	Present value factor at 6% (d)	Total Present value (₹) (e) = (c) × (d)
1	16,50,000	0.9	14,85,000	0.947	14,06,295
2	16,50,000	0.8	13,20,000	0.898	11,85,360
3	15,00,000	0.7	10,50,000	0.851	8,93,550
4	10,00,000	0.8	8,00,000	0.807	6,45,600
5	8,00,000	0.9	7,20,000	0.765	5,50,800
PV of total cash inflows					46,81,605
Less: Initial Investment					(41,25,000)
Net Present Value					**5,56,605**

Project Y has NPV of ₹ 5,56,605/- which is higher than the NPV of Project X. Thus, A&R Ltd. should accept Project Y.

8. (a) As per **Gordon's Model**, Price per share is computed using the formula:

$$P_0 = \frac{E_1(1-b)}{K_e - br}$$

Where,

P_0 = Price per share

E_1 = Earnings per share

b = Retention ratio; (1 - b = Pay-out ratio)

K_e = Cost of capital

r = IRR

br = Growth rate (g)

Applying the above formula, price per share

$$P_0 = \frac{120(1-0.7)}{0.15-0.70\times 0.2} = \frac{36}{0.01} = ₹\ 3,600$$

(b) As per Walter's Model, Price per share is computed using the formula:

$$\text{Price } (\mathbf{P}) = \frac{\mathbf{D}+\frac{\mathbf{r}}{\mathbf{Ke}}(\mathbf{E}-\mathbf{D})}{\mathbf{K_e}}$$

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

Applying the above formula, price per share

$$P = \frac{36+\frac{0.20}{0.15}(120-36)}{0.15}$$

Or, $P = \frac{36+112}{0.15} = ₹\ 986.67$

9. Working Notes:

(i) Cost of Goods Sold = Sales – Gross Profit (35% of Sales)

= ₹ 90,00,000 – ₹ 31,50,000

= ₹ 58,50,000

(ii) Closing Stock = Cost of Goods Sold / Stock Turnover

= ₹ 58,50,000/6 = ₹ 9,75,000

(iii) Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover

= ₹ 58,50,000/1.5

= ₹ 39,00,000

(iv) Current Assets:

Current Ratio = 2.5 and Liquid Ratio = 1.5

Inventories (Stock) = 2.5 – 1.5 = 1

Current Assets = Amount of Inventories (Stock) × 2.5/1

= ₹ 9,75,000 × 2.5/1 = ₹ 24,37,500

(v) Liquid Assets (Receivables and Cash)

= Current Assets – Inventories (Stock)

= ₹ 24,37,500 – ₹ 9,75,000

= ₹14,62,500

(vi) Receivables (Debtors) = Sales × Debtors Collection period /12

= ₹ 90,00,000 × 1/12

= ₹ 7,50,000

(vii) Cash = Liquid Assets – Receivables (Debtors)

= ₹14,62,500 – ₹ 7,50,000 = ₹ 7,12,500

(viii) Net worth = Fixed Assets /1.3

= ₹ 39,00,000/1.3 = ₹ 30,00,000

(ix) Reserves and Surplus

Reserves and Share Capital = Net worth

Net worth = 1 + 1.5 = 2.5

Reserves and Surplus = ₹ 30,00,000 × 1/1.5

= ₹ 20,00,000

(x) Share Capital = Net worth – Reserves and Surplus

= ₹ 30,00,000 – ₹ 20,00,000

= ₹ 10,00,000

(xi) Current Liabilities = Current Assets/ Current Ratio

= ₹ 24,37,500/2.5 = ₹ 9,75,000

(xii) Long-term Debts

Capital Gearing Ratio = Long-term Debts / Equity Shareholders' Fund

Long-term Debts = ₹30,00,000 × 0.7875 = ₹23,62,500

(a) Balance Sheet of the Company

Particulars	Figures as at 31-03-2020 (₹)	Figures as at 31-03-2019 (₹)
I. EQUITY AND LIABILITIES		
Shareholders' funds		
(a) Share capital	10,00,000	-
(b) Reserves and surplus	20,00,000	-
Non-current liabilities		
(a) Long-term borrowings	23,62,500	-
Current liabilities	9,75,000	-
TOTAL	**63,37,500**	**-**
II. ASSETS		
Non-current assets		
Fixed assets	39,00,000	-
Current assets		
Inventories	9,75,000	-
Trade receivables	7,50,000	-
Cash and cash equivalents	7,12,500	-
TOTAL	**63,37,500**	**-**

(b) Statement Showing Working Capital Requirement

Particulars	(₹)	(₹)
A. Current Assets		
(i) Inventories (Stocks)		9,75,000
(ii) Receivables (Debtors)		7,50,000
(iii) Cash in hand & at bank		7,12,500
Total Current Assets		24,37,500

B. Current Liabilities:		
Total Current Liabilities		9,75,000
Net Working Capital (A – B)		14,62,500
Add: Provision for contingencies (15% of Net Working Capital)		2,19,375
Working capital requirement		16,81,875

10. (a) Though in a sole proprietorship firm, partnership etc., owners participate in management but in corporates, owners are not active in management so, there is a separation between owner/ shareholders and managers. In theory managers should act in the best interest of shareholders, however, in reality, managers may try to maximise their individual goal like salary, perks etc., so there is a **principal agent relationship between managers and owners, which is known as Agency Problem**. In a nutshell, Agency Problem is the chances that managers may place personal goals ahead of the goal of owners. Agency Problem leads to Agency Cost. Agency cost is the additional cost borne by the shareholders to monitor the manager and control their behaviour so as to maximise shareholders wealth. Generally, Agency Costs are of four types (i) monitoring (ii) bonding (iii) opportunity (iv) structuring

Addressing the agency problem

The agency problem arises if manager's interests are not aligned to the interests of the debt lender and equity investors. The agency problem of debt lender would be addressed by imposing negative covenants i.e. the managers cannot borrow beyond a point. This is one of the most important concepts of modern day finance and the application of this would be applied in the Credit Risk Management of Bank, Fund Raising, Valuing distressed companies.

Agency problem between the managers and shareholders can be addressed if the interests of the managers are aligned to the interests of the shareholders. It is easier said than done.

However, following efforts have been made to address these issues:

- Managerial compensation is linked to profit of the company to some extent and also with the long term objectives of the company.
- Employee is also designed to address the issue with the underlying assumption that maximisation of the stock price is the objective of the investors.
- Effecting monitoring can be done.

(b)

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

SECTION: B: ECONOMICS FOR FINANCE

QUESTIONS

1. (a) From the following data, calculate NNP_{FC}, NNP_{MP}, GNP_{MP} and GDP_{MP}.

Items	In Cr.
Operating surplus	2000
Mixed income of self-employed	1100
Rent	550
Profit	800
Net indirect tax	450
Consumption of fixed capital	400
Net factor income from abroad	-50
Compensation of employees	1000

(b) A sells a used car to B and receives Rs. 60,000. How much of the sale proceeds will be included in national income calculation?

2. (a) An economy is characterized by the following equation-

Consumption C = 60+0.9Yd

Investment I = 10

Government expenditure G = 10

Tax T = 0

Exports X = 20

Imports M = 10 +0.05 Y

Find equilibrium income and trade balance.

(b) Explain (with the aid of a diagram) how an increase in the marginal propensity to consume impacts consumption expenditure.

3. (a) According to Richard Musgrave, there are three branch taxonomy of the role of government in a market economy? Explain them.

(b) Why do economists use the word external to describe third-party effects that are harmful or beneficial?

4. (a) Explain why do governments provide subsidies? Illustrate a few examples of subsidies.

   (b) Describe the concept of price floors with examples.

5. The tradable emissions permits are claimed to have certain advantages. Explain.

6. Examine the influence of different variables on demand for money according to Inventory Theoretic Approach?

7. (a) How is the behaviour of central bank in economy reflected? Explain.

   (b) Distinguish between M_1 and M_2. Find out M_1 when a country has the following monetary asset information as of March 2020:

Components	₹ in million
Cash in hands of the public	300
Demand Deposits	400
Savings Type accounts	2000
Money Market Mutual Funds	1000
Traveller's checks	50
Small Time Deposits	500
Large Time Deposits	450
Other Checkable Deposits	150

8. Describe the different types of agreements that take place during the negotiations of trade?

9. (a) Into how many parts are FDIs categorized according to the nature of foreign investment? Describe them.

   (b) What does the Agreement on Trade-Related Investment Measures (TRIMs) stipulate?

10. Countries Rose Land and Daisy land have a total of 4000 hours each of labour available each day to produce shirts and trousers. Both countries use equal number of hours on each good each day. Rose Land produces 800 shirts and 500 trousers per day. Daisy land produces 500 shirts and 250 trousers per day.

    In the absence of trade:

    i. Which country has absolute advantage in producing shirts or trousers?

    ii. Which country has comparative advantage in producing shirts or trousers?

SUGGESTED ANSWERS/ HINTS

1. (a) GDP_{MP} = Compensation of employees + mixed income of self-employed + operating surplus + depreciation + net indirect taxes

= 1000 crores + 1100 crores + 2000 crores + 400 crores + 450 crores = 4950 crores

GNP_{MP} = GDP_{MP} + NFIA

= 4950 crores + (-50) crores = 4900 crores

NNP_{MP} = GNP_{MP} – consumption of fixed capital

= 4900 crores – 400 crores = 4500 crores

NNP_{FC} or NI = NNP_{MP}- NIT

= 4500 crores – 450 crores= 4050 crores

(b) National income is a flow measure of output per time period—for example, per year—and includes only those goods and services currently produced i.e. produced during the time interval under consideration. The value of market transactions such as exchange of goods which already exist or are previously produced, do not enter into the calculation of national income. No part of the used car sales proceeds of Rs 60,000 will be included in national income calculation because sale of a used car represents transfer of existing asset which was produced during some earlier year and was accounted in the national income calculation of that year.

2. (a) Y = C + I+ G + (X – M)

= 60+0.9(Y – 0) + 10 +10 + (20- 10 -0.05Y)

= 60+ 0.9 Y +30 -0.05 Y

Y = 600

Trade Balance = X – M = - 20

Thus trade balance is in deficit.

(b) An increase in marginal propensity to consume implies that the proportion of income that is spent on consumption increases with an increase in income. In other words, except for an income level of zero, at each income level, the level of consumption spending is higher. The vertical intercept is unchanged as autonomous consumption remains unchanged; but the slope of the consumption curve would be higher and it will spin upwards. For example, if consumption function 20+ .6Y changes to 20+ .8Y, for an income of 200, consumption rises from 140 to 180.

(The students need to draw diagram to illustrates the same).

3. **(a)** Richard Musgrave, in his classic treatise 'The Theory of Public Finance' (1959), introduced the three-branch taxonomy of the role of government in a market economy namely, resource allocation, income redistribution and macroeconomic stabilization. The allocation and distribution functions are primarily microeconomic functions, while stabilization is a macroeconomic function. The allocation function aims to correct the sources of inefficiency in the economic system while the distribution role ensures that the distribution of wealth and income is fair. Monetary and fiscal policy, the problems of macroeconomic stability, maintenance of high levels of employment and price stability etc. fall under the stabilization function.

(b) Economists use the word 'external' to describe third-party effects that are harmful or beneficial because sometimes, the actions of either consumers or producers result in costs or benefits that do not reflect as part of the market price. Such costs or benefits which are not accounted for by the market price are called externalities because they are "external" to the market. Or in other words, externalities are costs or benefits that result from an activity or transaction and affect a third party who did not choose to incur the cost or benefit. Externalities are either positive or negative depending on the nature of the impact on the third party.

4. **(a)** Subsidy is market-based policy and involves the government paying part of the cost to the firms in order to promote the production of goods having positive externalities. Or in other words, a subsidy on a good which has substantial positive externalities would reduce its cost and consequently price, shift the supply curve to the right and increase its output. A higher output that would equate marginal social benefit and marginal social cost is socially optimal. There are many forms of subsidies given out by the government. Two of the most common types of individual subsidies are welfare payments and unemployment benefits. The objective of these types of subsidies is to help people who are temporarily suffering economically. Other subsidies, such as subsidized interest rates on student loans, are given to encourage people to further their education.

(b) Price floor is defined as an intervention to raise market prices if the government feels the price is too low. In this case, since the new price is higher, the producers benefit. For a price floor to be effective, the minimum price has to be higher than the equilibrium price. For example, many governments intervene by establishing price floors to ensure that farmers make enough money by guaranteeing a minimum price at which their goods can be sold for. The most common example of a price floor is the minimum wage. This is the minimum price that employers can pay workers for their labour.

5. Tradable emissions permits are marketable licenses to emit limited quantities of pollutants and can be bought and sold by polluters. Under this method, each firm has permits specifying the number of units of emissions that the firm is allowed to generate. A firm that generates emissions above what is allowed by the permit is penalized with substantial monetary sanctions. These permits are transferable, and therefore different pollution

levels are possible across the regulated entities. Permits are allocated among firms, with the total number of permits so chosen as to achieve the desired maximum level of emissions. By allocating fewer permits than the free pollution level, the regulatory agency creates a shortage of permits which then leads to a positive price for permits. This establishes a price for pollution, just as in the tax case. The high polluters have to buy more permits, which increases their costs, and makes them less competitive and less profitable. The low polluters receive extra revenue from selling their surplus permits, which makes them more competitive and more profitable. Therefore, firms will have an incentive not to pollute. India is experimenting with tradable emissions permits in the form of Perform, Achieve & Trade (PAT) scheme and carbon tax in the form of a cess on coal. The advantages claimed for tradable permits are that the system allows flexibility and reward efficiency and it is administratively cheap and simple to implement and ensures that pollution is minimised in the most cost-effective way. It also provides strong incentives for innovation and consumers may benefit if the extra profits made by low pollution firms are passed on to them in the form of lower prices.

The main argument in opposition to the employment of tradable emission permits is that they do not in reality stop firms from polluting the environment; they only provide an incentive to them to do so. Moreover, if firms have monopoly power of some degree along with a relatively inelastic demand for its product, the extra cost incurred for procuring additional permits so as to further pollute the atmosphere, could easily be compensated by charging higher prices to consumers.

6. Inventory-theoretical approach assumes that there are two media for storing value: money and an interest-bearing alternative financial asset. There is a fixed cost of making transfers between money and the alternative assets e.g. broker charges. While relatively liquid financial assets other than money (such as, bank deposits) offer a positive return, the above said transaction cost of going between money and these assets justifies holding money.

Baumol used Business Inventory approach to analyse the behaviour of individuals. Just as businesses keep money to facilitate their business transactions, people also hold cash balance which involves an opportunity cost in terms of lost interest. Therefore, they hold an optimum combination of bonds and cash balance, i.e., an amount that minimizes the opportunity cost.

Baumol's propositions in his theory of transaction demand for money hold that receipt of income, say Y takes place once per unit of time but expenditure is spread at a constant rate over the entire period of time. Excess cash over and above what is required for transactions during the period under consideration will be invested in bonds or put in an interest-bearing account. Money holdings on an average will be lower if people hold bonds or other interest yielding assets.

The higher the income, the higher is the average level or inventory of money holdings. The level of inventory holding also depends also upon the carrying cost, which is the interest forgone by holding money and not bonds, net of the cost to the individual of making a transfer between money and bonds, say for example brokerage fee. The individual will choose the number of times the transfer between money and bonds takes place in such a way that the net profits from bond transactions are maximized.

The average transaction balance (money) holding is a function of the number of times the transfer between money and bonds takes place. The more the number of times the bond transaction is made, the lesser will be the average transaction balance holdings. In other words, the choice of the number of times the bond transaction is made determines the split of money and bond holdings for a given income.

The inventory-theoretic approach also suggests that the demand for money and bonds depend on the cost of making a transfer between money and bonds e.g. the brokerage fee**.** An increase the brokerage fee raises the marginal cost of bond market transactions and consequently lowers the number of such transactions. The increase in the brokerage fee raises the transactions demand for money and lowers the average bond holding over the period. This result follows because an increase in the brokerage fee makes it more costly to switch funds temporarily into bond holdings. An individual combines his asset portfolio of cash and bond in such proportions that his cost is minimized.

7. **(a)** The behaviour of the central bank which controls the issue of currency is reflected in the supply of the nominal high-powered money. Money stock is determined by the money multiplier and the monetary base is controlled by the monetary authority. If the behaviour of the public and the commercial banks remains unchanged over time, the total supply of nominal money in the economy will vary directly with the supply of the nominal high-powered money issued by the central bank.

(b) M_1 is composed of currency and coins with the people, demand deposits of banks (current and saving accounts) and other deposits with the RBI whereas M_2 includes M_1 as well as savings deposits with post office savings banks.

M_1= 300 + 400 + 150 + 50 = Rs 900 Millions

8. Trade negotiations result in different types of agreements. These agreements are-

Unilateral trade agreements- under which an importing country offers trade incentives in order to encourage the exporting country to engage in international economic activities. E.g. Generalized System of Preferences.

Bilateral agreements- agreements which set rules of trade between two countries, two blocs or a bloc and a country. These may be limited to certain goods and services or certain types of market entry barriers. E.g. EU-South Africa Free Trade Agreement; ASEAN–India Free Trade Area.

Regional Preferential Trade Agreements- agreements that reduce trade barriers on a reciprocal and preferential basis for only the members of the group. E.g. Global System of Trade Preferences among Developing Countries (GSTP).

Trading bloc- A group of countries that have a free trade agreement between themselves and may apply a common external tariff to other countries. Example: Arab League (AL), European Free Trade Association (EFTA).

Free-trade area- is a group of countries that eliminate all tariff barriers on trade with each other and retains independence in determining their tariffs with non-members. Example: NAFTA.

Customs union -A group of countries that eliminate all tariffs on trade among themselves but maintain a common external tariff on trade with countries outside the union (thus technically violating MFN). E.g. EC, MERCOSUR.

Common market- A common market deepens a customs union by providing for the free flow of factors of production (labor and capital) in addition to the free flow of outputs. The member countries attempt to harmonize some institutional arrangements and commercial and financial laws and regulations among themselves. There are also common barriers against non-members (E.g., EU, ASEAN).

In an *Economic and Monetary Union*- members share a common currency and macroeconomic policies. For E.g., the European Union countries implement and adopt a single currency.

9. (a) Based on the nature of foreign investments, FDI may be categorized into three parts as horizontal, vertical or conglomerate.

(i) 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.

(ii) 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.

(iii) A *conglomerate type of foreign direct investment* is one where an investor makes a foreign investment in a business that is unrelated to its existing business in its home country. This is often in the form of a joint venture with a foreign firm already operating in the industry as the investor has no previous experience.

(b) Agreement on TRIMS establishes discipline governing investment measures in relation to cross-border investments by stipulating that countries receiving foreign investments shall not impose investment measures such as requirements, conditions and restrictions inconsistent with the provisions of the principle of national treatment and general elimination of quantitative restrictions.

10. Goods produced by each country

Country	Shirts	Trousers
Rose Land	800	500
Daisy Land	500	250

Each country has 4000 hours of labour and uses 2000 hours each for both the goods. Therefore, the number of hours spent per unit on each good

Country	Shirts	Trousers
Rose Land	2.5	4
Daisy Land	4	8

Since Rose Land produces both goods in less time, it has absolute advantage in both shirts and trousers.

Comparative advantage; comparing the opportunity costs of both goods we have

Rose Land

Opportunity cost of Shirts 2.5/4 = 0.625

Opportunity cost of Trousers 4/2. 5 =1.6

Daisy Land

Opportunity cost of Shirts 4/8 = 0.5

Opportunity cost of Trousers 8/4 =2

For producing shirts

Daisy Land has lower opportunity cost for producing shirts, therefore Daisy Land has comparative advantage

For producing Trousers

Rose Land has lower opportunity cost for producing Trousers, therefore Rose Land has comparative advantage.