PAPER – 8: FINANCIAL MANAGEMENT AND ECONOMICS FOR FINANCE

SECTION A: FINANCIAL MANAGEMENT

QUESTIONS

Ratio Analysis

1. From the following table of financial ratios of R. Textiles Limited, comment on various ratios given at the end:

Ratios	2017	2018	Average of Textile Industry
Liquidity Ratios			
Current ratio	2.2	2.5	2.5
Quick ratio	1.5	2	1.5
Receivable turnover ratio	6	6	6
Inventory turnover	9	10	6
Receivables collection period	87 days	86 days	85 days
Operating profitability			
Operating income –ROI	25%	22%	15%
Operating profit margin	19%	19%	10%
Financing decisions			
Debt ratio	49.00%	48.00%	57%
Return			
Return on equity	24%	25%	15%

COMMENT on the following aspect of R. Textiles Limited

(i) Liquidity

(ii) Operating profits

(iii) Financing

(iv) Return to the shareholders

Cost of Capital

2. As a financial analyst of a large electronics company, you are required to DETERMINE the weighted average cost of capital of the company using (a) book value weights and (b) market value weights. The following information is available for your perusal.

The Company's present book value capital structure is:

	(₹)
Debentures (₹100 per debenture)	8,00,000
Preference shares (₹100 per share)	2,00,000
Equity shares (₹10 per share)	10,00,000
	20,00,000

All these securities are traded in the capital markets. Recent prices are:

Debentures, ₹110 per debenture, Preference shares, ₹120 per share, and Equity shares, ₹ 22 per share

Anticipated external financing opportunities are:

(i) ₹ 100 per debenture redeemable at par; 10 year maturity, 11 per cent coupon rate, 4 per cent flotation costs, sale price, ₹ 100

(ii) ₹ 100 preference share redeemable at par; 10 year maturity, 12 per cent dividend rate, 5 per cent flotation costs, sale price, ₹100.

(iii) Equity shares: ₹ 2 per share flotation costs, sale price = ₹ 22.

In addition, the dividend expected on the equity share at the end of the year is ₹ 2 per share, the anticipated growth rate in dividends is 7 per cent and the firm has the practice of paying all its earnings in the form of dividends. The corporate tax rate is 35 per cent.

Capital Structure

3. Akash Limited provides you the following information:

	(₹)
Profit (EBIT)	2,80,000
Less: Interest on Debenture @ 10%	(40,000)
EBT	2,40,000
Less Income Tax @ 50%	(1,20,000)
	1,20,000
No. of Equity Shares (₹ 10 each)	30,000
Earnings per share (EPS)	4
Price /EPS (PE) Ratio	10

The company has reserves and surplus of ₹ 7,00,000 and required ₹ 4,00,000 further for modernisation. Return on Capital Employed (ROCE) is constant. Debt (Debt/ Debt + Equity) Ratio higher than 40% will bring the P/E Ratio down to 8 and increase the interest

rate on additional debts to 12%. You are required to ASCERTAIN the probable price of the share.

(i) If the additional capital are raised as debt; and

(ii) If the amount is raised by issuing equity shares at ruling market price.

Leverage

4. A Company had the following Balance Sheet as on March 31, 2019:

Equity and Liabilities	(₹ in crore)	Assets	(₹ in crore)
Equity Share Capital (10 crore shares of ₹ 10 each)	100	Fixed Assets (Net)	250
Reserves and Surplus	20	Current Assets	150
15% Debentures	200		
Current Liabilities	80		
	400		400

The additional information given is as under:

Fixed Costs per annum (excluding interest)	₹ 80 crores
Variable operating costs ratio	65%
Total Assets turnover ratio	2.5
Income-tax rate	40%

Required:

CALCULATE the following and comment:

(i) Earnings per share

(ii) Operating Leverage

(iii) Financial Leverage

(iv) Combined Leverage.

Capital Budgeting

5. BT Pathology Lab Ltd. is using an X-ray machines which reached at the end of their useful lives. Following new X-ray machines are of two different brands with same features are available for the purchase.

Brand	Cost of Machine	Life of Machine	Maintenance Cost			Rate of Depreciation
			Year 1-5	Year 6-10	Year 11-15	
XYZ	₹6,00,000	15 years	₹ 20,000	₹ 28,000	₹ 39,000	4%
ABC	₹4,50,000	10 years	₹ 31,000	₹ 53,000	--	6%

Residual Value of both of above machines shall be dropped by 1/3 of Purchase price in the first year and thereafter shall be depreciated at the rate mentioned above.

Alternatively, the machine of Brand ABC can also be taken on rent to be returned back to the owner after use on the following terms and conditions:

- Annual Rent shall be paid in the beginning of each year and for first year it shall be ₹ 1,02,000.
- Annual Rent for the subsequent 4 years shall be ₹ 1,02,500.
- Annual Rent for the final 5 years shall be ₹ 1,09,950.
- The Rent Agreement can be terminated by BT Labs by making a payment of ₹ 1,00,000 as penalty. This penalty would be reduced by ₹ 10,000 each year of the period of rental agreement.

You are required to:

(a) ADVISE which brand of X-ray machine should be acquired assuming that the use of machine shall be continued for a period of 20 years.

(b) STATE which of the option is most economical if machine is likely to be used for a period of 5 years?

The cost of capital of BT Labs is 12%.

Working Capital Management

6. A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are ₹ 2.60 crores and ₹ 2.34 crores respectively. Estimated Sales and EBIT depend on current assets investment, particularly inventories and book-debts. The Financial Controller of the company is examining the following alternative Working Capital Policies:

(₹ in crore)

Working Capital Policy	Investment in Current Assets	Estimated Sales	EBIT
Conservative	4.50	12.30	1.23
Moderate	3.90	11.50	1.15
Aggressive	2.60	10.00	1.00

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long-term and short-term borrowings for financing its assets. The company will use ₹ 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

(₹ in crore)

Financing Policy	Short-term Debt	Long-term Debt
Conservative	0.54	1.12
Moderate	1.00	0.66
Aggressive	1.50	0.16
Interest rate-Average	12%	16%

You are required to CALCULATE the following:

(i) Working Capital Investment for each policy:

(a) Net Working Capital position

(b) Rate of Return

(c) Current ratio

(ii) Financing for each policy:

(a) Net Working Capital position.

(b) Rate of Return on Shareholders' equity.

(c) Current ratio.

Management of Working Capital

7. A proforma cost sheet of a company provides the following particulars:

	Amount per unit (₹)
Raw materials cost	100.00
Direct labour cost	37.50
Overheads cost	75.00
Total cost	212.50
Profit	37.50
Selling Price	250.00

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at ₹37,500.

Required:

PREPARE a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

Risk Analysis in Capital Budgeting

8. An enterprise is investing ₹ 100 lakhs in a project. The risk-free rate of return is 7%. Risk premium expected by the Management is 7%. The life of the project is 5 years. Following are the cash flows that are estimated over the life of the project.

Year	Cash flows (₹ In lakhs)
1	25
2	60
3	75
4	80
5	65

CALCULATE Net Present Value of the project based on Risk free rate and also on the basis of Risks adjusted discount rate.

Dividend Decision

9. The following figures are collected from the annual report of XYZ Ltd.:

Net Profit	₹30 lakhs
Outstanding 12% preference shares	₹100 lakhs
No. of equity shares	3 lakhs
Return on Investment	20%
Cost of capital i.e. (K_e)	16%

CALCULATE price per share using Gordon's Model when dividend pay-out is (i) 25%; (ii) 50% and (iii) 100%.

Miscellaneous

10. Write short notes on the following:

(a) Functions of Finance Manager.

(b) Inter relationship between investment, financing and dividend decisions.

(c) Debt securitisation

SUGGESTED HINTS/ANSWERS

1.

Ratios	Comment
Liquidity	Current ratio has improved from last year and matching the industry average. Quick ratio also improved than last year and above the industry average. This may happen due to reduction in receivable collection period and quick inventory turnover. However, this also indicates idleness of funds. Overall it is reasonably good. All the liquidity ratios are either better or same in both the year compare to the Industry Average.
Operating Profits	Operating Income-ROI reduced from last year but Operating Profit Margin has been maintained. This may happen due to variability of cost on turnover. However, both the ratio are still higher than the industry average.
Financing	The company has reduced its debt capital by 1% and saved operating profit for equity shareholders. It also signifies that dependency on debt compared to other industry players (57%) is low.
Return to the shareholders	R's ROE is 24 per cent in 2017 and 25 per cent in 2018 compared to an industry average of 15 per cent. The ROE is stable and improved over the last year.

2. Determination of specific costs:

(i) Cost Debt $(K_d) = \dfrac{\text{Interest}(1-t)+\dfrac{(RV-NP)}{N}}{\dfrac{(RV+NP)}{2}} = \dfrac{₹11(1-0.35)+\dfrac{(₹100-₹96)}{10\text{ years}}}{\dfrac{(₹100+₹96)}{2}}$

$= \dfrac{₹7.15+₹0.4}{₹98} = 0.077 \text{ or } 7.70\%$

(ii) Cost of Preference Shares $(K_p) = \dfrac{PD+\dfrac{(RV-NP)}{N}}{\dfrac{(RV+NP)}{2}} = \dfrac{₹12+\dfrac{(₹100-₹95)}{10\text{ years}}}{\dfrac{(₹100+₹95)}{2}}$

$$= \frac{₹12 + ₹0.5}{₹97.5} = 0.1282 \text{ or } 12.82\%$$

(iii) Cost of Equity shares (K_e) $= \frac{D_1}{P_0} + G = \frac{₹2}{₹22 - ₹2} + 0.07 = 0.17 \text{ or } 17\%$

I – Interest, t – Tax, RV- Redeemable value, NP- Net proceeds, N- No. of years, PD- Preference dividend, D_1- Expected Dividend, P_0- Price of share (net)

Using these specific costs we can calculate WACC on the basis of book value and market value weights as follows:

(a) Weighted Average Cost of Capital (K_0) based on Book value weights

Source of capital	Book value (₹)	Weights	Specific cost (%)	WACC (%)
Debentures	8,00,000	0.40	7.70	3.08
Preferences shares	2,00,000	0.10	12.82	1.28
Equity shares	10,00,000	0.50	17.00	8.50
	20,00,000	1.00		12.86

(b) Weighted Average Cost of Capital (K_0) based on market value weights:

Source of capital	Market value (₹)	Weights	Specific cost (%)	WACC (%)
Debentures $\left(\frac{₹8,00,000}{₹100} \times ₹110\right)$	8,80,000	0.265	7.70	2.04
Preferences shares $\left(\frac{₹2,00,000}{₹100} \times ₹120\right)$	2,40,000	0.072	12.82	0.92
Equity shares $\left(\frac{₹10,00,000}{₹10} \times ₹22\right)$	22,00,000	0.663	17.00	11.27
	33,20,000	1.000		14.23

3. Ascertainment of probable price of shares of Akash limited

Particulars	Plan-I If ₹ 4,00,000 is raised as debt (₹)	Plan-II If ₹ 4,00,000 is raised by issuing equity shares (₹)
Earnings Before Interest and Tax (EBIT) {20% of new capital i.e. 20% of (₹14,00,000 + ₹4,00,000)} (Refer working note1)	3,60,000	3,60,000
Less: Interest on old debentures (10% of ₹4,00,000)	(40,000)	(40,000)
Less: Interest on new debt (12% of ₹4,00,000)	(48,000)	--
Earnings Before Tax (EBT)	2,72,000	3,20,000
Less: Tax @ 50%	(1,36,000)	(1,60,000)
Earnings for equity shareholders (EAT)	1,36,000	1,60,000
No. of Equity Shares (refer working note 2)	30,000	40,000
Earnings per Share (EPS)	₹ 4.53	₹ 4.00
Price/ Earnings (P/E) Ratio (refer working note 3)	8	10
Probable Price Per Share (PE Ratio × EPS)	₹ 36.24	₹ 40

Working Notes:

1. Calculation of existing Return of Capital Employed (ROCE):

	(₹)
Equity Share capital (30,000 shares × ₹10)	3,00,000
10% Debentures $\left(₹40,000 \times \frac{100}{10}\right)$	4,00,000
Reserves and Surplus	7,00,000
Total Capital Employed	14,00,000
Earnings before interest and tax (EBIT) (given)	2,80,000
ROCE = $\frac{₹2,80,000}{₹14,00,000} \times 100$	20%

2. Number of Equity Shares to be issued in Plan-II:

$$= \frac{₹4,00,000}{₹40} = 10,000 \text{ shares}$$

Thus, after the issue total number of shares = 30,000+ 10,000 = 40,000 shares

3. Debt/Equity Ratio if ₹ 4,00,000 is raised as debt:

$$= \frac{₹8,00,000}{₹18,00,000} \times 100 = 44.44\%$$

As the debt equity ratio is more than 40% the P/E ratio will be brought down to 8 in Plan-I

4. Total Assets = ₹ 400 crores

Asset Turnover Ratio = 2.5

Hence, Total Sales = 400 × 2.5 = ₹ 1,000 crores

Computation of Profits after Tax (PAT)

	(₹ in crore)
Sales	1,000
Less: Variable operating cost (65% of ₹1,000 crore)	(650)
Contribution	350
Less: Fixed cost (other than Interest)	(80)
EBIT	270
Less: Interest on debentures (15% × ₹200 crore)	(30)
EBT	240
Less: Tax 40%	(96)
EAT (earnings available to equity share holders)	144

(i) Earnings per share (EPS)

$$\therefore \text{EPS} = \frac{₹ \text{ 144 crores}}{\text{10 crore equity shares}} = ₹ \text{ 14.40}$$

(ii) Operating Leverage

$$\text{Operating leverage} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{350}{270} = 1.296$$

It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(iii) Financial Leverage

$$\text{Financial Leverage} = \frac{\text{EBIT}}{\text{EBT}} = \frac{270}{240} = 1.125$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

(iv) Combined Leverage

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

Or, Operating Leverage × Financial Leverage = $1.296 \times 1.125 = 1.458$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

5. Since the life span of each machine is different and time span exceeds the useful lives of each model, we shall use Equivalent Annual Cost method to decide which brand should be chosen.

(i) If machine is used for 20 years

Present Value (PV) of cost if machine of Brand XYZ is purchased

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	6,00,000	1.000	6,00,000
1-5	20,000	3.605	72,100
6-10	28,000	2.045	57,260
11-15	39,000	1.161	45,279
15	(64,000)	0.183	(11,712)
			7,62,927

PVAF for 1-15 years 6.811

$$\text{Equivalent Annual Cost} = \frac{₹7,62,927}{6.811} = ₹\ 1,12,014$$

Present Value (PV) of cost if machine of Brand ABC is purchased

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	4,50,000	1.000	4,50,000
1 - 5	31,000	3.605	1,11,755
6 -10	53,000	2.045	1,08,385
10	(57,000)	0.322	(18,354)
			6,51,786

PVAF for 1-10 years 5.65

Equivalent Annual Cost = $\frac{₹6,51,786}{5.65}$ = ₹ 1,15,360

Present Value (PV) of cost if machine of Brand ABC is taken on Rent

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	1,02,000	1.000	1,02,000
1 - 4	1,02,500	3.037	3,11,293
5-9	1,09,950	2.291	2,51,895
			6,65,188

PVAF for 1-10 years 5.65

Equivalent Annual Cost = $\frac{₹6,65,188}{5.65}$ = ₹ 1,17,732

Decision: Since Equivalent Annual Cash Outflow is least in case of purchase of Machine of brand XYZ the same should be purchased.

(ii) If machine is used for 5 years

(a) Scrap Value of Machine of Brand XYZ

= ₹ 6,00,000 – ₹ 2,00,000 – ₹ 6,00,000 × 0.04 × 4 = ₹ 3,04,000

(b) Scrap Value of Machine of Brand ABC

= ₹ 4,50,000 – ₹ 1,50,000 – ₹ 4,50,000 × 0.06 × 4 = ₹ 1,92,000

Present Value (PV) of cost if machine of Brand XYZ is purchased

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	6,00,000	1.000	6,00,000
1 - 5	20,000	3.605	72,100
5	(3,04,000)	0.567	(1,72,368)
			4,99,732

Present Value (PV) of cost if machine of Brand ABC is purchased

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	4,50,000	1.000	4,50,000
1-5	31,000	3.605	1,11,755
5	(1,92,000)	0.567	(1,08,864)
			4,52,891

Present Value (PV) of cost if machine of Brand ABC is taken on Rent

Period	Cash Outflow (₹)	PVF@12%	Present Value
0	1,02,000	1.000	1,02,000
1-4	1,02,500	3.037	3,11,293
5	50,000	0.567	28,350
			4,41,643

Decision: Since Cash Outflow is least in case of lease of Machine of brand ABC the same should be taken on rent.

6. (i) Statement showing Working Capital Investment for each policy

(₹ in crore)

	Working Capital Policy		
	Conservative	Moderate	Aggressive
Current Assets: (i)	4.50	3.90	2.60
Fixed Assets: (ii)	2.60	2.60	2.60
Total Assets: (iii)	7.10	6.50	5.20
Current liabilities: (iv)	2.34	2.34	2.34
Net Worth: (v) = (iii) - (iv)	4.76	4.16	2.86
Total liabilities: (iv) + (v)	7.10	6.50	5.20
Estimated Sales: (vi)	12.30	11.50	10.00
EBIT : (vii)	1.23	1.15	1.00
(a) Net working capital position: (i) - (iv)	2.16	1.56	0.26
(b) Rate of return: (vii) /(iii)	17.32%	17.69%	19.23%
(c) Current ratio: (i)/ (iv)	1.92	1.67	1.11

(ii) Statement Showing Effect of Alternative Financing Policy

(₹ in crore)

Financing Policy	Conservative	Moderate	Aggressive
Current Assets (i)	3.90	3.90	3.90
Fixed Assets (ii)	2.60	2.60	2.60
Total Assets (iii)	6.50	6.50	6.50
Current Liabilities (iv)	2.34	2.34	2.34
Short term Debt (v)	0.54	1.00	1.50
Total current liabilities	2.88	3.34	3.84

(vi) = (iv) + (v)			
Long term Debt (vii)	1.12	0.66	0.16
Equity Capital (viii)	2.50	2.50	2.50
Total liabilities (ix) = (vi)+(vii)+(viii)	6.50	6.50	6.50
Forecasted Sales	11.50	11.50	11.50
EBIT (x)	1.15	1.15	1.15
Less: Interest on short-term debt	0.06 (12% of ₹0.54)	0.12 (12% of ₹ 1)	0.18 (12% of ₹ 1.5)
Interest on long term debt	0.18 (16% of ₹1.12)	0.11 (16% of ₹0.66)	0.03 (16% of ₹0.16)
Earnings before tax (EBT) (xi)	0.91	0.92	0.94
Taxes @ 35% (xii)	0.32	0.32	0.33
Earnings after tax: (xiii) = (xi) – (xii)	0.59	0.60	0.61
(a) Net Working Capital Position: (i) - [(iv) + (v)]	1.02	0.56	0.06
(b) Rate of return on shareholders Equity capital : (xiii)/ (viii)	23.6%	24.0%	24.4%
(c) Current Ratio (i) / (vi)	1.35	1.17	1.02

7. Statement showing Estimate of Working Capital Needs

	(Amount in ₹)	(Amount in ₹)
A. Current Assets		
(i) Inventories:		
Raw material (1 month or 4 weeks) $\left(\frac{1,30,000\text{ units}\times ₹100}{52\text{ weeks}}\times 4\text{ weeks}\right)$	10,00,000	
WIP Inventory (1 week) $\left(\frac{1,30,000\text{ units}\times ₹212.50}{52\text{ weeks}}\times 1\text{week}\right)\times 0.8$	4,25,000	
Finished goods inventory (2 weeks) $\left(\frac{1,30,000\text{ units}\times ₹212.50}{52\text{ weeks}}\times 2\text{ weeks}\right)$	10,62,500	24,87,500

(ii) Receivables (Debtors) (4 weeks) $\left(\frac{1,30,000 \text{ units} \times ₹212.50}{52 \text{ weeks}} \times 4 \text{ weeks}\right) \times \frac{4}{5_{th}}$		17,00,000
(iii) Cash and bank balance		37,500
Total Current Assets		42,25,000
B. Current Liabilities:		
(i) Payables (Creditors) for materials (3 weeks) $\left(\frac{1,30,000 \text{ units} \times ₹100}{52 \text{ weeks}} \times 3 \text{ weeks}\right)$		7,50,000
(ii) Outstanding wages (1 week) $\left(\frac{1,30,000 \text{ units} \times ₹37.50}{52 \text{ weeks}} \times 1 \text{ week}\right)$		93,750
(iii) Outstanding overheads (2 weeks) $\left(\frac{1,30,000 \text{ units} \times ₹75}{52 \text{ weeks}} \times 2 \text{ weeks}\right)$		3,75,000
Total Current Liabilities		12,18,750
Net Working Capital Needs (A – B)		30,06,250

8. The Present Value of the Cash Flows for all the years by discounting the cash flow at 7% is calculated as below:

Year	Cash flows ₹ In lakhs	Discounting Factor @ 7%	Present value of Cash Flows ₹ In Lakhs
1	25	0.935	23.38
2	60	0.873	52.38
3	75	0.816	61.20
4	80	0.763	61.04
5	65	0.713	46.35
Total of present value of Cash flow			244.34
Less: Initial investment			(100.00)
Net Present Value (NPV)			144.34

Now when the risk-free rate is 7 % and the risk premium expected by the Management is 7 %. So the risk adjusted discount rate is 7 % + 7 % =14%.

Discounting the above cash flows using the Risk Adjusted Discount Rate would be as below:

Year	Cash flows ₹ in Lakhs	Discounting Factor @ 14%	Present Value of Cash Flows ₹ in lakhs
1	25	0.877	21.93
2	60	0.769	46.14
3	75	0.675	50.63
4	80	0.592	47.36
5	65	0.519	33.74
Total of present value of Cash flow			199.79
Initial investment			(100.00)
Net present value (NPV)			99.79

9.

	₹ in lakhs
Net Profit	30
Less: Preference dividend	12
Earning for equity shareholders	18
Therefore earning per share	18/3 = ₹ 6.00

Price per share according to Gordon's Model is calculated as follows:

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

Here, E_1 = 6, K_e = 16%

(i) When dividend pay-out is 25%

$$P_0 = \frac{6 \times 0.25}{0.16 - (0.75 \times 0.2)} = \frac{1.5}{0.16 - 0.15} = 150$$

(ii) When dividend pay-out is 50%

$$P_0 = \frac{6 \times 0.5}{0.16 - (0.5 \times 0.2)} = \frac{3}{0.16 - 0.10} = 50$$

(iii) When dividend pay-out is 100%

$$P_0 = \frac{6 \times 1}{0.16 - (0 \times 0.2)} = \frac{6}{0.16} = 37.50$$

10. (a) Functions of Finance Manager

The Finance Manager's main objective is to manage funds in such a way so as to ensure their optimum utilisation and their procurement in a manner that the risk, cost and control considerations are properly balanced in a given situation. To achieve these objectives the Finance Manager performs the following functions:

(i) *Estimating the requirement of Funds:* Both for long-term purposes i.e. investment in fixed assets and for short-term i.e. for working capital. Forecasting the requirements of funds involves the use of techniques of budgetary control and long-range planning.

(ii) *Decision regarding Capital Structure:* Once the requirement of funds has been estimated, a decision regarding various sources from which these funds would be raised has to be taken. A proper balance has to be made between the loan funds and own funds. He has to ensure that he raises sufficient long term funds to finance fixed assets and other long term investments and to provide for the needs of working capital.

(iii) *Investment Decision:* The investment of funds, in a project has to be made after careful assessment of various projects through capital budgeting. Assets management policies are to be laid down regarding various items of current assets. For e.g. receivable in coordination with sales manager, inventory in coordination with production manager.

(iv) *Dividend decision:* The finance manager is concerned with the decision as to how much to retain and what portion to pay as dividend depending on the company's policy. Trend of earnings, trend of share market prices, requirement of funds for future growth, cash flow situation etc., are to be considered.

(v) *Evaluating financial performance:* A finance manager has to constantly review the financial performance of the various units of organisation generally in terms of ROI Such a review helps the management in seeing how the funds have been utilised in various divisions and what can be done to improve it.

(vi) *Financial negotiation:* The finance manager plays a very important role in carrying out negotiations with the financial institutions, banks and public depositors for raising of funds on favourable terms.

(vii) *Cash management:* The finance manager lays down the cash management and cash disbursement policies with a view to supply adequate funds to all units of organisation and to ensure that there is no excessive cash.

(viii) K*eeping touch with stock exchange:* Finance manager is required to analyse major trends in stock market and their impact on the price of the company share.

(b) Inter-relationship between Investment, Financing and Dividend Decisions

The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximisation of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter-relationship and to see how they can help in maximising the shareholders' wealth i.e. market price of the company's shares.

Investment decision: The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth.

Financing decision: Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximise their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximises shareholders' wealth.

The above discussion makes it clear that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

(c) Debt Securitisation: It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

Process of Debt Securitisation

(i) *The origination function* – A borrower seeks a loan from a finance company, bank. The creditworthiness 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.

SECTION : B: ECONOMICS FOR FINANCE

QUESTIONS

1 (a) (i) Differentiate between 'taxes on production' and 'product taxes'

(ii) Distinguish between non-economic activities and economic activities?

(b) Using the information given in the following table calculate,

(i) Value added by firm A and firm B

(ii) Gross Domestic Product at Market Price

(iii) Net Domestic Product at Factor Cost.

	Particulars	₹ crore
(i)	Sales by firm B to general government	300
(ii)	Sales by firm A	1500
(iii)	Sales by firm B to households	1350
(iv)	Change in stock of firm A	200
(v)	Closing stock of firm B	140
(vi)	Opening stock of firm B	130
(vii)	Purchases by firm A	270
(viii)	Indirect taxes paid by both the firms	375
(ix)	Consumption of fixed capital	720
(x)	Sales by firm A to B	300

2. (a) Define multiplier. What is the range of values it can take?

(b) How do imports affects investment multiplier?

(c) An increase of investment by ₹ 600 Crores resulted in an increase in national income by 2400 Crores. Find MPC and MPS.

3. (a) Classify each of the following goods based on their characteristics. Mention the rationale.

(i) Open-access Wi-Fi networks

(ii) Roads with toll booths

(iii) Parks

(b) What is the major determinant of the economic functions of a government?

(c) Distinguish between private cost and social cost

(d) Describe the term 'Tragedy of commons'.

4. Explain the concept of adverse selection. What are the possible consequences of adverse selection?

5. (a) Why do you consider national defence as a public good?
   (b) Define information failure
6. (a) Explain the function of money as a unit of account?
   (b) Examine the different variables on demand for money according to inventory theoretic approach.
7. (a) Define Reserve Money? Compute the Reserve Money from the following data Published by RBI.

Components	(In billions of ₹) As on 7th July 2018
Currency in circulation	15428.40
Bankers Deposits with RBI	4596.18
Other Deposits with RBI	183.30

   (b) Which of the functions of money do the following items satisfy?
      (i) A credit card.
      (ii) A token of specified amount of money which can be used for shopping
   (c) What role does Market Stabilization Scheme (MSS) play in our economy?
8. (a) Mention the core principle of comparative advantage
   (b) Explain the operational procedure of the monetary policy of India?
9. How do foreign direct investments affect human capital in recipient countries?
10. (a) What is local content requirement? How will it affect trade?
    (b) How is exchange rate determined under floating exchange rate regime?
    (c) What is meant by trade distortion?

SUGGESTED ANSWERS/HINTS

1. (a) (i) ***Product taxes*** like excise duties, customs, sales tax, service tax etc., are levied by the government on goods and services and are generally related to the quantum of production.

Taxes on production, such as, factory license fee, taxes to be paid to the local authorities, pollution tax etc., on the other hand, are unrelated to the quantum of production.

(ii) **Economic activities** as distinguished from non-economic activities, include all human activities which create goods and services that can be valued at market

price. **Non-economic activities** are those which produce goods and service, but are not exchanged in a market transaction so that do not command any market value.

(b) (i) Value added by Firm A and Firm B

Gross Value Added (GVA_{MP}) of Firm A = Gross value of output (GVO_{MP}) of Firm A - Intermediate consumption of firm A

= (Sales by firm A + Change in stock of firm A) - (Purchases by firm A)

= [(ii) + (iv)] – (vii) = (1500 + 200) - 270

= **1430 Crores**

Gross Value Added (GVA_{MP}) of Firm B = Gross value of output (GVO_{MP}) of firm B -Intermediate consumption of firm B

= [Sales by firm B to general government + Sales by firm B to households + (Closing stock of firm B - Opening stock of firm B)] - Purchases by firm B

= [(300 + 1350) + (140 - 130)] - 300

= 1650 + 10 - 300 = **₹ 1360 Crores**

(ii) Gross Domestic product at Market Price:

= Value added by firm A + Value added by firm B = 1430 + 1360 = **₹ 2790 Crores**

(iii) Net Domestic Price at Factor Cost:

NDP_{FC} = Gross Domestic product at market price - Consumption of fixed capital – Indirect taxes paid by both the firms

= 2790 - (ix) - (viii) = 2790 - 720 – (375 -0) = **₹ 1695 Crores**

2. (a) Multiplier expresses the relationship between an initial increment in investment and the resulting increase in aggregate income i.e how many times the aggregate income increases as a result of an increase in investment. The ratio of ΔY to ΔI is called the investment multiplier, k. For example, if a change in investment of ₹ 2000 million causes a change in national income of ₹ 6000 million, then the multiplier is 6000/2000 = 3. Thus multiplier indicates the change in national income for each rupee change in the desired investment. The value 3 in the above example tells us that for every Re. 1 increase in desired investment expenditure, there will be ₹ 3 increase in equilibrium national income. The ratio of ΔY to ΔI is called the investment multiplier, k.

$$k = \frac{\text{Change in Income}}{\text{Change in Investment}} \quad \frac{\Delta Y}{\Delta I}$$

The size of the multiplier effect is given by $\Delta Y = k \Delta I$.

The increase in income per rupee increase in investment is:

$$\frac{\Delta Y}{\Delta I} = \frac{1}{1 - MPC} = \frac{1}{MPS}$$

From the above, we find that the marginal propensity to consume (MPC) is the determinant of the value of the multiplier and that there exists a direct relationship between MPC and the value of multiplier. Higher the MPC, more will be the value of the multiplier, and vice-versa. On the contrary, higher the MPS, lower will be the value of multiplier and vice-versa.

Since, 0<MPC<1; therefore,

if MPC is zero then K = 1 and if MPC = 1, then K=∞

The maximum value of multiplier is infinity when the value of MPC is 1 i.e. the economy decides to consume the whole of its additional income.

(b) The greater will be propensity to import, the lower will be autonomous expenditure multiplier

(c) The ratio of ΔY to ΔI is called the investment multiplier, k.

$k = \frac{\text{Change in Income}}{\text{Change in Investment}} = \frac{\Delta Y}{\Delta I}$

Here $\frac{2400}{600} = 4$

$4 = \frac{1}{1 - MPC} = \frac{1}{MPS}$

$4 - 4MPC = 1$

$4\ MPC = 4-1 = 3$

$MPC = \frac{3}{4} = 0.75$

$MPS = 1-MPC = 0.25$

3. (a) All the goods mentioned in the question can be classified as impure public good. There are many hybrid goods that possess some features of both public and private goods. These goods are called impure public goods and are partially rivalrous or congestible. Because of the possibility of congestion, the benefit that an individual gets from an impure public good depends on the number of users. Consumption of these goods by another person reduces, but does not eliminate, the benefits that other people receive from their consumption of the same good. Impure public goods also differ from pure public goods in that they are often excludable.

Since free riding can be eliminated, the impure public good may be provided either by the market or by the government at a price or fee. If the consumption of a good can be excluded, then the market would provide a price mechanism for it. The

provider of an impure public good may be able to control the degree of congestion either by regulating the number of people who may use it, or the frequency with which it may be used or both.

(b) The nature of the economic system determines the size and scope of the economic functions of the government. In a centrally planned socialistic economy, the state owns all productive resources and makes all important economic decisions. On the contrary, in a market economy, all important economic decisions are made by individuals and firms who want to maximise self interest and there is only limited role for the government. In a mixed economic system, both markets and government contribute towards resource allocation decisions.

(c) Private cost is the cost faced by the producer or consumer directly involved in a transaction. If we take the case of a producer, his private cost includes direct cost of labour, materials, energy and other indirect overheads. These are usually added up to determine market price. The actions of consumers or producers result in costs or benefits to others and the relevant costs and benefits are not reflected as part of market prices. In other words, market prices do not incorporate externalities. Social costs refer to the total costs to the society on account of a production or consumption activity. Social costs are private costs borne by individuals directly involved in a transaction together with the external costs borne by third parties not directly involved in the transaction. Social costs represent the true burdens carried by society in monetary and non-monetary terms.

(d) Common access resources such as oceans tend to be over-consumed in an unregulated market because they are rivalrous and non-excludable in consumption. 'Tragedy of the commons' is a term to describe the problem which occurs when rivalrous but non-excludable goods are overused by individual users acting independently and rationally according to their own self-interest. In doing so, they behave contrary to the common good of all users by depleting a shared common resource to the disadvantage of the entire universe.

4. Adverse selection is a situation in which asymmetric information about quality eliminates high-quality goods from a market. It a form of market failure which occurs when buyers have better information than sellers due to hidden information, and this can distort the usual market process. For example, in the insurance market adverse selection is the tendency for people with higher risk to obtain insurance coverage to a greater extent than persons with lesser risk because compared to insurance buyers, insurers know less about the health conditions of buyers and are therefore unable to differentiate between high-risk and low-risk persons. If the insurance company charges an average price, and only high-risk consumers buy insurance it will make losses. It is therefore possible that there will be higher overall premium as firms insure themselves against high-risk customers buying insurance. Then the low-risk customers may not want to buy insurance because it is quite expensive. Economic agents end up either selecting a sub-standard product or leaving the market altogether leading to a condition of 'missing market'. If the sellers wish to do

business profitably, they may have to incur considerable costs in terms of time and money for identifying the extent of risk for different buyers.

5. **(a)** National defence has all characteristics of a public good. It yields utility to people; its consumption is essentially nonrival, non-excludable and collective in nature and is characterized by indivisibility. National defence is available for all individuals whether they pay taxes or not and it is impossible to exclude anyone within the country from consuming and benefiting from it. No direct payment by the consumer is involved in the case of defence. Once it is provided, the additional resource cost of another person consuming it is zero. Defence also has the unique feature of public good i.e. it does not conform to the settings of market exchange. Though defence is extremely valuable for the wellbeing of the society, left to market, it will not be produced at all or will be under produced.

(b) Perfect information which implies that both buyers and sellers have complete information about anything that may influence their decision making is an important element of an efficient competitive market. Information failure occurs when lack of information can result in consumers and producers making decisions that do not maximize welfare. Information failure is widespread in numerous market exchanges due to complex nature of goods and services that are transacted, inaccurate and incomplete data, and non-availability of correct information

6. **(a)** A unit of account is a common unit for measuring how much something is worth. The monetary unit (for e.g. Rupee, Dollar) serves as a numeraire or common measure value in terms of which the value of all goods, services, assets, liabilities, income, expenditure etc are measured and expressed. This helps in measuring and fixing the exchange values in terms of a common unit and avoids the problem of recording and expressing the value of each commodity in terms of quantities of other goods. Use of money as a unit of account thus

- reduces the number of exchange ratios between goods and services
- makes it possible to keep business accounts
- allows meaningful interpretation of prices, costs, and profits, and
- facilitates a system of trade through orderly pricing, comparison of value and rational economic choices.

(b) Inventory Theoretic Approach (by Baumol and Tobin), assume that there are two media for storing value: money and an interest-bearing alternative 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 costs of going between money and these assets justifies holding money.

Baumol used business inventory approach to analyze 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) Reserve Money = Currency in circulation + Bankers' deposits with the RBI + Other deposits with the RBI

=15428.40 + 4596.18 + 183.30

= 20207.88

(b) (i) A credit card is a medium of exchange

(ii) A token of specified amount of money which can be used for shopping satisfies all 3 functions of money, which are store of value, unit of account, and medium of exchange.

(c) Market Stabilization Scheme for monetary management was introduced in 2004 following a MoU between the Reserve Bank of India (RBI) and the Government of India (GoI) with the primary aim of aiding the sterilization operations of the RBI. (Sterilization is the process by which the monetary authority sterilizes the effects of significant foreign capital inflows on domestic liquidity by off-loading parts of the stock of government securities held by it). Under this scheme, the Government of India borrows from the RBI (such borrowing being additional to its normal borrowing requirements) and issues treasury-bills/dated securities for absorbing excess liquidity from the market arising from large capital inflows.

8. **(a)** A 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 it's absolute disadvantage is greater (this is the commodity of its comparative disadvantage).

(b) Operating procedures are the variety of rules, traditions and practices used in the actual implementation of monetary policy. It encompasses, basically, a set of tactics such as choice of the operating target and policy instruments, the nature and frequency of use of policy instruments, market interventions, the width of corridor for market interest rates and the manner of policy signals to effect desired changes in the intermediate target. In other words, the operating procedure in monetary policy refers to its implementation in very short run, including the day-to-day operations.

9. Since FDI involves setting up of production base (in terms of factories, power plants, etc.) it generates direct employment in the recipient country. Subsequent FDI as well as domestic investments propelled in the downstream and upstream projects that come up in multitude of other services generate multiplier effects on employment and income. FDI not only creates direct employment opportunities but also, through backward and forward linkages, it is able to generate indirect employment opportunities as well. It is also argued that more indirect employment will be generated to persons in the lower-end services sector occupations thereby catering to an extent even to the less educated and unskilled engaged in those units. This impact is particularly important if the recipient country is a developing country with an excess supply of labour caused by population pressure.

Foreign direct investments also promote relatively higher wages for skilled jobs. However, jobs that require expertise and entrepreneurial skills for creative decision making may generally be retained in the home country and therefore the host country is left with routine management jobs that demand only lower levels of skills and ability. This may result in 'crowding in' of people in jobs requiring low skills, perpetuation of low labour standards and differential treatment.

FDIs are likely use labor-saving technology and capital-intensive methods in a labour-abundant country and cause labour displacement. Such technology is inappropriate for a labour-abundant country as it does not support generation of jobs which is a crucial requirement to address poverty and unemployment which are the two fundamental areas

of concern for the less developed countries. Not only that foreign entities fail to support employment generation, but they may also drive out domestic firms from the industry resulting in serious problems of displacement of labour.

10. (a) Local content requirements (LCRs) are conditions imposed by a host country government that require investing firms to purchase and use domestically manufactured goods or domestically supplied services in order to operate in an economy. The fraction of a final good to be procured locally may be specified either in value terms (e.g. 25% of the value of a product must be locally produced), by requiring that some minimum share of the value of a good represent home value added, or in physical units (eg. 50% of component parts for a product must be locally produced). From the viewpoint of domestic producers of inputs, local content requirement provides greater demand which is not necessarily associated to their competitiveness and for components/ parts manufacturers gives protection in the same way that an import quota would. Local content requirement benefits producers and not consumers because such requirements may raise the prices.

(b) Under floating exchange rate regime the equilibrium value of the exchange rate of a country's currency is market determined i.e. the demand for and supply of currency relative to other currencies determines the exchange rate.

(c) Trade is distorted if quantities of commodities produced, bought, and sold and their prices are higher or lower than levels that would usually exist in a competitive market. For example, barriers to imports such as tariffs, domestic subsidies and quantitative restrictions can make agricultural products more costly in a market of a country. The higher prices will result in higher production of crop. Then export subsidies are needed to sell the surplus output in the world markets, where prices are low. Thus, the subsidising countries can be producing and exporting considerably more than what they normally would.