FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

Time Allowed: 3 Hours **Full Marks: 100**

The figures in the margin on the right side indicate full marks.

SECTION – A (Compulsory)

1. Choose the correct option: **[15×2 = 30]**

(i) A portfolio consisting of two risky securities can be made risk less i.e., Sp = 0, if:

a. The securities are perfectly positively correlated
b. The securities are perfectly negatively correlated
c. If the correlation ranges between 0 to 1
d. If the correlation ranges between -1 to +1.

(ii) In finance, _________________ is the risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (or make the required profit).

a. Credit Risk
b. Market Risk
c. Liquidity Risk
d. Operational Risk

(iii) Which of the following is not a spontaneous source of short-term funds?

a. Trade credit
b. Accrued expenses
c. Provision for dividend
d. All of the above.

(iv) An analyst applied the DuPont System to the following data of a company: (a) equity turnover 4.2, (b) net profit margin 5.5%, (c) total assets turnover 2.0 and (d) dividend pay-out ratio 30%; the company's rate of return on equity is ____________.

a. 23.1%
b. 27.3%
c. 29.5%
d. 25.1%

(v) Return on Assets and Return on Investment Ratios belong to:

a. Liquidity Ratios
b. Profitability Ratios
c. Solvency Ratios
d. Turnover Ratios

(vi) The shares of a textile company are selling at ₹20 per share. The firm had paid ₹2 per share dividend last year. The estimated growth of the company is approximately 5 % per year. Determine the estimated market price of the equity shares if the anticipated growth rate of the firm rises to 8%.

a. ₹26.5
b. ₹27.8
c. ₹22.5
d. ₹28.8

(vii) Y Co. Ltd. issues 10,000 12% preference shares of ₹100 each at a premium @ 10% but redeemable at a premium@ 20% after 5 years. The company pays under writing commission @ 5%. If tax on dividend is 12.5%, surcharge is 2.5% and education cess is 3%, calculate the cost of preference share capital.

a. 14.86%
b. 12.48%
c. 13.96%
d. 15.24%

(viii) The following information is given for a project:
Annual cash inflow ₹8,00,000
Useful life 4 years
Pay - back period 2.855 years
The cost of the project would be-?

a. ₹22,80,000
b. ₹22,86,000
c. ₹22,87,800
d. ₹22,84,000

(ix) ABC Ltd. has an estimated cash payment of ₹8,00,000 for a one-month period and the payments are expected to steady over the period. The fixed cost per transaction is ₹250 and the interest rate on marketable securities is 12% p.a. Calculate the optimum transaction size.

a. 6
b. 3
c. 4
d. 5

(x) Average collection period is 2 months, cash sales and average receivables are ₹5,00,000 and ₹6,50,000 respectively. The sales amount would be-:

a. ₹44,00,000
b. ₹48,50,000
c. ₹42,00,000
d. ₹40,00,000

(xi) Which of the following does not effect cash flows proposal?
a. Salvage Value
b. Method of Project Financing
c. Tax Rate Change
d. Depreciation Amount.

(xii) According to Gordon's Dividend Capitalisation Model, if the share price of a firm is ₹43, its dividend pay-out ratio is 60%, cost of equity is 9%, ROI is 12% and the numbers of shares are 12,000, what will be the net profit of the firm?
a. ₹15,480
b. ₹23,220
c. ₹36,120
d. ₹54,180

(xiii) The descriptive data may be deciphered as:
a. May be deciphered in the form of qualitative information
b. May be deciphered in the form of quantitative information
c. May be deciphered in the form of information from informal sources
d. All of the above

(xiv) Binomial distribution applies to attributes:
a. that are categorised into three mutually exclusive and exhaustive classes
b. that are categorised into two mutually exclusive and exhaustive classes
c. that are categorised into less than two mutually exclusive and exhaustive classes
d. that are categorised into four mutually exclusive and exhaustive classes

(xv) Which of the following is/ are the technique/ techniques of data mining?
a. Association rules
b. Neural network
c. Decision tree
d. All of the above.

Section – B

(Answer any five questions out of seven questions given. Each question carries 14 Marks)
[5 x 14 = 70]

2. (a) Interpret the different categories of NBFC registered with RBI. **[7]**

(b) Describe the process of data mining along with its techniques. **[7]**

3. (a) From the following information, prepare a summarized Statement of Assets and Liabilities as on 31st March, 2025:

(i) Working Capital	₹1,20,000
(ii) Reserves & Surplus	₹80,000
(iii) Bank Overdraft	₹20,000
(iv) Proprietary Ratio	0.75
(v) Current Ratio	2.50
(vi) Liquid Ratio	1.50

Your workings should form a part of your answer. **[7]**

(b) The Balance Sheets of a company as on 31st March, 2024 and 2025 are given below:

Liabilities	31.03.24	31.03.25	Assets	31.03.24	31.03.25
Equity Share Capital	14,40,000	19,20,000	Fixed Assets	38,40,000	45,60,000
Capital Reserve	--	48,000	Less: Depreciation	(11,04,000)	(13,92,000)
General Reserve	8,16,000	9,60,000		27,36,000	31,68,000
Profit & Loss A/c	2,88,000	3,60,000	Investment	4,80,000	3,84,000
9% Debentures	9,60,000	6,72,000	Sundry Debtors	12,00,000	14,00,000
Sundry Creditors	5,50,000	5,90,000	Stock	1,40,000	1,84,000
Bills Payable	26,000	34,000	Cash in hand	4,000	--
Proposed Dividend	1,44,000	1,72,800	Preliminary Expenses	96,000	48,000
Provision for tax	4,32,000	4,08,000			
Unpaid dividend	--	19,200			
	46,56,000	51,84,000		46,56,000	51,84,000

Additional Information:

During the year ended 31st March, 2025 the company:

1. Sold a machine for ₹1, 20,000; the cost of machine was ₹2, 40,000 and depreciation provided on it was ₹84,000.
2. Provided ₹4, 20,000 as depreciation on fixed assets.
3. Sold some investment and profit credited to capital reserve.
4. Redeemed 30% of the debenture @ 105.
5. Decided to write off fixed assets costing ₹60,000 on which depreciation amounting to ₹48,000 has been provided.
6. You are required to prepare Cash Flow Statement as per Ind AS-7. **[7]**

4. (a) The following are the Balance Sheet of Maharaj Ltd. as on 31.03.24 and 31.03.25:

Particulars	31.03.24 (₹)	31.03.25 (₹)
Current Assets:		
Cash and Bank Balance	23,600	2,000
Debtors	41,800	38,000
Inventory	32,000	26,000
Other Current Assets	6,400	2,600
Total Current Assets (A)	1,03,800	68,600
Fixed Assets :		
Land and Building	54,000	34,000
Plant and Machinery	62,000	1,57,200
Furniture	5,800	9,600
Total Fixed Assets (B)	1,21,800	2,00,800
Long-term Investment (C)	9,200	11,800
Total Assets (A + B + C)	2,34,800	2,81,200
Current Liabilities (D)	52,400	25,400
Long-term Debt (E)	40,000	65,000
Owners' Equity:		
Equity Share Capital	80,000	1,20,000
Reserve and Surplus	62,400	70,800
Total Owners' Equity(F)	1,42,400	1,90,800
Total Liabilities and Capital (D+E+ F)	2,34,800	2,81,200

Prepare Comparative Balance Sheet and study its financial position. **[7]**

(b) The following is the capital structure of ABC Ltd. as on 31.12.2024

Sources of Finance	(₹)
Equity Shares: 5000 shares (of ` 100 each)	5,00,000
10% Preference Shares (of ` 100 each)	2,00,000
12% Debentures	3,00,000
	10,00,000

The market price of the company's share is ₹110 and it is expected that a dividend of ₹10 per share would be declared for the year 2024. The dividend growth rate is 6%:

1. If the company is in the 40% tax bracket, compute the weighted average cost of capital.
2. Assuming that in order to finance an expansion plan, the company intends to borrow a fund of ₹5 lakhs bearing 14% rate of interest, what will be the company's revised weighted average cost of capital? This financing decision is expected to increase dividend form ₹10 to ₹12 per share. However, the market price of equity share is expected to decline form ₹ 110 to ₹105 per share. **[7]**

5. (a) Electromatic Excellers Ltd. specialise in the manufacture of novel transistors. They have recently developed technology to design a new radio transistor capable of being used as an emergency lamp also. They are quite confident of selling all the 8,000 units that they would be making in a year. The capital equipment that would be required will cost ₹25 lakhs. It will have an economic life of 4 years and no significant terminal salvage value.

During each of the first four years promotional expenses are planned as under:

1 st Year	1	2	3	4
Advertisement	1,00,000	75,000	60,000	30,000
Others	50,000	75,000	90,000	1,20,000
Variable cost of production and selling expenses: ₹250 per unit				

Additional fixed operating costs incurred because of this new product are budgeted at ₹75,000 per year.

The company's profit goals call for a discounted rate of return of 15% after taxes on investments on new products. The income tax rate on an average works out to 40%. You can assume that the straight line method of depreciation will be used for tax and reporting. Assess the initial selling price per unit of the product that may be fixed for obtaining the desired rate of return on investment. Present value of annuity of ₹1 received or paid in a steady stream throughout 4 years in the future at 15% is 3.0079.

[7]

(b) Modern Enterprises Ltd. is considering the purchase of a new computer system for its research and development division, which would cost ₹35 lakh. The operation and maintenance costs (excluding depreciation) are expected to be ₹7 lakh per annum. It is estimated that the useful life of the system would be 6 years, at the end of which the disposal value is expected to be ₹1 lakh.

The tangible benefits expected from the system in the form of reduction in design and draftsmanship costs would be ₹12 lakh per annum. The disposal of used drawing office equipment and furniture initially is anticipated to net ₹9 lakh.

As capital expenditure in research and development, the proposal would attract a 100% write-off for tax purposes. The gains arising from disposal of used assets may be considered tax free. The effective tax rate is 35%. The average cost of capital of the company is 12%.

After appropriate analysis of cash flows, advise the company of the financial viability of the proposal. Ignore tax on salvage value. **[7]**

6. **(a)** From the following projections of XYZ Ltd for the next year, you are required to work out the working capital (WC) required by the company.

Annual sales	₹ 14,40,000
Cost of production including depreciation, ₹ 120000	₹ 12,00,000
Raw material purchases	₹ 7,05,000
Monthly expenses	₹ 30,000
Anticipated opening stock of raw materials	₹ 1,40,000
Anticipated closing stock of raw materials	₹ 1,25,000
Inventory norms:	
Raw material (month)	2
Work-in-progress (days)	15
Finished goods (month)	1

The firm enjoys a credit of 15 days on its purchases, and allows 1 month's credit on its supplies. The company has received an advance of ₹15,000 on sales orders.

You may assume that production is carried on evenly throughout the year, and the minimum cash balance desired to be maintained is ₹10,000. **[7]**

(b) XYZ Corporation whose current sales are in the region of ₹6 lakh per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information;

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 a 360 days year. Which of the above policies would you recommend for adoption? **[7]**

7. (a) Alfa Ltd. with net operating earnings of ₹3, 00,000 is attempting to evaluate a number of possible capital structures, given below. Which of the capital structure will you recommend, and why?

Capital structure	Debt in capital structure (₹)	Cost of debt (K_i) (per cent)	Cost of equity (K_e) (per cent)
1	3,00,000	10	12
2	4,00,000	10	12.5
3	5,00,000	11	13.5
4	6,00,000	12	15
5	7,00,000	14	18

[7]

(b) Calculate operating leverage and financial leverage under situations A, B and C and financial plans 1, 2 and 3 respectively from the following information relating to the operation and capital structure of X, Y, Z Ltd. Also find out the combinations of operating and financial leverage which give the highest value and the least value.

Installed capacity (units)	1,200
Actual production and sales (units)	800
Selling price per unit (₹)	15
Variable cost per unit (₹)	10
Fixed costs (₹):	
Situation A	1,000
Situation B	2,000
Situation C	3,000

Particulars	Financial Plan		
	1 (₹)	2 (₹)	3 (₹)
Equity (₹)	5,000	7,500	2,500
Debt (₹)	5,000	2,500	7,500
Cost of debt (for all plans) (%)	12		

[7]

8. (a) Interpret the various types of data used in Finance and Costing. **[7]**

(b) Explain the steps of data cleaning. **[7]**