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.

*Where considered necessary, suitable assumptions may be made
and clearly indicated in the answer.*
All workings must form part of your answer.

Section-A (Compulsory)

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

   (i) Which one of the following statements is correct concerning the weighted average cost of capital (WACC) of any firm?

   (A) The WACC may decrease as a firm's debt-equity ratio increases.

   (B) In the computation of WACC, weight assigned to the preferred stock is based on the coupon rate multiplied by the par value of the stock.

   (C) A firm's WACC will increase as the corporate tax rate increases.

   (D) The WACC does not consider redeemable preference shares of the firm.

   (ii) X Ltd. is considering an investment proposal involving an initial cash outlay of ₹ 20,00,000. The proposal has an expected life of 7 years and zero salvage value. At a required rate of return of 12%, the proposal has a profitability index of 1.182. Calculate the present value of cash inflows. The present value of an annuity of ₹ 1 for 7 years at 12% discount is 4.5638.

   (A) ₹ 22,64,000

   (B) ₹ 23,70,000

   (C) ₹ 23,64,000

   (D) ₹ 22,70,000

   (iii) The signs of large inventory build-up in anticipation of price increase in future can be best diagnosed from _____.

   (A) Asset turnover ratio

   (B) Working Capital turnover ratio

   (C) Inventory turnover ratio

   (D) Current ratio

(iv) MJ Ltd. has issued 5,000, 10% Debentures of ₹ 100 each. The rate of inflation is 6%. Calculate the real cost of debt.

(A) 3.77%

(B) 3.90%

(C) 4.10%

(D) 4.57%

(v) A commercial paper of the face value of ₹ 10,00,000 is issued at ₹ 9,60,000 for a maturity period of 120 days. The annual financing cost of the commercial paper is _____.

(A) 25%

(B) 14.5%

(C) 12.7%

(D) 4%

(vi) If the cost of the project is ₹ 22,84,000, the useful life is 5 years and the annuity is ₹ 8,00,000, then the Pay- Back Period is

(A) 3 years

(B) 2 years 11 months

(C) 2 years 9 months

(D) 2 years 8 months

(vii) If the Annual demand of raw materials is 20,000 units, the price per unit is ₹ 2, the ordering cost per order is ₹ 2,000 and the carrying cost percentage of average inventory is 10%, then the number of orders based on EOQ will be:

(A) 3 orders

(B) 2 orders

(C) 1 order

(D) 4 orders

(viii) If the average receivables are ₹ 3,25,000, the cash sales are ₹ 2,50,000 and the average collection period is 2 months, then the amount of sales is:

(A) ₹ 20,00,000

(B) ₹ 22,00,000

(C) ₹ 19,50,000

(D) ₹ 21,50,000

(ix) The Piotroski F Score which measures a stock's financial condition is based on:

(A) Binary scoring system based on nine parameters.

(B) A scaled scoring system based on nine parameters.

(C) Binary scoring system based on ten parameters.

(D) A scaled scoring system based on ten parameters.

(x) The constant dividend growth model is useful for _____.

(A) Seasonal Industry

(B) Mature Industry

(C) Capital Oriented Industry

(D) Growth Oriented Industry

(xi) OASIS committee has given recommendations in the area of _____.

(A) Pension Policy

(B) Hedge Funds

(C) Private Equity Funds

(D) Venture Capital

(xii) _____ is annual growth of Investment over a specific period of time.

(A) Perpetuity

(B) CAGR

(C) Annuity

(D) None of the above

(xiii) In which scale used for quantifying qualitative data is an arbitrary zero point used?

(A) Nominal Scale

(B) Ratio Scale

(C) Ordinal Scale

(D) Interval Scale

(xiv) _____ represents a project timeline or activity changes across time.

(A) Bubble Chart

(B) Gantt Chart

(C) Density Map

(D) Scatter Plots

(xv) _____ architecture enables business to store sensitive data on premises and access it though app hosted in the public cloud.

(A) Private Cloud

(B) Public Cloud

(C) Hybrid Cloud

(D) All of the above

Section-B

(Answer *any five* questions out of *seven* questions given. Each question carries 14 marks.)

14×5=70

2. (a) Examine the difference between Primary Market and Secondary Market.   7

   (b) Define Prescriptive Analytics and explain how it works.   7

3. (a) M Ltd. provides you the following information:

Current Ratio	2.5
Liquid Ratio	1.5
Proprietary Ratio (Fixed Assets/Proprietors' Funds)	0.75
Working Capital	₹ 60,000
Reserves and Surplus	₹ 40,000
Bank Overdraft	₹ 10,000

   There is no long-term loan or fictitious assets. Similarly, there is no prepaid expenses and bank overdraft. Calculate Current Assets, Current Liabilities and value of Stock.   7

   (b) The following information is provided by K Ltd. regarding its Retained earnings:

Particulars	₹	₹
Balance of retained earnings, 1st April 2022		3,25,600
Add: Net Profit after taxes		6,48,480
Tax Refund		25,470
		9,99,550
Less: Loss on Sale of Plant and Machinery	14,460	
Goodwill written off	95,370	
Dividends paid	4,70,350	
		5,80,180
Balance of retained earnings, 31st March 2023		4,19,370

Additional Information:

(i) Plant and machinery having a written down value of ₹ 54,360 was sold in October, 2022.

(ii) Depreciation of ₹ 68,250 has been deducted while arriving at net profit for the year.

(iii) Plant and machinery were purchased during the year at a cost of ₹ 1,60,000 but the payment was made in the form of 8% Debentures of ₹ 100 each for the same.

(iv) ₹ 72,800 debentures have been redeemed during 2022.

Prepare a Statement of Sources and Application of Funds for the year ended 31st March, 2023.   7

4. (a) Prepare a Common Size Income Statement from the following figures extracted from the Statement of Profit and Loss of XYZ Ltd. and offer your comments on its profitability position.   7

Particulars	2021-22 (₹)	2022-23 (₹)
Net Sales	5,25,000	6,75,000
Less: Cost of Goods sold	2,85,000	3,22,500
Gross profit	2,40,000	3,52,500
Less: Operating Expenses	75,000	1,08,000
Operating profit	1,65,000	2,44,500
Less: Interest on debentures	30,000	25,500
Profit before Tax	1,35,000	2,19,000

(b) T Ltd, provides you the following information:

Particulars	
No. of Equity Shares (₹ 10 each)	1,50,000
No. of 17% Preference Shares (₹ 100 each)	20,000
Retained Earnings	₹ 5,00,000
No. of 7.5% Debentures (₹ 100 each)	30,000
10% Long-term Loan	₹ 10,00,000

Additional Information:

(i) The Current market price of the company's equity share is ₹ 30. Expected Dividend per Equity Share for the year is ₹ 1.20 which is expected to grow @ 5%. The flotation cost on issue of new equity shares is expected to be ₹ 5 per share.

(ii) The Preference shares of the company which are redeemable at par after 5 years are currently selling at ₹ 90 per Preference Share.

(iii) The Debentures of the company which are redeemable at 10% premium after 5 years are currently quoted at ₹ 90 per debenture.

(iv) The corporate tax rate is 20%.

Calculate Weighted Average Cost of Capital using (a) Book Value Weights (b) Market Value Weights. 7

5. (a) Company A wants to invest in a project, the life of which is expected to be 4 years. The actual net profit is expected to be ₹ 20,000 after charging yearly depreciation of ₹ 16,000 in order to write-off the capital cost of ₹ 64,000. Out of the capital cost, ₹ 40,000 is payable immediately (Year 0) and the balance in the next year end. Stock amounting to ₹ 12,000 (to be invested in year 0) will be required throughout the project and for debtors a further sum of ₹ 16,000 will have to be invested at the end of year 1. The working capital will be recouped at the end of year 5. It is expected that the machinery will fetch a scrap value of ₹ 4,000 at the end of 4th year. Income tax is payable @ 40% and the Depreciation equals the taxation writing down allowances of 25% per annum. Income tax is paid after 9 months after the end of the year when profit is made. The residual value of ₹ 4,000 will also bear tax @ 40%. Since the tax paid is in the next year and the working capital is recouped in the fifth-year cash inflow, calculations will be required up to 5 years.

Taking discount factor of 10%, calculate NPV of the project and give your comments regarding its acceptability. 7

PV of ₹ 1.00 at 10% p.a.

Year	1	2	3	4	5
PV	0.9091	0.8264	0.7513	0.6830	0.6209

(b) A company has to replace one of its machines, which has become unserviceable. Two options are available to the company:

(i) A more expensive machine (Premium) with 12 years life.

(ii) A less expensive machine (Standard) with 6 years life.

If Standard machine is chosen, it will be replaced at the end of 6 years by another Standard machine. The pattern of maintenance, running costs and prices is as under:

Particulars	Premium (₹)	Standard (₹)
Purchase price	40,00,000	28,00,000
Scarp value at end of life	6,00,000	6,00,000
Overhauling is due at the end of	8th Year	4th Year
Overhauling cost	8,00,000	4,00,000
Annual repairing expenses	4,00,000	5,60,000

Cost of capital is 14%.

You are required to recommend which of the machines should be purchased. Given, Present Value Interest Factor, PVIF (14%) 7

Year	4	6	8	12
PV Factor	0.5921	0.4556	0.3506	0.2076

Present Value Interest Factor for an Annuity, PVIFA (14%)

Year	1 to 6 Years	1 to 12 Years
PV Factor	3.8899	5.6600

6. (a) From the following information you are required to estimate the net working capital requirement:

Particulars	
Cost per unit (₹)	
Raw Materials	40
Direct labour	15
Overheads (excluding depreciation)	30
Total Cost	85
Additional Information:	
Selling-Price	₹ 100 per unit
Output	52,000 units per annum
Raw Material in stock	average 4 weeks
Work-in-process: (Assume 50% completion stage with full material consumption)	average 2 weeks
Finished goods in stock	average 4 weeks
Credit allowed by suppliers	average 4 weeks
Credit allowed to debtors	average 8 weeks
Cash at bank is expected to be	₹ 50,000

Assume that production is sustained at an even pace during the 52 weeks of the year. All sales are on credit basis. State any other assumption that you might have made while computing. 7

(b) P Ltd. has received an offer of quantity discounts on its order of materials as under:

Ordering quantities (Kgs)	Price per kg. (₹)
Less than 500	12.00
500 but less than 1600	11.80
1,600 but less than 4000	11.60
4,000 but less than 8,000	11.40
8,000 and above	11.20

The annual requirement for the material is 8,000 kgs. The ordering cost per order is ₹ 12.00 and the stock holding cost is estimated at 20% of material cost per annum. As a Cost and Management Accountant you have to compute the most economical ordering quantity.   7

7. (a) Company L and company U are in the same risk class and identical in all respects except that L uses debt while U does not. Levered company has ₹ 18,00,000 debentures, carrying 10% rate of interest. Both the companies earn 20% before interest and taxes on their total assets of ₹ 30,00,000. Assume perfect capital market, tax rate of 50% and capitalization rate of 15% for an all-equity company.

Compute the value of both the companies using NI approach and NOI approach and overall Cost of Capital of Company L using NI approach.   7

(b) The balance sheet of a company for the year 2022-23 is given below (in ₹ Crore):

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity share capital (₹ 10)	1,20,000	Fixed Assets	3,00,000
Retained Earnings	40,000	Current Assets	1,00,000
10% Long term debt	1,60,000		
Current Liabilities	80,000		
	4,00,000		4,00,000

The company's total assets turnover ratio is 3, its fixed operating costs are ₹ 2,00,000 and its variable operating cost ratio is 40%. The income tax rate is 30%.

Calculate Degree of Operating leverage, Degree of Financial leverage and Degree of Combined leverage of the company.   7

8. (a) 'Transformation of Data to Decision Relevant Information requires to go through certain core steps.' – In the light of the given statement, explain the steps to transform data into information.   7

(b) 'Data Analytics is the science of evaluating unprocessed data sets to get some conclusions.' In the context of the given statement, briefly explain the steps of Data Analytics.   7

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