

**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 x 2 = 30]

- (i) Relationship between annual effective rate of interest and annual nominal rate of interest is, if frequency of compounding is more than 1,
(a) Effective Rate < Nominal rate
(b) Effective Rate > Nominal rate
(c) Effective Rate = Nominal rate
(d) none of the above
- (ii) If the nominal rate of interest is 10 per cent per annum and frequency of compounding is 4 i.e. quarterly compounding, the effective rate of interest will be
(a) 10.25% per annum
(b) 10.38% per annum
(c) 10% per annum
(d) none of the above
- (iii) Prime duty of a merchant banker is -
(a) Maintaining records of clients
(b) Giving loans to clients
(c) Working as a Capital Market Intermediary
(d) None of the above
- (iv) Average collection period is 2 months, cash sales and average receivables are ₹ 5,00,000 and ₹6,50,000 respectively. The total sales amount would be-
(a) ₹40,00,000
(b) ₹42,00,000
(c) ₹44,00,000
(d) ₹48,50,000
- (v) The degree of operating leverage and degree of financial leverage of Vintex Ltd. are 2.00 and 1.5 respectively. What will be the percentage change in EPS, if the sale increases by 10%?
(a) 10% increase
(b) 15% increase
(c) 30% increase
(d) 35% increase
- (vi) If a company issues new share capital to redeem debentures, then:
(a) OL will increase
(b) FL will increase
(c) OL will decrease



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(d) FL will decrease

(vii) Which of the following is not used in Capital Budgeting?

- (a) Time Value of Money
- (b) Sensitivity Analysis
- (c) Net Assets Method
- (d) Cash Flows

(viii) A project has a 10% discounted payback of 2 years with annual after-tax cash inflows commencing from year end 2 to 4 of ₹400 lakh. How much would have been the initial cash outlay which was fully made at the beginning of year 1?

- (a) ₹ 400 lakh
- (b) ₹ 422 lakh
- (c) ₹ 452 lakh
- (d) ₹ 497.20 lakh

(ix) Which of the following derivative is not traded on Indian Stock Market?

- (a) Index Options
- (b) Stock Futures
- (c) Index Futures
- (d) Forward Rate Agreements

(x) DuPont Analysis deals with:

- (a) Analysis of Current Assets
- (b) Analysis of Profit
- (c) Capital Budgeting
- (d) Analysis of Fixed Assets

(xi) Debt to Total Assets of a firm is 2. The Debt to Equity would be:

- (a) 0.80
- (b) 0.25
- (c) 1.00
- (d) 0.75

(xii) DPIIT stands for _____.

- (a) Department for Promotion of Industry and Internal Trade
- (b) Department for Promotion of Industry and International Trade
- (c) Department for Production of Industry and Internal Trade
- (d) Department for Promotion of International and Internal Trade

(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 two mutually exclusive and exhaustive classes
- (b) that are categorised into three mutually exclusive and exhaustive classes

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- (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) Data represented in the form of picture is termed as:

- (a) Qualitative data
(b) Quantitative data
(c) Graphic data
(d) All of the above

Answer:

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
b.	b.	c.	c.	c.	d.	c.	c.	d.	b.
(xi)	(xii)	(xiii)	(xiv)	(xv)					
b.	a.	a.	a.	c.					

SECTION – B

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

[5x14=70]

2. (a) Describe the functions of Commercial Banks. [7]
(b) Describe descriptive analytics. Explain how does descriptive analytics work. [7]

Answer:

(a) Functions of commercial banks can be divided in two groups—banking functions (primary functions) and non-banking functions (secondary functions).

1. Banking Functions (primary functions): Most of banking functions are: –

(A) Acceptance of Deposits from Public: - Bank accepts following deposits from public: -

(i) Demand deposits can be in the form of current account or savings account. These deposits are withdrawable any time by depositors by cheques. Current deposits have no interest or nominal interest. Such accounts are maintained by commercial firms and business man. Interest rate of saving deposits varies with time period. Savings accounts are maintained for encouraging savings of households.

(ii) Fixed deposits are those deposits which are withdrawable only after a specific period. It earns a higher rate of interest.

(iii) In recurring deposits, people deposit a fixed sum every month for a fixed period of time.

(B) Advancing Loans: It extends loans and advances out of money deposited by public to various business units and to consumers against some approved. Usually, banks grant short-term or medium-term loans to meet requirements of working capital of industrial units and trading units. Banks discourage loans for consumption purposes. Loans may be secured or



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unsecured. Banks do not give loan in form of cash. They make the customer open account and transfer loan amount in the customer's account. Banks grant loan in following ways: –

- (i) Overdraft: - Banks grant overdraft facilities to current account holder to draw amount in excess of balance held.
 - (ii) Cash Credit: - Banks grant credit in cash to current account holder against hypothecation of goods.
 - (iii) Discounting Trade Bills: - The banks facilitate trade and commerce by discounting bills of exchange.
 - (iv) Term Loan: - Banks grant term loan to traders and to agriculturists against some collateral securities.
 - (v) Consumer Credit: - Banks grant credit to households in a limited amount to buy durable goods.
 - (vi) Money at Call or Short-term Advances: - Banks grant loan for a very short period not exceeding 7 days to dealers / brokers in stock exchange against collateral securities.
- (C) Credit Creation: - Credit creation is another banking function of commercial bank. i.e., it manufactures money.
- (D) Use of Cheque System: - Banks have introduced the cheque system for withdrawal of deposits. There are two types of cheques – bearer & cross cheque. A bearer cheque is encashable immediately at the bank by its possessor. A crossed cheque is not encashable immediately. It has to be deposited only in the payee's account. It is not negotiable.
- (E) Remittance of Funds: - Banks provides facilities to remit funds from one place to another for their customers by issuing bank drafts, mail transfer etc.

2. Non-Banking functions (secondary functions): Non-banking functions are (A)Agency services

(B) General utility services

(A) Agency Services: - Banks perform following functions on behalf of their customers: -

- (i) It makes periodic payments of subscription, rent, insurance premium etc. as per standing orders from customers.
- (ii) It collects bill, cheques, demand drafts, etc on behalf of their customers.
- (iii) It acts as a trustee for property of its customers.
- (iv) It acts as attorney. It can help in clearing and forwarding goods of its customers.
- (v) It acts as correspondents, agents of their clients.

(B) General Utility Services: - General utility services of commercial banks are as follows: -

- (i) Lockers are provided by bank to its customers at nominal rate.

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- (ii) Shares, wills, other valuables documents are kept in safe custody. Banks return them when demanded by its customers.
- (iii) It provides travellers cheque and ATM facilities.
- (iv) Banks maintain foreign exchange department and deal in foreign exchange.
- (v) Banks underwrites issue of shares and debentures of concerns.
- (vi) It compiles statistics and business information relating to trade and commerce.
- (vii) It accepts public provident fund deposits.

(b) Descriptive analytics is a frequently employed style of data analysis in which historical data is collected, organised, and presented in a readily digestible format. Descriptive analytics focuses exclusively on what has already occurred in an organisation and, unlike other types of analysis, does not utilise its results to draw inferences or make forecasts. Rather, descriptive analytics serves as a basic starting point to inform or prepare data for subsequent analysis.

In general, descriptive analytics is the simplest kind of data analytics, since it employs simple mathematical and statistical methods, such as arithmetic, averages, and percentage changes, rather of the complicated computations required for predictive and prescriptive analytics. With the use of visual tools such as line graphs, pie charts, and bar charts to communicate data, descriptive analytics can and should be readily understood by a broad corporate audience.

To identify historical data, descriptive analytics employs two fundamental techniques: data aggregation and data mining (also known as data discovery). The process of gathering and organising data into digestible data sets called data aggregation. The extracted patterns, trends, and significance are then presented in an intelligible format.

According to Dan Vasset, the process of descriptive analytics may be broken into five broad steps:

Step 1: Decide the business metrics: First, measurements are developed to evaluate performance against corporate objectives, such as increasing operational efficiency or revenue. According to Vasset, the effectiveness of descriptive analytics is strongly dependent on KPI governance. ‘Without governance,’ he says, ‘there may be no consensus on the meaning of the data, assuring analytics a minor role in decision-making.’

Step 2: Identification of data requirement: The data is gathered from sources such as reports and databases Vasset states that in order to correctly measure against KPIs, businesses must catalogue and arrange the appropriate data sources in order to extract the necessary data and generate metrics depending on the present status of the business.

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Step 3: Preparation and collection of data: Data preparation, which includes publication, transformation, and cleaning, occurs prior to analysis and is a crucial step for ensuring correctness; it is also one of the most time consuming tasks for the analyst.

Step 4: Analysis of data: Utilizing summary statistics, clustering, pattern tracking, and regression analysis, we discover data trends and evaluate performance.

Step 5: Presentation of data: Lastly, charts and graphs are utilised to portray findings in a manner that non experts in analytics may comprehend.

3. (a) The following accounting information and financial ratios of Star Sunshine Ltd. relate to the year ended 31-03-2024:

(i) Accounting information:

Direct wages	10% of works cost
Stock of raw material	3 months' usage
Stock of finished goods	6% of works cost
Raw material consumed	20% of works cost
Debt collection period	60 days
Gross profit	15% of sales
Net profit	8% of sales
All sales are on credit	

(ii) Ratios

Fixed asset to sales	1:3
Fixed assets to current assets	13:11
Current ratios	2
Long term loan to current liability	2:1
Capital to reserve and surplus	1:4

If value of fixed assets as on 31-3-2024 amounted to ₹26 lakhs, prepare a balance sheet of the company for the year ended 31-3-2024. [7]

(b) VW Ltd. gives you the following information for the year ended 31st March, 2024:

- (i) Sales for the year totalled ₹96,00,000. The company sells goods for cash only.
- (ii) Cost of goods sold was 60% of sales. Closing inventory was higher than opening inventory by ₹20,000.
- (iii) Tax paid amounted to ₹7,00,000. Other expenses totalled ₹21,45,000. Outstanding expenses on 31st March, 2023 and 31st March, 2024, totalled ₹82,000 and ₹91,000 respectively.
- (iv) New machinery and furniture costing ₹10,50,000 in all were purchased. One equipment was sold for ₹20,000.
- (v) A right issue was made of 50,000 shares of ₹10 each at a premium of ₹3 per share. The entire money was received with application.

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- (vi) Dividends totalling ₹4,00,000 were distributed among the shareholders.
(vii) Cash in hand and at Bank as at 31st March, 2023 and 31st March, 2024 totalled ₹2,10,000 and ₹4,14,000 respectively.

You are required to prepare cash flow statement as per CAS3 for the year ended 31st March, 2024 using the direct method. [7]

Answer:**(a) Working Notes:****(1) Calculation of Sales**

$$\begin{aligned}\text{Fixed asset to sales} &= 1.3 \text{ (given)} \\ &= \text{sales}/\text{fixed assets} = 3 \\ &= \text{sales}/26,00,000 = 3 \\ \text{Sales} &= 3 \times 26,00,000 \\ &= ₹78,00,000\end{aligned}$$

(2) Calculation of Current Assets

$$\begin{aligned}\text{Fixed asset to sales} &= 13:11 \text{ (given)} \\ \text{Current assets} &= \text{fixed assets} \times 11/13 \\ &= 26,00,000 \times 11/13 \\ &= ₹22,00,000\end{aligned}$$

(3) Calculation of raw material consumption

	₹
Sales	78,00,000
Less: Gross profit (78,00,000×0.15)	11,70,000
Works cost	66,30,000
Raw material consumption (20% of works cost) (given)	13,26,000
Direct wages (10% of works cost) (given)	6,63,000

(4) Calculation of stock of raw materials:

$$\begin{aligned}\text{Stock of raw material} &= 3 \text{ months usage} \\ &= 13,26,000 \times 3/12 \\ &= ₹3,31,500\end{aligned}$$

(5) Calculation of stock of finished goods

$$\begin{aligned}\text{Stock of finished goods} &= 6\% \text{ of works cost (given)} \\ &= 66,30,000 \times 6/100 \\ &= ₹3,97,800\end{aligned}$$

(6) Calculation current liabilities:

$$\begin{aligned}\text{Current ratio} &= 2 \\ &= \text{current asset}/\text{current liability} = 2 \\ &= 22,00,000/\text{current liabilities} = 2 \\ \text{Current liabilities} &= ₹11,00,000\end{aligned}$$

(7) Calculation of Debtors

$$\begin{aligned}\text{Average collection period} &= 60 \text{ days} \\ \text{Debtors}/\text{Credit sales} \times 365 &= 60 \text{ days} \\ \text{Debtors}/78,00,000 \times 365 &= (78,00,000 \times 60)/365 \\ &= ₹12,82,000\end{aligned}$$



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(8) Calculation of Long term loan:

Long term loan to current liabilities = 2:1

Long- term loan/Current liabilities = 2

Long- term loan/11,00,000 = 2

Long term loan = $2 \times 11,00,000 = ₹22,00,000$

(9) Calculation of Cash Balance

		₹
Current assets		22,00,000
Less: debtors	12,82,000	
Raw material	3,31,500	
Finished goods stock	3,97,800	(20,11,300)
Cash balance		1,88,700

(10) Calculation of Net worth

		₹
Fixed assets		26,00,000
Current assets		22,00,000
Total assets		48,00,000
Less: long term loan	22,00,000	
Current liabilities	11,00,000	33,00,000
Net worth		15,00,000

Net worth = share capital + reserves

Capital to Reserves and surplus = 1:4

Share capital = $15,00,000 \times 1/5 = ₹3,00,000$ Reserve & surplus = $15,00,000 \times 4/5 = ₹12,00,000$

Balance Sheet of Star Sunshine Ltd. as at 31-3-2024

Liabilities	₹	Assets	₹
Share capital	3,00,000	Fixed assets	26,00,000
Reserves & surplus	12,00,000	Current assets	
Long term loans	22,00,000	Stock of raw material	3,31,500
Current liabilities	11,00,000	Stock of finished goods	3,97,800
		Debtors	12,82,000
		Cash	1,88,700
	48,00,000		48,00,000

(b)

VW Ltd.

Cash Flow Statement for the year ended 31st March, 2024

(Amount in ₹ Lakhs)

Particulars	₹	₹
Cash flow from operating activities:		
Cash receipts from customers	96.00	
Cash paid to suppliers and employees (WN-1)	(79.16)	
Cash inflow from operation	16.84	
Tax paid	(7.00)	
Net cash from Operating Activities		9.84

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Cash flow from investing activities:		
Purchase of Fixed Assets	(10.50)	
Proceeds from sale of Equipment	0.20	
Net cash from Investing Activities		(10.30)
Cash Flow from Financing Activities:		
Proceeds from issue of share capital (WN-2)	6.50	
Dividend paid	(4.00)	
Net Cash from Financing Activities		2.50
Net increase in Cash and Cash equivalents:		2.04
Cash and cash equivalents as at 31st March, 2023		2.10
Cash and cash equivalents as at 31st March, 2024		4.14

Working Notes:

1. Calculation of cash paid to suppliers and employees: □ Particulars	(₹ in lakh)
Cost of sales, 60% of ₹96.00 lakh	57.60
Add: Expenses incurred	21.45
Outstanding expenses on 31.03.23	0.82
Excess of closing inventory over opening inventory	0.20
	80.07
Less: Outstanding expenses on 31.03.2024	0.91
	79.16

2. Proceeds from issue of share Capital:

Issue price of one share = ₹10 + ₹3 = ₹13

Proceeds from issue of 50,000 shares = 50,000 × 13 = ₹6.50 lakhs.

4. (a) The following are the income statements of A Limited for the years ended 31.03.2023 and 31.03.2024.

Particulars	31.03.23 (₹)	31.03.24 (₹)
Net Sales	1,70,000	1,90,400
Less: Cost of goods sold	1,05,000	1,20,000
Gross Profit (P)	65,000	70,400
Administrative expenses (A)	13,200	14,960
Selling expenses:		
Advertisement expenses	3,000	4,000
Other selling expenses	40,800	41,800
Total selling expenses (B)	43,800	45,800
Operating expenses (A + B)	57,000	60,760
Operating Profit (D) [D = P – (A + B)]	8,000	9,640
Other Incomes (E)	6,400	9,200
Other expenses (F)	6,800	4,800



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Profit before tax (PBT) [PBT = D + E – F]	7,600	14,040
Income tax (T)	3,800	6,200
Profit after tax (PAT) [PAT = PBT – T]	3,800	7,840

Prepare a Comparative income statement and comment on the performance of A Limited.

[7]

(b) Calculate the WACC using the following data by using:

(i) Book value weights

(ii) Market value weights

The capital structure of the company is as under:

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

(1) ₹ 100 per debenture redeemable at par, 10% coupon rate, 4% floatation costs, 10 year maturity.

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

(3) Equity share 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 50%. [7]

Answer:

(a) Comparative Income Statement of A Ltd. for the year ended 31.03.2023 and 31.03.2024

Particulars	31.03.23 (₹)	31.03.24 (₹)	Amount of increase (+) or decrease (-) (₹)	Percentage increase (+) or decrease (-) %
Net Sales	1,70,000	1,90,400	(+) 20,400	Note (i) (+) 12.0
Less: Cost of goods sold	1,05,000	1,20,000	(+) 15,000	Note (ii) (+) 14.3
Gross Profit (P)	65,000	70,400	(+) 5,400	(+) 8.3
Administrative expenses (A)	13,200	14,960	(+) 1,760	(+) 13.3
Selling expenses:				
Advertisement expenses	3,000	4,000	(+) 1,000	(+) 33.3



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Other selling expenses	40,800	41,800	(+) 1,000	(+) 2.5
Total selling expenses (B)	43,800	45,800	(+) 2,000	(+) 4.6
Operating expenses (A + B)	57,000	60,760	(+) 3,760	(+) 6.6
Operating Profit (D) [D = P – (A + B)]	8,000	9,640	(+) 1,640	(+) 20.5
Other Incomes (E)	6,400	9,200	(+) 2,800	(+) 43.8
Other expenses (F)	6,800	4,800	(–) 2,000	(–) 29.4
Profit before tax (PBT) [PBT = D + E – F]	7,600	14,040	(+) 6,440	84.7
Income tax (T)	3,800	6,200	(+) 2,400	(+) 63.2
Profit after tax (PAT) [PAT = PBT – T]	3,800	7,840	(+) 4,040	(+) 106.3

Interpretation of Results:

Comparative income statement shows the income and expenses of two periods of same company, absolute changes of each item for the year ended 31.03.2024 over 31.03.2023 and also shows percentage change.

The following comments can be made on the performance of A Ltd.:

- (i) Sales of A Ltd. has been increased by ₹20,400 during the year 2023-24 over 2022-23. But, the cost of goods sold has also increased by ₹15,000 in the same period. i.e., sales have improved by 12% and cost of goods sold has increased by 14.3%. So, Gross Profit has not improved markedly. Cost of goods sold may increase due to higher quantity of sales or due to higher input cost. As sale value has increased so it is clear cost of goods sold has increased due to higher quantity of sales. If such quantity has been sold at previous price, then sales value has been increased with higher amount. But here sales value has not increased significantly. It indicates that the addition in sales has been due to lowering of sale price. It is also clear from advertisement expenses. The increase in advertisement expenses (33.3%) has been much higher than the percentage increase in net sales (12%). It indicates there was tough selling market where mass advertisement was necessary and reduction of sale price was necessary in order to higher quantity of sales. Such situation may also arise due to new product launching where huge advertisement is necessary and reduction of sale price is necessary.
- (ii) There has been a substantial improvement in other incomes, both in relative term (43.8%) and in absolute term (₹2,800). Similarly, there has been a considerable reduction in other expenses in relative term (29.4%) as well as in absolute term (₹ 2,000). These items have been responsible for the increase in profit before tax (PBT) for the period under study by 84.7%. It implies that more emphasis has been given by the management of the company on earning non-operating profits as compared to the operating profits.

(b) Cost of Equity (K_e)

$$= (D_1 \div (P_0 - F)) + g = (\text{₹}1 \div (\text{₹}24 - \text{₹}4)) + 0.05 = 0.1 \text{ or } 10\%$$

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Cost of Debt (K_d)

$$= [I(1-t) + ((RV-NP)/n)] \div (RV+NP)/2 = 10(1-0.5) + (100-NP)/n \div (RV+NP)/2$$
$$= [10(1-0.5) + ((100-96)/10)] \div (100+96)/2 = (5+0.4)/98 = 0.055(\text{approx.})$$

Cost of preference shares (K_p)

$$= K_p = PD + (RV-NP)/N \div RV+NP/2$$
$$[5 + (2/10)] \div 198/2 = 5.2 \div 99 = 0.053(\text{approx.})$$

(i) Calculation of WACC using book value weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC(K_0)
		(a)	(b)	(c)=(a) × (b)
10% Debentures	5,00,000	0.25	0.055	0.0137
5% Preference shares	5,00,000	0.25	0.053	0.0132
Equity shares	10,00,000	0.50	0.10	0.0500
	20,00,000	1.00		0.0769

WACC (K_0) = 0.0769 or 7.69%

(ii) Calculation of WACC using market value weights

Source of capital	Book Value	Weights	After tax cost of capital	WACC(K_0)
		(a)	(b)	(c)=(a) × (b)
10% Debentures(₹105×5,000)	5,25,000	0.151	0.055	0.008
5% Preference shares(₹110×5,000)	5,50,000	0.158	0.053	0.008
Equity shares(₹24×1,00,000)	24,00,000	0.691	0.10	0.069
	34,75,000	1.00		0.085

WACC (K_0) = 0.085 or 8.5%.

5. (a) A firm proposes to market a cheaper variety of its existing brand to be sold for ₹20 per unit, estimated product-life being five years. The sales volume for the five years has been estimated to be 30,000 units for the first year, 40,000 units for each of the next two years and 20,000 units for each of the last two years. The variable cost p.u. is ₹10. Production of the cheapest brand will entail an initial expenditure of ₹4,50,000 in purchasing and installing a new plant with estimated economic life of five years and scrap value of ₹50,000. The fixed cost of ₹2,00,000 per annum including depreciation on the plant on straight line basis will be needed for producing and marketing the cheaper brand. Introduction of this cheaper variety is also likely to have an adverse impact on the demand of the existing dearer brand resulting in loss of contribution estimated at ₹20,000 per annum.

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Assuming cost of Capital to be 10% and marginal tax rate to be 40%, you are required to evaluate proposal and give your reasoned recommendation as to its acceptance or rejection. The PV factors at 10% for five years are 0.909, 0.826, 0.751, 0.683 and 0.62. [7]

- (b) 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	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]

Answer:

- (a) Calculation of Cash Flow before Depreciation and Tax (CBDT)

Year	Sales (Units)	Sales @ ₹20 p.u. (₹)	Variable Cost @ ₹10 p.u. (₹)	Fixed Cost excluding Depreciation (₹)	CBDT (₹)
1	30,000	6,00,000	3,00,000	1,20,000	1,80,000
2	40,000	8,00,000	4,00,000	1,20,000	2,80,000
3	40,000	8,00,000	4,00,000	1,20,000	2,80,000
4	20,000	4,00,000	2,00,000	1,20,000	80,000
5	20,000	4,00,000	2,00,000	1,20,000	80,000

Note: Depreciation = ₹ (4,50,000 – 50,000) ÷ 5 = ₹ 80,000 p.a.

Fixed cost excluding depreciation = ₹ (2,00,000 – 80,000) = ₹1,20,000



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Calculation of Cash Flow After Tax (CFAT)

Year	CBDT (₹)	Depreciation	Taxable Profit (₹)	Tax (₹)	CFAT excluding Loss of Contribution	Loss of Contribution (₹)	CFAT (₹)
(1)	(2)	(3)	(4)	(5)	(6)=(2)-(5)	(7)	(8) = (6)+(7)
1	1,80,000	80,000	1,00,000	40,000	1,40,000	20,000	1,20,000
2	2,80,000	80,000	2,00,000	80,000	2,00,000	20,000	1,80,000
3	2,80,000	80,000	2,00,000	80,000	2,00,000	20,000	1,80,000
4	80,000	80,000	Nil	Nil	80,000	20,000	60,000
5	80,000	80,000	Nil	Nil	80,000	20,000	1,10,000 *

*Note: The cash flow of fifth year includes ₹ 50,000 scrap value.

Calculation of NPV:

Year	CFAT (₹)	PVIF @ 10%	PV of CF
1	1,20,000	0.909	1,09,080
2	1,80,000	0.826	1,48,680
3	1,80,000	0.751	1,35,180
4	60,000	0.683	40,980
5	1,10,000	0.621	68,310
Total PV			5,02,230
(-) Initial Investment			4,50,000
NPV			52,230

Since NPV of the project is positive, it may be recommended.

(b) Computation of selling price in order to get a return of 15%

Let 'X' be the selling price, then sales will be 8000X

Sales	8000 X
Less: Variable Cost [8000 × 250]	20,00,000
Contribution	8000 X – 20,00,000
Less: Fixed Cost [Adv. + Others]	-1,50,000
Additional Fixed Cost	-75,000
Depreciation [25,00,000/4]	-6,25,000
PBT	8000X – 28,50,000
Less: Tax @ 40%	3200X – 11,40,000
PAT	4800X – 17,10,000
Add: Depreciation	6,25,000
Cash inflow after tax	4800X – 10,85,000

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At required return at 15% -

PV of total cash inflow = outflow

$$[4,800 X - 10,85,000] \times 3.0079 = 25,00,000$$

$$14,437.92 X - 32,63,572 = 25,00,000$$

$$14,437.92 X = 32,63,572 + 25,00,000$$

$$X = \frac{32,63,572 + 25,00,000}{14,437.92}$$

$$= 399.19$$

Selling price must be at least ₹399.19= ₹400

6. (a) A company plans to manufacture and sell 400 units of a domestic appliance per month at a price of ₹ 600 each. The ratio of costs to selling price is as follows:

Particulars	(% of selling price)
Raw materials	30%
Packing materials	10%
Direct labour	15%
Direct expense	5%

Fixed overheads are estimated at ₹4,32,000 per annum. The following norms are maintained for inventory management:

Raw materials	30 days
Packing materials	15 days
Finished goods	200 units
Work-in-progress	7 days

Other particulars are given below:

- (A) Credit sales represent 80% of total sales and the dealers enjoy 30 working days' credit. Balance 20% is cash sales.
- (B) Creditors allow 21 working days credit for payment.
- (C) Lag in payment of overheads and expenses is 15 working days.
- (D) Cash requirements to be 12% of net working capital.
- (E) Working days in a year are taken as 300 for budgeting purpose.

Prepare a Working Capital requirement forecast for the budget year.

[7]

- (b) ABC Corporation is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of ₹ 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is ₹1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Analyse the following given information and Examine which is the better option.



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(Amount in ₹)

	Present Policy	Policy Option I	Policy option II
Annual credit sales	50,00,000	60,00,000	67,50,000
Accounts receivable turnover ratio	4 times	3 times	2.4 times
Bad debt losses	1,50,000	3,00,000	4,50,000

[7]

Answer:

(a)

Selling Price and Cost per unit

(₹)

Raw materials ($₹ 600 \times 30/100$)	180
Packing materials ($₹ 600 \times 10/100$)	60
Direct labour ($₹ 600 \times 15/100$)	90
Direct expenses ($₹ 600 \times 5/100$)	30
Fixed overheads [$₹ 4,32,000 / (400 \times 12)$]	90
Total cost	450
Profit	150
Selling Price per unit	600

Forecast of Working Capital Requirement:

(₹)

Current Assets		
Raw materials stock	($₹ 4800 \times 180 \times 30/300$)	86,400
Packing materials stock	($₹ 4800 \times 60 \times 15/300$)	14,400
Working in progress	($₹ 4800 \times 285 \times 7/300$)	31,920
Finished goods stock	($₹ 450 \times 200$ units)	90,000
Debtors	($₹ 4800 \times 80/100 \times ₹ 600 \times 30/300$)	2,30,400
Total (A)		4,53,120
Current Liabilities:		
Creditors for raw material suppliers	($₹ 4800 \times 180 \times 21/300$)	60,480
Creditors for packing material	($₹ 4800 \times 60 \times 21/300$)	20,160
Creditors for expenses and overheads	($₹ 4800 \times 120 \times 15/300$)	28,800
Total (B)		1,09,440
Net Working Capital (A) – (B)		3,43,680
Add: Cash required (12% of net working capital)		41,242
Total Working Capital Required		3,84,922

Note:

(A) Work-in-progress is valued with raw material cost at 100% and 50% of wages, overheads and expenses.

(B) Debtors are valued at selling price.



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(b) Statement showing the Evaluation of Debtors Policies

Particulars	Present Policy	Proposed Policy I	Proposed Policy II
	₹	₹	₹
A. Expected Profit			
(a) Credit Sales	50,00,000	60,00,000	67,50,000
(b) Total Cost other than Bad Debts:			
(i) Variable Costs	35,00,000	42,00,000	47,25,000
(c) Bad Debts	1,50,000	3,00,000	4,50,000
(d) Expected Profit [(a) - (b) - (c)]	13,50,000	15,00,000	15,75,000
B. Opportunity Cost of Investments in Receivables	2,18,750	3,50,000	4,92,188
C. Net Benefits (A - B)	11,31,250	11,50,000	10,82,812

Recommendation: The Proposed Policy 'I' should be adopted since the net benefits under this policy is higher as compared to other policies.

Workings Notes: Calculation of Opportunity Cost of Average Investments

Opportunity Cost = Total Cost × Collection period / 12 × Rate of Return / 100

Present Policy = ₹ 35,00,000 × 3/12 × 25% = ₹ 2,18,750

Proposed Policy I = ₹ 42,00,000 × 4/12 × 25% = ₹ 3,50,000

Proposed Policy II = ₹ 47,25,000 × 5/12 × 25% = ₹ 4,92,188

7. (a) A Company pays a dividend of ₹2.00 per share with a growth rate of 7%. The risk free rate is 9% and the market rate of return is 13%. The Company has a beta factor of 1.50. However, due to a decision of the Finance Manager, beta is likely to increase to 1.75. Calculate the present as well as the likely value of the share after the decision. [7]

- (b) A firm's sales, variable costs and fixed cost amount to ₹75 lakhs, ₹42 lakhs and ₹6 lakhs respectively. It has borrowed ₹45 lakhs at 9% and its equity capital totals ₹55 lakhs.

Analyze the given information and calculate the following:

- The firm's ROI.
- Does it have favorable financial leverage?
- If the firm belongs to an industry whose asset turnover is 3, does it have high or low asset leverage?
- The operating, financial and combined leverages of the firm.
- If the sales drop to ₹50 lakhs what will the new EBIT be?
- At what level will the EBT of the firm equal to zero? [7]

Answer:

- (a) Computation of share price before and after the decision of the Finance Manager.

Before the finance manager's decision:

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We know that $K_e = R_f + \beta(R_m - R_f)$

$$K_e = 9\% + 1.5 (13\% - 9\%)$$

$$= 9\% + 1.5 (4\%)$$

$$= 15\%$$

Growth rate given (g) = 7%

$$D_0 = ₹ 2$$

$$\text{Expected Dividend } D_1 = 2(1+7\%) = 2.14$$

$$P_0 = D_1 / (K_e - g) = 2.14 / (15\% - 7\%) = ₹ 26.75$$

After Finance Manager's decision

$$\text{Revised } K_e = 9\% + 1.75 (13\% - 9\%) = 9\% + 1.75 (4\%) = 16\%$$

$$\text{Revised Share Price} = D_1 / (K_e - g) = 2.14 / (16\% - 7\%) = ₹ 23.77$$

(b) (i) $ROI = EBIT / \text{Investment} \times 100$

$$EBIT = \text{Sales} - VC - FC = ₹ 75 \text{ lakh} - ₹ 42 \text{ lakh} - ₹ 6 \text{ lakh} = ₹ 27 \text{ lakh}$$

$$ROI = ₹ 27 \text{ lakh} / ₹ 100 \text{ lakh} \times 100 = 27\%$$

(ii) Yes, the firm has favourable financial leverage as its ROI is higher than the interest on debt.

(iii) Asset turnover = Sales/Total Assets or Total Investments = ₹ 75 lakh/₹ 100 lakh = 0.75. It is lower than the industry average.

$$(iv) \text{Operating Leverage} = (\text{Sales} - \text{Variable Costs}) / EBIT = (₹75 \text{ lakh} - ₹42 \text{ lakh}) / ₹27 \text{ lakh} = 1.22$$

$$\text{Financial Leverage} = EBIT / (EBIT - \text{Interest}) = 27 \text{ lakh} / 27 \text{ lakh} - 4.05 \text{ lakh} = 1.18$$

$$\text{Combined Leverage} = (\text{Sales} - VC) / (EBIT - \text{Interest}) = 33 \text{ lakh} / 22,95,000 = 1.44$$

$$\text{Alternatively,} = OL \times FL = 1.22 \times 1.18 = 1.44$$

(v) EBIT at sales level of ₹ 50 lakh

Particulars	Amount (₹)
Sales revenue	50 Lakh
Less: Variable costs (₹ 50 lakh × 0.56)	28 Lakh
Less: Fixed costs	6 Lakh
EBIT	16 Lakh

(vi) Zero EBT implies Break-Even Sales (BESR) = FC/CV ratio, CV ratio = ₹ 33 lakh/₹75 lakh = 44%.

$$BESR = (₹ 6 \text{ lakh} + ₹ 4.05 \text{ lakh}) / 0.44 = ₹ 22,84,091.$$

Confirmation Table:

Particulars	Amount (₹)
Sales revenue	22,84,091
Less: VC (0.56)	12,79,091
Less: FC (operating)	6,00,000
Less: Interest (additional fixed cost)	4,05,000
EBT	Zero

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

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) Describe the steps to include data visualization in report design. [7]

Answer:

(a) The emergence of big data has changed the world of business like never before. The most important shift has happened in the information generation and the decision-making process. There is a strong emergence of analytics that supports a more intensive data-centric and data-driven information generation and decision making process. The data that encompasses the organization is being harnessed into information.

To make the data turn into user friendly information, it should go through six core steps:

1. Collection of data: The collection of data may be done with standardized systems in place. Appropriate software and hardware may be used for this purpose. Appointment of trained staff also plays an important role in collecting accurate and relevant data.
2. Organising the data: The raw data needs to be organized in an appropriate manner to generate relevant information. The data may be grouped, arranged in a manner that creates useful information for the target user groups.
3. Data processing: At this step, data needs to be cleaned to remove the unnecessary elements. If any data point is missing or not available, that also needs to be addressed. The options available for presentation format for the data also need to be decided
4. Integration of data: Data integration is the process of combining data from various sources into a single, unified form. This step includes creation of data network sources, a master server and users accessing the data from master server.
5. Data reporting: Data reporting stage involves translating the data into a consumable format to make it accessible by the users. For example, for a business firm, they should be able to provide summarized financial information e.g., revenue, net profit etc.
6. Data utilization: At this ultimate step, data is being utilized to back corporate activities and enhance operational efficiencies and productivity for the growth of business. This makes the corporate decision making really 'data driven'.

(b) There are few strategic steps to include Data Visualisation in report design, as mentioned below:

- Find a story in the data: Data-driven storytelling is a powerful tool. Finding a story that connects with the reader can help to create an effective report. It's also not that hard as it looks. In order to locate the story, one must arrange the data, identify any missing numbers, and then check for outliers. One may then view the data and examine the link between factors.
- Create a narrative: When some individuals hear the term “data storytelling,” they believe that it consists of a few statistics and that the task is complete. This is a frequent misconception that is false. Strong data storytelling comprises an engaging narrative that takes the audience through the facts and aids in their comprehension. Moreover, an explanation of the significance



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of these ideas is essential. To compose an excellent story, one must:

- (i) Engage the viewer with a catchy title and subheadings.
 - (ii) Incorporate context into the data.
 - (iii) Create a consistent and logical flow.
 - (iv) Highlight significant discoveries and insights from the data.
- Choose the most suitable data Visualisation: Data Visualisation is not limited to the creation of charts and graphs. It involves presenting the facts in the most comprehensible chart possible. Applying basic design principles and utilising features like as form, size, colour, and labelling may have a significant impact on how people comprehend the data. For instance, deciding the optimal number of slices for a pie chart or the space between bars in a bar graph. Knowing these tips may greatly improve the data visualisations.
 - Follow the visual language: The report design may be for internal or external consumption. Despite this, one should develop material consistent with the company's style guide. It is essential to adhere to data visualisation principles in order to achieve both uniformity and comprehension. A strategic methodology assists in implementation.
 - Publicize the report: Some reports are not intended for public consumption. However, since they include so much essential information, they may contain knowledge that is of interest to individuals or media outside of the business.