



**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) Which of the following are the benefits of data analytics?
- (a) Improves decision making process
  - (b) Increase in efficiency of operations
  - (c) Improved service to stakeholders
  - (d) All of the above
- (iii) XBRL is the abbreviated form of:
- (a) eXtensible Business Reporting Language
  - (b) eXtensive Business Reporting Language
  - (c) eXtended Business Reporting Language
  - (d) eXtensive Business Reporting Language
- (iv) A scatter plot displays several unique data points:
- (a) on a single graph.
  - (b) On two different graphs
  - (c) On four different graphs
  - (d) None of the above
- (v) If the fixed cost of production is zero, which one of the following is correct?
- (a) Operating Leverage is zero
  - (b) Financial Leverage is zero
  - (c) Combined Leverage is zero
  - (d) None of the above

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

- (vi) The Degree of Operating Leverage (DOL) and the Degree of Financial Leverage of Alanta Ltd. are 3 and 1.67 respectively. If the management of the company targets to increase the EPS by 10%, by how much percentage should sales volume be increased? (Rounded off your answer to the nearest value.)
- (a) 5.00%  
(b) 3.40%  
(c) 3.00%  
(d) 2.00%
- (vii) 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) ₹ 40,00,000  
(b) ₹ 42,00,000  
(c) ₹ 44,00,000  
(d) ₹ 48,50,000
- (viii) Conversion of marketable securities into cash entails a fixed cost of ₹ 1,000 per transaction. What will be the optimal conversation size as per Baumol model of cash management?
- (a) ₹ 315,628  
(b) ₹ 316,228  
(c) ₹ 317,678  
(d) ₹ 318,426
- (ix) What is the value of a levered firm L Ltd. if it has the same EBIT as an unlevered firm U Ltd., (with value of ₹ 700 lakh), has a debt of ₹ 200 lakh, tax rate is 35% under M-M approach?
- (a) ₹ 770 lakh  
(b) ₹ 500 lakh  
(c) ₹ 630 lakh  
(d) ₹ 900 lakh
- (x) Initial investment ₹ 20 Lakh. Expected annual cash flows ₹ 6 Lakh for 10 years. Cost of capital @15%. Profitability Index (PI) is -  
[Cumulative discounting factor @ 15% for 10 years = 5.019]
- (a) 1.51  
(b) 1.71  
(c) 2.51  
(d) 2.91

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

- (xi) Capital Budgeting deals with:
- (a) Long-term Decisions
  - (b) Short-term Decisions
  - (c) Both (a) and (b)
  - (d) Neither (a) nor (b).
- (xii) Five years ago, KPM Ltd issued 12% irredeemable debentures at ₹ 105, a ₹ 5 premium to their par value of ₹ 100. The current market price of these debentures is ₹ 95. If the company pays corporate tax at a rate of 35 % what is its current cost of debenture capital?
- (a) 6.5%
  - (b) 7.24%
  - (c) 8.21%
  - (d) 9.00%
- (xiii) In case the firm is all-equity financed, the WACC would be equal to:
- (a) Cost of Debt
  - (b) Cost of Equity
  - (c) Neither (a) nor (b)
  - (d) Both (a) and (b).
- (xiv) DuPont Analysis deals with:
- (a) Analysis of Current Assets
  - (b) Analysis of Profit
  - (c) Capital Budgeting
  - (d) Analysis of Fixed Assets
- (xv) XYZ Ltd. has earned 8% Return on Total Assets of ₹ 50,00,000 and has a Net Profit Ratio of 5%. Find out the Sales of the firm.
- (a) ₹ 4,00,000
  - (b) ₹ 2,50,000
  - (c) ₹ 80,00,000
  - (d) ₹ 83,33,333.

**Answer:**

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

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS****SECTION – B**

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

[5x14=70]

2. (a) Distinguish between Hedge Funds and Mutual Funds. [7]
- (b) Explain various applications of data mining techniques in finance and accounting. [7]

**Answer:**

- (a) Hedge funds are like mutual funds in two respects: (i) they are pooled investment vehicles i.e., several investors entrust their money to a manager) and (ii) they invest in publicly traded securities. But there are important differences between a hedge fund and a mutual fund. These stem from and are best understood in light of the hedge fund's charter: investors give hedge funds the freedom to pursue absolute return strategies.

Mutual Funds Seek Relative Returns: Most mutual funds invest in a predefined style, such as "small cap value", or into a particular sector, such as the Internet sector. To measure performance, the mutual fund's returns are compared to a style-specific index or benchmark. For example, if you buy into a "small cap value" fund, the managers of that fund may try to outperform the Nifty Small Cap Index. Less active managers might construct the portfolio by following the index and then applying stock-picking skills to increase (over-weigh) favoured stocks and decrease (under-weigh) less appealing stocks.

A mutual fund's goal is to beat the index or "beat the bogey", even if only modestly. If the index is down 10% while the mutual fund is down only 7%, the fund's performance would be called a success. On the passive-active spectrum, on which pure index investing is the passive extreme, mutual funds lie somewhere in the middle as they semi-actively aim to generate returns that are favourable compared to a benchmark.

- (b) **Techniques of data mining**  
Using various methods and approaches, data mining transforms vast quantities of data into valuable information. Here are a few of the most prevalent:
- (i) **Association rules:**  
An association rule is a rule-based technique for discovering associations between variables inside a given dataset. These methodologies are commonly employed for market basket analysis, enabling businesses to better comprehend the linkages between various items. Understanding client consumption patterns helps organisations to create more effective cross-selling tactics and recommendation engines.

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS****(ii) Neural Networks:**

Primarily utilised for deep learning algorithms, neural networks replicate the interconnection of the human brain through layers of nodes to process training data. Every node has inputs, weights, a bias (or threshold), as well as an output. If the output value exceeds a predetermined threshold, the node “fires” and passes data to the subsequent network layer. Neural networks acquire this mapping function by supervised learning and gradient descent, changing based on the loss function. When the cost function is zero or close to it, we may have confidence in the model’s ability to produce the correct answer.

**(iii) Decision tree:**

Using classification or regression algorithms, this data mining methodology classifies or predicts likely outcomes based on a collection of decisions. As its name implies, it employs a tree-like representation to depict the potential results of these actions.

**(iv) K-nearest neighbour:**

K-nearest neighbour, often known as the KNN algorithm, classifies data points depending on their closeness to and correlation with other accessible data. This technique assumes that comparable data points exist in close proximity to one another. Consequently, it attempts to measure the distance between data points, often by Euclidean distance, and then assigns some on the most common category or average.

3. (a) From the following information, prepare a summarized Statement of Assets and Liabilities as on 31<sup>st</sup> March, 2024:

(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]



## FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

- (b) From the following Summarised Statement of Assets and Liabilities of XYZ Ltd., prepare a Statement of Changes in the Working Capital.

Liabilities	31st March		Assets	31st March	
	2023 (₹)	2024 (₹)		2023 (₹)	2024 (₹)
Equity Share Capital	3,00,000	4,00,000	Goodwill	1,15,000	90,000
8% Preference Share Capital	1,50,000	1,00,000	Land & Buildings	2,00,000	1,70,000
Profit & Loss Account	30,000	48,000	Plant & Machinery	80,000	2,00,000
General Reserve	40,000	70,000	Debtors	1,60,000	2,00,000
Proposed Dividend	42,000	50,000	Stock	77,000	1,09,000
Creditors	55,000	83,000	Bills Receivable	20,000	30,000
Bills Payable	20,000	16,000	Cash in hand	15,000	10,000
Provision for Taxation	40,000	50,000	Cash at Bank	10,000	8,000
	6,77,000	8,17,000		6,77,000	8,17,000

Following additional information are available:

- (i) Depreciation of ₹ 10,000 and ₹ 20,000 have been charged on Plant & Machinery and Land & Buildings respectively in 2024.  
(ii) Interim dividend of ₹ 20,000 has been paid in 2024.  
(iii) Income tax of ₹ 35,000 has been paid in 2024. [7]

**Answer:**

**(a) Working Notes:**

- (i) **Current Ratio** = Current Assets (CA)/Current Liabilities(CL)  
= 2.50 i.e., 2.5 : 1.0 Working Capital = ₹ 1,20,000  
Current Assets / Current Liabilities = 2.5  
CA = 2.5 CL  
CA – CL = 1,20,000  
2.5 CL – CL = 1,20,000  
1.5 CL = 1,20,000  
CL = 1,20,000  
1.5 = ₹ 80,000  
CA = 2.5 CL  
= 2.5 × 80,000  
= ₹ 2,00,000

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

Note:

Bank Overdraft = ₹ 20,000

Other CL = ₹ 60,000 (balancing figure)

CL = ₹ 80,000

- (ii) **Liquid Ratio** = Quick Assets/CL (Excluding Overdraft)  
= 1.50 i.e., 1.50:1.00

1.0 - ₹ 60,000

1.5 - ?

 $(1.5/1.00) \times 60,000 = ₹ 90,000$  (Quick Assets)

Stock = CA - Quick Assets

= 2,00,000 - 90,000 = ₹ 1,10,000

- (iii) Proprietary Ratio = (Fixed Assets/ Proprietary Funds) = 0.75 i.e.,

Working capital/ Proprietary Funds = 0.25

Proprietary Funds =  $(1/0.25) \times 1,20,000 = ₹ 4,80,000$ 

Less: Reserves &amp; Surplus = ₹ 80,000

Share Capital = ₹ 4,00,000

- (iv) Fixed Assets =  $4,80,000 \times 0.75 = ₹ 3,60,000$ .

**Summarized Statement of Assets and Liabilities as on 31<sup>st</sup> March, 2024**

Liabilities	₹	Assets	₹
Share capital	4,00,000	Fixed Assets	3,60,000
Reserves & Surplus	80,000	Current Assets :	
Current Liabilities:		Stock	1,10,000
Bank Overdraft	20,000	Quick Assets	90,000
Other C.L	60,000		2,00,000
	80,000		
Total	5,60,000	Total	5,60,000

- (b) **Calculation of changes in Working Capital:**

Current Assets	2023 (₹)	2024 (₹)
Debtors	1,60,000	2,00,000
Stock	77,000	1,09,000
B/R	20,000	30,000



## FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

Cash in hand	15,000	10,000
Cash at Bank	10,000	8,000
A: Total Current Asset	<b>2,82,000</b>	<b>3,57,000</b>
Current Liabilities	<b>2023 (₹)</b>	<b>2024 (₹)</b>
Creditors	55,000	83,000
B/P	20,000	16,000
B: Total Current Liabilities	75,000	99,000
Working capital (A-B)	2,07,000	2,58,000

Increase in working capital = 2,58,000 – 2,07,000 = ₹ 51,000.

4. (a) From the following balance sheet, prepare a common size statement and comment.

Particulars	Amount (₹)	Amount (₹)
	31.03.2023	31.03.2024
Shareholders' Fund:		
Equity Share Capital (₹10 each)	7,20,000	7,20,000
Reserve & Surplus	2,88,000	5,46,000
Non-current Liabilities:		
Long-term debt	5,46,000	5,08,000
Current Liabilities:		
Current Liabilities & Provisions	2,40,000	1,75,500
Total	18,00,000	19,50,000
Non-current Assets:		
Fixed Assets	12,06,000	11,70,000
Current Assets:		
Inventory	2,52,000	3,51,000
Debtors	1,80,000	1,95,000
Bank	1,62,000	2,34,000
Total	18,00,000	19,50,000

[7]

- (b) Given below is the Statement of Assets and Liabilities of a company as at 31st December, 2023:

Liabilities	₹	Assets	₹
Equity share capital 40000 shares of ₹ 100 each	4,00,000	Fixed Assets	6,00,000
Reserve and surplus	2,60,000	Investments	1,00,000
8% debentures	1,70,000	Current assets	2,80,000
Current Liabilities			
Short term loans	1,00,000		
Trade creditors	50,000		
	9,80,000		9,80,000



**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

Calculate the company's weighed average cost of capital using balance sheet valuations. The following additional information are also available:

- (i) 8% Debentures were issued at par.
- (ii) All interests' payments are up to date and equity dividend is currently 12%.
- (iii) Short term loan carries interest at 18% p.a.
- (iv) The shares and debentures of the company are quoted on the Calcutta Stock Exchange and current Market Prices are as follows:  
Equity Shares at ₹ 14 each and 8% Debentures at ₹ 98 each.
- (v) The rate of tax for the company may be taken at 50%. [7]

**Answer:**

- (a) Common Size Balance Sheet as on 31.03.2023 & 31.03.2024

Particulars	On 31.03.2023 % of total	On 31.03.2024 % of total
<b>Shareholders' Fund</b>		
Equity Share Capital $\left( \frac{\text{Share Capital}}{\text{Total Liabilities}} \times 100 \right)$	40%	36.92%
Reserve & Surplus $\left( \frac{\text{Reserve & Surplus}}{\text{Total Liabilities}} \times 100 \right)$	16%	28%
<b>Total Shareholders Fund/Owners' Equity</b>	56%	64.22%
<b>Non-current Liabilities</b>		
Long-Term Debt $\left( \frac{\text{Long - Term Debt}}{\text{Total Liabilities}} \times 100 \right)$	30.33%	26.05%
<b>Current Liabilities</b>		
Current Liabilities & Provision $\left( \frac{\text{Current Liabilities}}{\text{Total Liabilities}} \times 100 \right)$	13.33%	9%
	100%	100%
<b>Non-current Assets</b>		
Fixed Assets $\left( \frac{\text{Fixed Assets}}{\text{Total Assets}} \times 100 \right)$	67%	60%
<b>Current Assets</b>		
Inventory $\left( \frac{\text{Inventory}}{\text{Total Assets}} \times 100 \right)$	14%	18%
Debtors $\left( \frac{\text{Debtors}}{\text{Total Assets}} \times 100 \right)$	10%	10%
Bank $\left( \frac{\text{Bank}}{\text{Total Assets}} \times 100 \right)$	9%	12%
<b>Total Current Assets</b>	33%	40%

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

Total Assets	100%	100%
--------------	------	------

**Comments:**

- (i) The proportion of owner's equity to total liabilities of the company has been increased from 56% to 64.92% whereas the proportion of long-term debt to total liabilities has been decreased from 30.33% to 26.05% in the year 2023-24. So, we can conclude that the dependency on outsiders has been decreased and degree of financial risk associated with the company has been reduced during the study period.
- (ii) The percentage of current assets to total assets has been increased from 33% to 40% whereas the percentage of current liabilities to total liabilities decreased from 13.33% to 9% in the year 2023-24. Therefore, it indicates that the liquidity position of the company has been significantly improved during the period under study. But reduction of fixed assets may hamper the long-term stability and operating efficiency of the company.

(b)

Calculation of the Cost of Equity:	₹
Equity Share	4,00,000
Reserves and Surplus	<u>2,60,000</u>
Equity (Shareholder's) Fund	<u>6,60,000</u>

Book Value Per Share =  $6,60,000/40,000 = ₹ 16.50$ .

Equity Dividend Per Share =  $12/100 \times 10 = ₹ 1.20$

Therefore, Cost of Equity (%) =  $1.20/16.50 \times 100 = 7.273\%$

Computation of Weighted Average Cost of Capital:

Capital Structure or

Type of Capital	Amount (₹)	Before Tax	After Tax	Weighted Average Cost %
Equity funds	6,60,000	7.273%	7.273%	48,000
Debentures	1,70,000	8%	4%	6,800
Total	8,30,000		54800	

Weighted Average Cost of Capital =  $54800/8,30,000 \times 100 = 6.602\%$ .

Question is wrong (40000 shares of ₹ 100 each).

Either, students can take 40,000 @ 10 each

OR 4,000 @ 100 each.

5. (a) ZZZ Co. has four potential projects all with an initial cost of ₹ 15,00,000. The capital budget for the year will only allow the company to take up only one of the

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

three projects. Given the discount rates and the future cash flows of each project, evaluate which project should they accept.

Project	Annual Net Cash Flows per year for five years (₹)	Discount Rates
A	3,50,000	4%
B	4,00,000	8%
C	5,00,000	10%

[7]

- (b) Anurag Mills Ltd. has number of machines that were used to make a product that the firm has phased out of its operations. An existing machine was originally purchased six years ago for ₹ 5,00,000 and is being depreciated by the straight line method; its remaining useful life is 4 years. No salvage value is expected at the end of the useful life. It can currently be sold for ₹1,50,000. The machine can also be modified to produce another product at a cost of ₹2,00,000. The modifications would not affect the useful life, or salvage value, and would be depreciated using the straight line method.

If the firm does not modify the existing machine, it will have to buy a new machine at a cost of ₹ 4,40,000, (no salvage value) and the new machine would be depreciated over 4 years. The engineers estimate that the cash operating costs with the new machine would be ₹ 25,000 per year less than with the existing machine. Cost of capital is 15 per cent and corporate tax rate is 35 per cent.

Advise the company whether the new machine should be bought, or the old equipment modified. Assume straight line method of depreciation for tax purposes and loss on sale of existing machine can be claimed as short-term capital loss in the current year itself.

[Given: PVIFA (15% 4 years) = 2.855]

[7]

**Answer:**

(a) **Project A**

PV of Annuity of ₹ 3,50,000 for 5 years at 4% rate of discount -  $3,50,000 \times 4.452$   
= ₹ 15,58,200

NPV = ₹ 15,58,200 – ₹ 15,00,000 = ₹ 58,200

**Project B**

PV of Annuity of ₹ 4,00,000 for 5 years at 8% rate of discount-  $4,00,000 \times 3.993$   
= 15,97,200

NPV = ₹ 15,97,200 – ₹ 15,00,000 = ₹ 97,200

**Project C**

PV of Annuity of ₹ 5,00,000 for 5 years at 10% rate of discount-  $5,00,000 \times 3.791$   
- 18,95,500

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

$$\text{NPV} = ₹18,95,500 - ₹ 15,00,000 = ₹ 3,95,500$$

**Accept Project C**

6. (a) The management of Camellia Ltd. has called for a statement showing the working capital needed to finance a level of activity of 3,00,000 units of output for the year ended March 31, 2024. The cost structure for the company's product, for the above mentioned activity level, is detailed below:

	Cost per unit (₹)
Raw materials	20
Direct labour	5
Overheads	15
Total cost	40
Profit	10
Selling price	50

Past trends indicate that the raw materials are held in stock, on an average, for two months. Work-in-process (50 per cent complete) will approximate to ½ month's production. Finished goods remain in warehouse, on an average, for 1 month. Suppliers of materials extend 1 month's credit. Two months' credit is normally allowed to debtors. A minimum cash balance of ₹ 25,000 is expected to be maintained. The production pattern is assumed to be even during the year (12 months).



## FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

Required:

Prepare a statement of Working Capital determination.

[7]

- (b) The annual demand for an item is 3,200 units. The unit cost is ₹6 and inventory carrying charges is 25% p.a. If the cost of one procurement is ₹150, determine:  
(A) E.O.Q (B) No. of orders per year (C) Time between two consecutive orders. [7]

Answer:

- (a) Statement of Determine Net working Capital of Camellia Ltd.

(A) Current Assets	₹	₹
(i) Raw materials (25,000 units × 2 × ₹ 20)		10,00,000
(ii) Work in process		
Raw Materials (12,500 units × ₹ 10)	1,25,000	
Direct Labour (12,500 units × ₹ 2.5)	31,250	
Overhead (12,500 units × ₹ 7.5)	93,750	2,50,000
(iii) Finished Goods (25,000 units × ₹ 40)		10,00,000
(iv) Debtors (3,00,000 × ₹ 40 × 2)/12		20,00,000
(v) Minimum Cash Balance		25,000
Total		42,75,000
(B) Current Liabilities		
(i) Creditors for 1 month (3,00,000 × ₹ 20 × 1)/12		5,00,000
(C) Net Working Capital (NWC) (A-B)		37,75,000

Alternatively, in work-in-process [Item A(iii) above] Raw Materials may be valued at 12,500 units × ₹ 20 = ₹ 2,50,000. Debtors [item A(iv) above] may also be valued at [3,00,000 × ₹ 50 (selling price) × 2] / 12 = ₹ 25,00,000.

Calculation of Net Working Capital will change accordingly.

- (b) (A) Economic Ordering Quantity =  $\sqrt{\frac{2AO}{C}}$

$$EOQ = \sqrt{\frac{2 \times 3,200 \times ₹1.50}{₹ 6 \times 25\%}}$$

$$EOQ = \sqrt{\frac{9,60,000}{1.5}} \quad 2AO$$

$$EOQ = 800 \text{ units}$$

- (B) No. of orders per year = A / EOQ = 3200 / 800 = 4 orders

- (C) Time between two consecutive orders = No. of months in years / No. of orders



## FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

= 12/4 = 3 Months

7. (a) From the following data, compute the value of each firm and value of each equity share as per the Modigliani-Miller approach:

	X (₹)	Y (₹)	Z (₹)
EBIT (₹)	13,00,000	13,00,000	13,00,000
No. of shares	3,00,000	2,50,000	2,00,000
12% debentures (₹)		9,00,000	10,00,000

Every firm expect 12% return on investment. [7]

- (b) The operating income of Hypothetical Ltd amounts to ₹1,86,000. It pays 35% tax on its income. Its capital structure consists of the following: (₹)

14% Debentures	5,00,000
15% Preference shares	1,00,000
Equity shares (₹100 each)	4,00,000

Determine:

- the firm's EPS;
- the percentage change in EPS associated with 30% change (both increase and decrease) in EBIT;
- the degree of financial leverage at the current level of EBIT;
- the additional data do you need to compute operating as well as combined leverage. [7]

**Answer:**

- (a) Calculation of value of each firm under Modigliani–Miller Approach:

Value of firm = EBIT / $k_o$			
Firm	X (₹)	Y (₹)	Z (₹)
1. EBIT (₹)	13,00,000	13,00,000	13,00,000
2. ROI = $k_o$	12%	12%	12%
3. Value of Firm; (1/2) (₹)	1,08,33,333	1,08,33,333	1,08,33,333

Calculation of value of each equity share for each firm

Firm	X (₹)	Y (₹)	Z (₹)
1. Value of Firm (₹)	1,08,33,333	1,08,33,333	1,08,33,333
2. Debt (₹)	-	9,00,000	10,00,000
3. Value of equity(1-2) (₹)	1,08,33,333	99,33,333	98,33,333
4. No. of equity shares	3,00,000	2,50,000	2,00,000



## FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

5. Market price; (3/4) (₹)	36.11	39.73	49.17
----------------------------	-------	-------	-------

## (b) (i) Determination of EPS

Particulars	Amount (₹)
EBIT	1,86,000
Less interest (0.14 × ₹ 5,00,000)	70,000
EBT	1,16,000
Less taxes (0.35)	40,600
EAT	75,400
Less: Dividend on preference shares	15,000
Earnings available for equity holders	60,400
EPS (₹ 60,400 ÷ 4,000)	15.1

## (ii) Change in EPS

Particulars	Change in EBIT (₹)	
	(+30%)	(-30%)
EBIT	2,41,800	1,30,200
Less interest	70,000	70,000
EBT	1,71,800	60,200
Less taxes (0.35)	60,130	21,070
EAT	1,11,670	39,130
Less: Dividends payable on preference shares	15,000	15,000
Earnings available for equity holders	96,670	24,130
EPS	24.17	6.03
Change in EPS ( $\Delta$ EPS ÷ EPS)	(+60.05%)	(-60.05%)

(iii) DFL =  $\frac{\text{EBIT}}{\text{EBIT} - I - [\text{Dp}/(1 - t)]}$   
=  $\frac{₹ 1,86,000}{(₹ 1,86,000 - ₹ 70,000 - [₹ 15,000 \div (0.65)])}$   
= 2 (times).

(iv) The additional data required to compute the operating and combined leverage relate to sales and variable cost.

8. (a) Describe Quantitative Financial Data and Qualitative Financial Data. Explain Nominal Scale and Ratio Scale in the context of types of data. [7]

(b) Summarise the benefits of data analytics. [7]

**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS****Answer:**

- (a) **Quantitative financial data:** By the term ‘quantitative data’, we mean the data expressed in numbers. The quantitative data availability in finance is significant. The stock price data, financial statements etc. are examples of quantitative data. As most of the financial records are maintained in the form of organised numerical data.

**Qualitative financial data:** However, some data in financial studies may appear in a qualitative format e.g. text, videos, audio etc. These types of data may be very useful for financial analysis. For example, the ‘management discussion and analysis’ presented as part of annual report of a company is mostly presented in the form of text. This information is useful for getting an insight into the performance of the business. Similarly, key executives often appear for an interview in business channels. These interactions are often goldmines for data and information.

**Nominal Scale:** Nominal scale is being used for categorising data. Under this scale, observations are classified based on certain characteristics. The category labels may contain numbers but have no numerical value. Examples could be, classifying equities into small-cap, mid-cap, and large-cap categories or classifying funds as equity funds, debt funds, and balanced funds etc.

**Ratio scale:** The ratio scale possesses all characteristics of the nominal, ordinal, and interval scales. The acquired data can not only be classified and rated on a ratio scale, but also have equal intervals. A ratio scale has a true zero, meaning that zero has a significant value. The genuine zero value on a ratio scale allows for the magnitude to be described. For example, length, time, mass, money, age, etc. are typical examples of ratio scales. For data analysis, a ratio scale may be utilised to measure sales, pricing, market share, and client count.

- (b) **Benefits of data analytics**

Following are the benefits of data analytics:

- (i) **Improves decision making process**

Companies can use the information gained from data analytics to base their decisions, resulting in enhanced outcomes. Using data analytics significantly reduces the amount of guesswork involved in preparing marketing plans, deciding what materials to produce, and more. Using advanced data analytics





**FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**

technologies, you can continuously collect and analyse new data to gain a deeper understanding of changing circumstances.

**(ii) Increase in efficiency of operations**

Data analytics assists firms in streamlining their processes, conserving resources, and increasing their profitability. When firms have a better understanding of their audience's demands, they spend less time creating advertising that do not fulfil those needs.

**(iii) Improved service to stakeholders**

Data analytics gives organisations with a more in-depth understanding of their customers, employees and other stake holders. This enables the company to tailor stakeholders' experiences to their needs, provide more personalization, and build stronger relationships with them.