PAPER 11: FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

SUGGETSED ANSWER

SECTION – A

1.

(i) (D)

(ii) (B)

(iii) (A)

(iv) (B)

(v) (D)

(vi) (D)

(vii) (A)

(viii) (A/ B)

(ix) (D)

(x) (A)

(xi) (B)

(xii) (B)

(xiii) (D)

(xiv) (C)

(xv) (B)

SECTION - B

2. (a)

The principal features of commercial papers are:

(i) Commercial paper (CP) is an unsecured short-term promissory note, negotiable and transferable by endorsement and delivery with a fixed maturity period.

(ii) It is issued only by large, well known, creditworthy companies and is typically unsecured, issued at a discount on face value, and redeemable at its face value.

(iii) The aim of its issuance is to provide liquidity or finance company's investments, e.g., in inventory and accounts receivable.

The advantages of commercial papers are:

(i) Simplicity:
Documentation involved in issue of Commercial Paper is simple and minimum.

(ii) Cash Flow Management:
The issuer company can issue Commercial Paper with suitable maturity periods (not exceeding one year), tailored to match the cash flows of the Company.

(iii) Alternative for Bank Finance:
A well-rated company can diversify its sources of finance from Banks, to short-term money markets, at relatively cheaper cost.

(iv) Returns to Investors:
CP's provide investors with higher returns than the banking system.

(v) Incentive for Financial Strength:
Companies which raise funds through CP become well-known in the financial world for their strengths. They are placed in a more favorable position for raising long-term capital also. So, there is an inbuilt incentive for Companies to remain financially strong.

2. (b)

Descriptive analytics is a frequently employed style of data analysis in which historical data is collected, organized, and presented in a readily digestible format. Descriptive analytics focuses exclusively on what has already occurred in an organization and, unlike other types of analysis, does not utilize 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. 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.

An organization uses descriptive analytics regularly in its day-to-day operations. Examples of descriptive analytics that give a historical overview of an organization's activities include company reports on inventory, workflow, sales, and revenue. These types of reports collect data that can be readily aggregated and utilized to provide snapshots of an organization's activities.

Social analytics are virtually always a type of descriptive analytics. The number of followers, likes, and posts may be utilized to calculate, for example, the average number of replies per post, page visits, and response time. Facebook and Instagram comments are additional instances of descriptive analytics that may be utilized to better comprehend user sentiments.

However, descriptive analytics does not seek to go beyond the surface data and analysis; extra inquiry falls outside the scope of descriptive analytics, and conclusions and predictions are not derived from descriptive analysis. Nevertheless, this research can show patterns and significance by comparing historical data. An annual income report, for instance, may look financially encouraging until it is compared against the same report from past years, which reveals a declining trend.

3. (a)

1. Days sales outstanding = $\frac{50.48}{(1250-100) \div 365}$ = 16 days
2. Interest coverage ratio = $\frac{180}{250 \times 0.10}$ = 7.2 times
3. Debt ratio = $\frac{250}{1000}$ = 25%
4. Inventory turnover ratio = $\frac{800}{300}$ = 2.67 times
5. Earnings per share = $\frac{72}{18}$ = ₹ 4

3. (b)

As per Altman's model,

$Z = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 1.0\ X_5$

Where,

X_1 = Working Capital / Total Assets = 8,00,000/40,00,000 = 0.2

X_2 = Retained Earnings / Total Assets = 24,00,000/40,00,000 = 0.6

X_3 = Earnings Before Interest and Tax / Total Assets = 10,00,000/40,00,000 = 0.25

X_4 = Market Value of Equity / Total Liabilities = 80,00,000/16,00,000 = 5

X_5 = Sales / Total Assets = 20,00,000/40,00,000 = 0.5

So, Z = 1.2(0.2) + 1.4(0.6) + 3.3(0.25) + 0.6(5) + 1.0(0.5) = 5.405

Since, in this case the Z score of the firm is higher than 2.99,the firm is a non-distressed firm and is in a non-bankrupt class.

4.(a)

Common Size Income Statement

Particulars	31st March 2023		31st March 2024	
	₹	%	₹	%
Gross Sales	10,30,000	103	12,42,000	103.5
Less: Sales Returns	30,000	3	42,000	3.5
Net Sales	10,00,000	100	12,00,000	100
Less: Cost of Goods Sold	6,00,000	60	6,60,000	55
Gross Profit	4,00,000	40	5,40,000	45
Less: Operating Expenses:				
Administrative Expenses	85,000	8.5	1,14,000	9.5
Selling Expenses	2,00,000	20	1,93,200	16.1
Total Operating Expenses	2,85,000	28.5	3,07,200	25.6
Income from Operations	1,15,000	11.5	2,32,800	19.4
Add: Non-operating Income	24,000	2.4	34,200	2.85
Total Income	1,39,000	13.9	2,67,000	22.25
Less: Non-operating Expenses	36,000	3.6	53,280	4.44
Net Profit	1,03,000	10.3	2,13,720	17.81

Note: All percentages have been calculated based on Net Sales.

Comment:

(i) In the year 2024, the cost of goods sold declines by 5%.This may be due to the reduction in the cost of raw materials. As a result, gross profit increases from 40% to 45%.

(ii) The operating expenses reduces by 2.9%. This is due to efficient working of the company. There is reduction in the COGS and operating expenses which jointly contributes in increasing income from operation by 7.9%. Therefore, it can be concluded that the company is efficiently managed in the year 2024 as compared to 2023.

4. (b)

Calculation of specific costs of capital

Ke = 2/32 + 0.10 = 0.1625 or 16.25%

Kp = $\frac{14 + (105 - 84)/8}{(105 + 84)/2}$ = 0.1759 or 17.59%

Kr = Ke which is 16.25%

Kd = $\frac{12\,(1 - 0.40) + (105 - 90)\,/\,7}{(105 + 90)\,/\,2}$ = 0.096 or 9.6%

Kt = I (1 – tax) = 0.11 (1 - 0.4) = 0.066 or 6.6%

Calculation of WACC

Sources	Amount (₹)	Weights (Wi)	Specific Costs (Ki)	Weighted Costs (Wi) x (Ki)
E.S.C	200	0.2667	0.1625	0.043
P.S.C.	100	0.1333	0.1759	0.023
Retained earnings	100	0.1333	0.1625	0.022
12% Debentures	300	0.4000	0.096	0.0384
11% Term loan	50	0.0667	0.066	0.004
	750	1.000		0.1304 = 13.04%

So, the WACC is 13.04%.

5. (a)

Initial Cash Out Flow

Particulars	Amount (₹)
Fixed Assets	5,00,000
Working Capital	1,00,000
Total	6,00,000

Annual Cash Flows

Year	CFBT	Depreciation	Taxable Profit	Tax @ 30%	CFAT	PVIF	PV @ 18%
1	3,00,000	2,00,000	1,00,000	30,000	2,70,000	0.8475	2,28,825
2	3,00,000	1,20,000	1,80,000	54,000	2,46,000	0.7182	1,76,677
3	3,00,000	72,000	2,28,000	68,400	2,31,600	0.6086	1,40,952
		3,92,000					5,46,454

Terminal Cash Flows

Particulars	₹
Salvage Value	2,00,000
Tax on Capital Gain	-27,600
Working Capital	1,00,000
Total	2,72,400
PVIF (18% 3rd Year)	0.6086
Present Value	1,65,783

WDV = 5,00,000 – 3,92,000 = 1,08,000

Net Present Value = (5,46,454 + 1,65,783) - 6,00,000 = ₹ 1,12,237

Decision: NPV is positive and hence the proposal should be accepted.

5. (b)

CFAT (in ₹)

Year	CFBT	Depreciation	Taxable Profit	Tax @40%	CFAT
1	150000	80000	70000	28000	122000
2	150000	80000	70000	28000	122000
3	150000	80000	70000	28000	122000
4	150000	80000	70000	28000	122000
5	150000	80000	70000	28000	222000 *

*(122000 + Scrap Value 100000)

Calculation for IRR

Year	CFAT	PVIF (10%)	PV	PVIF (11%)	PV	PVIF (12%)	PV
1	122000	0.909	110898	0.901	109922	0.893	108946
2	122000	0.826	100772	0.812	99064	0.797	97234
3	122000	0.751	91622	0.731	89182	0.712	86864
4	122000	0.683	83326	0.659	80398	0.636	77592
5	222000	0.621	137862	0.593	131646	0.567	125874
Total PV			524480		510212		496510
Initial Investment			500000		500000		500000
NPV			24480		10212		- 3490

So, IRR (where NPV = 0) lies in between 11% and 12%.

Applying simple interpolation, we get,

IRR=L + $\frac{P1-C0}{P1-P2}$ x D

If calculation is based on NPV :-		If calculation is based on Total PV :-
$\frac{\text{IRR}-11}{12-11} = \frac{10212-0}{10212-(-3490)}$	Or	$\frac{\text{IRR}-11}{12-11} = \frac{510212-500000}{510212-496510}$

IRR = 11.75%

Decision: Since IRR is higher than cost of capital, the project is acceptable.

6. (a)

Current Assets	Amount (₹)
Cash in Hand	1,00,000
Debtors	2,45,000
Prepaid Sales Promotion Expenses	15,000
Inventories:	
Raw Material	37,500
Finished Goods	1,07,500
Total Current Assets	5,05,000
Current Liabilities	
Sundry Creditors	37,500
Outstanding Manufacturing Expenses	40,000
Outstanding Administrative Expenses	10,000
Outstanding Wages	30,000
Total Current Liabilities	1,17,500

Excess of Current Assets over Current Liabilities 5,05,000 – 1,17,500 = 3,87,500
+ 15% for Contingencies 58,125
Working Capital Required (₹) 4,45,625

1. Cost Structure:

Sales		18,00,000
(-) Gross Profit (25% on Sales)		(-)4,50,000
Cost of Production		13,50,000
(-) Cost of Material	(-)4,50,000	
(-) Cost of Wages	(-)3,60,000	(-)8,10,000
Manufacturing Expenses (Total)		5,40,000
(-) Cash Manufacturing Expenses		4,80,000
Therefore, Depreciation		60,000

2. Total Cash Cost

Cost of Production	13,50,000
(-) Depreciation	(-) 60,000
Cost of Finished Goods	12,90,000
(+) Administrative Expenses	(+) 1,20,000
(+) Sales Promotion Expenses	(+) 60,000
Total Cash Cost of sales	14,70,000

6. (b)

(i) EOQ = $\sqrt{\frac{2 \times 1600 \times 100}{8}} = \sqrt{40000}$ = 200 units.

(ii) Reorder Level

= 20 + (1600 / 320) * 10 = 20 + (5 * 10) = 70 units

(iii) Maximum and Minimum Inventory Level

Maximum Level = ROQ + ROL – (Minimum Consumption Rate * Lead Time)

Since, minimum consumption rate = average consumption rate

ROL – (Minimum Consumption Rate * Lead Time) = Safety Stock

Maximum Level = ROQ + Safety Stock = 200 + 20 = 220 units.

Minimum Level = ROL – (Minimum Consumption Rate * Lead Time)

= Safety Stock = 20 units.

7. (a)

(i) If dividend is not declared

$P_0 = \frac{P_1 + D_1}{1+k}$

Or, $100 = \frac{P_1 + 0}{1+0.12}$

Or, P_1 = ₹ 112

(ii) If dividend is declared

$P_0 = \frac{P_1 + D_1}{1+k}$

Or, $100 = \frac{P_1 + 10}{1+0.12}$

Or, P_1 = ₹ 102

Let, the no. of new shares to be issued be 'm'

Conditionally, $I = (E - nD_1) + mP_1$

Where, I = Retained earnings; E = total earnings; n = existing no. of shares

Or, 10,00,000 = (5,00,000 – 10000 x 10) + m x 102

Or, 102m = 600000

Or, m = 5882

So, 5882 new shares should be issued.

7. (b)

(i) Turnover of the firm = ₹ 23 x 145000 = ₹ 33,35,000

Total cost = ₹ 17 x 145000 + ₹ 280000 = ₹ 27,45,000

Earnings before Interest & Tax (EBIT) = ₹ (33,35000 – 27,45,000) = ₹ 5,90,000

Interest Charges = ₹ 10,00,000 x 0.11 = ₹ 1,10,000

If the EBT is equal to Zero, then EBIT should be equal to interest charges.

Let this happen at a sales level of X units.

Profit function (EBIT) = (SP – VC)X – FC

Then, (23 - 17) X - 2,80,000 = ₹ 1,10,000

or 6X = 3,90,000

or, X= 65,000 units

So, the number of units to be issued is 65,000 units.

(ii) If EBIT increases by three times, then the new level of EBIT would be equal to ₹ (3 x 5,90,000) = ₹ 17,70,000

New level of EBT = EBIT –I = ₹ 17,70,000- ₹ 1,10,000 = ₹ 16,60,000

EAT = 16,60,000 X (1 -0.3) = ₹ 11,62,000

(iii) Degree of operating leverage

$= \frac{145000\,(23-17)}{145000\,(23-17)-280000} = 1.475$

Degree of financial leverage is

$= \frac{590000}{590000-110000} = 1.23$

Combined leverage = 1.475 x 1.23 = 1.814

8. (a)

Data analytics can help in decision making process and make an impact. However, this empowerment for business also comes with challenges. The question is how the business organizations can ethically collect, store and use data? And what rights need to be upheld? Data ethics addresses the moral obligations of gathering, protecting and using personally identifiable information.

The five basic principles of data ethics that a business organization should follow are:

(i) Regarding ownership:

The first principle is that ownership of any personal information belongs to the person. It is unlawful and unethical to collect someone's personal data without their consent. The consent may be obtained through digital privacy policies or signed agreements or by asking the users to agree with terms and conditions. It is always advisable to ask for permission beforehand to avoid future legal and ethical complications. In case of financial data, some data may be sensitive in nature. Prior permission must be obtained before using the financial data for further analysis.

(ii) Regarding transparency:

Maintaining transparency is important while gathering data. The objective with which the company is collecting user's data should be known to the user. For example, if the company is using cookies to track the online behaviour of the user, it should be mentioned to the user through a written policy that cookies would be used for tracking user's online behaviour and the collected data will be stored in a secure database to train an algorithm to enhance user experience. After reading the policy, the user may decide to accept or not to accept the policy. Similarly, while collecting the financial data from clients, it should be clearly mentioned that for which purpose the data should be used.

(iii) Regarding privacy:

As the user may allow to collect, store and analyze the personally identifiable information (PII), that does not imply it should be made publicly available. For companies, it is mandatory to publish some financial information to public, e.g., through annual reports. However, there may be many confidential information, which if falls on a wrong hand may create problems and financial loss. To protect privacy of data, a data security process should be in place. This may include file encryption and dual authentication password etc. The possibility of breach of data privacy may also be done through de-identifying a dataset.

(iv) Regarding intention:

The intension of data analysis should never be making profits out of others weaknesses or for hurting others. Collecting data which is unnecessary for analysis should be avoided and it's unethical.

(v) Regarding outcomes:

In some cases, even if the intentions are good, the result of data analysis may inadvertently hurt the clients and data providers. This is called disparate impact, which is unethical.

8. (b)

Business intelligence includes business analytics, data mining, data visualization, data tools and infrastructure, and best practices to assist businesses in making choices that are more data-driven. When you have a complete picture of your organization's data and utilize it to drive change, remove inefficiencies, and swiftly adjust to market or supply changes, you have contemporary business intelligence. Modern BI systems promote adaptable self- service analysis, controlled data on dependable platforms, empowered business users, and rapid insight delivery.

In recent years, business intelligence has expanded to incorporate more procedures and activities designed to enhance performance. These procedures consist of:

(i) **Data mining:** Large datasets may be mined for patterns using databases, analytics, and machine learning (ML).

(ii) **Reporting:** The dissemination of data analysis to stakeholders in order for them to form conclusions and make decisions.

(iii) **Performance metrics and benchmarking:** Comparing current performance data to previous performance data in order to measure performance versus objectives, generally utilising customised dashboards.

(iv) **Descriptive analytics:** Utilizing basic data analysis to determine what transpired

(v) **Querying:** BI extracts responses from data sets in response to data-specific queries.

(vi) **Statistical analysis:** Taking the results of descriptive analytics and use statistics to further explore the data, such as how and why this pattern occurred.

(vii) **Data Visualization:** Data consumption is facilitated by transforming data analysis into visual representations such as charts, graphs, and histograms.

(viii) **Visual Analysis:** Exploring data using visual storytelling to share findings in real-time and maintain the flow of analysis.

(ix) **Data Preparation:** Multiple data source compilation, dimension and measurement identification, and data analysis preparation.