

PAPER 11: FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS**SUGGETSED ANSWER****SECTION – A****1.**

- (i) (D)
- (ii) (A)
- (iii) (A)
- (iv) (B)
- (v) (B)
- (vi) (C)
- (vii) (B)
- (viii) (A)
- (ix) (C)
- (x) (A)
- (xi) (C)
- (xii) (D)
- (xiii) (A / B / C / D)
- (xiv) (C)
- (xv) (D)

SECTION - B**2. (a)**

Points	Primary Market	Secondary Market
Nature of Securities	It deals with new securities, i.e. securities which were not previously avail-able, and are offered for the first time to the investors.	It is a market for old securities which have been issued already and granted stock exchange quotation.
Sale/Purchase	Securities are acquired from issuing companies themselves.	Securities are purchased and sold by the investors without any involvement of the companies.
Nature of Financing	It provides funds to new enterprises & also for expansion and diversification of the existing one and its contribution to company financing is direct.	It does not supply additional funds to company since the company is not involved in transaction.
Liquidity	It does not lend any liquidity to the securities.	The secondary market provides facilities for the continuous purchase and sale of securities, thus lending liquidity and marketability to the securities.
Organizational Difference	It is not rooted in any particular spot and has no geographical existence. it has neither any tangible form nor any administrative organizational set up.	Secondary markets have physical existence in the form of stock exchange and are located in a particular geographical area having an administrative organization.
Requirement	Helps in creating new capital.	Helps in maintenance of existing capital.
Volume	Volume of transaction is low as compared to secondary market.	Volume of transaction is high as compared to primary market.

2. (b)

Predictive analytics, as implied by its name, focuses on forecasting and understanding what might occur in the future, whereas descriptive analytics focuses on previous data. By analysing past data patterns and trends by examining historical data and customer insights, it is possible to predict what may occur in the future and, as a result, many aspects of a business can be informed, such as setting realistic goals, executing effective planning, managing performance goals, and avoiding risks.

The foundation of predictive analytics is probability. Using techniques such as data mining, statistical modelling (mathematical relationships between variables to predict outcomes), and machine learning algorithms (classification, regression, and clustering techniques), predictive analytics attempts to predict possible future outcomes and the probability of those events. To create predictions, machine learning algorithms, for instance, utilise current data and make the best feasible assumptions to fill in missing data.

Deep learning is a more recent subfield of machine learning that imitates the building of “human brain networks as layers of nodes that understand a specific process area but are networked together to provide an overall forecast.” Credit scoring utilising social and environmental data and the sorting of digital medical pictures such as X-rays to automated predictions for doctors to use in diagnosing patients are instances of deep learning.

This methodology enables executives and managers to take a more proactive, data-driven approach to corporate planning and decision-making, given that predictive analytics may provide insight into what may occur in the future. Utilizing predictive analytics, businesses may foresee customer behaviour and purchase patterns, as well as discover sales trends. Predictions can also assist in forecasting supply chain, operations, and inventory demand.

Following are the applications of predictive analytics:

- (i) E-commerce – anticipating client preferences and proposing items based on previous purchases and search histories
- (ii) Sales – estimating the possibility that a buyer will buy another item or depart the shop.
- (iii) Human resources – identifying employees who are contemplating resigning and urging them to remain.
- (iv) IT security – detecting potential security vulnerabilities requiring more investigation
- (v) Healthcare – anticipating staffing and resource requirements

3. (a)

(i) **Earning Per Share (E.P.S.)** =
$$\frac{\text{Net Profit after tax and Preference Dividend}}{\text{Number of Equity Shares}}$$

Profit before tax = ₹ 24,46,000

Less: Tax @ 60% = ₹ 14,67,600

₹ 9,78,400

Less: Preference Dividend (@9% on ₹ 10 Lakhs) ₹ 90,000

Net Profit after tax and Preference Dividend ₹ 8,88,400

Earnings Per Share = $\frac{8,88,400}{30,000}$ = ₹ 29.61

(ii) **Book Value Per Share** = $\frac{\text{Equity Shareholder's Fund}}{\text{Number of Equity Shares}}$

Equity Shareholder's Funds:

Net Profit after tax and Preference Dividend	₹ 8,88,400
Less: Equity Dividend @ 20% on ₹ 30 Lakhs	<u>₹ 6,00,000</u>
Balance of Profit and Loss Account	₹ 2,88,400
Add: Reserves in the beginning of the year	₹ 22,00,000
Add: Equity Share Capital	<u>₹ 30,00,000</u>
	<u>₹ 54,88,400</u>

Book Value Per Share = $\frac{5488400}{30000}$ = ₹ 182.95

(iii) **Dividend Payout Ratio** = $\frac{DPS}{EPS}$

Proposed Dividend is 20%. Hence Dividend Per Share (D.P.S.) is 20% of ₹ 100 = ₹ 20.

Dividend Payout Ratio = $\frac{20}{29.61}$ = 0.6754 or 67.54%

(iv) **Price Earning (P.E.) Ratio** = $\frac{\text{Market Price of the Share}}{\text{E.P.S.}}$

= $\frac{200}{29.61}$ = 6.75 times

3. (b)

Cash Flow Statement
For the year ended on

Particulars	₹	₹
Net Profit before tax		3,40,000
Add: Depreciation		85,000
Add: Interest on long term borrowings		40,000
Add: Amortization		50,000
Less: Gain on sale of machinery		<u>(30,000)</u>
Operating profit before working capital changes		4,85,000
Add: Decrease in trade receivables		35,000
Add: Increase in trade payables		10,000
Add: Increase in income received in advance		<u>10,000</u>
		5,40,000
Less: Increase in inventory		(20,000)
Less: Increase in prepaid expense		<u>(5,000)</u>
Cash Flow from Operating Activities		5,15,000

4. (a)

Comparative Statement of Profit or Loss

Sr. No.	Particulars	2022-23 (₹)	2023-24 (₹)	Absolute Change (₹)	% Change
I.	Revenue from operation	6,00,000	8,00,000	2,00,000	33.33%
II.	Add: Other Income	25,000	90,000	65,000	260%
III.	Total Revenue (I+II)	6,25,000	8,90,000	2,65,000	42.4%
IV.	Expenses:				
	a. COGS	4,00,000	6,00,000	2,00,000	50%
	b. Other expenses	25,000	40,000	15,000	60%
	Total expenses	4,25,000	6,40,000	2,15,000	50.59%
V.	Profit before tax (III-IV)	2,00,000	2,50,000	50,000	25%
	Less: Income Tax (30%)	60,000	75,000	15,000	25%
VI.	Profit after tax	1,40,000	1,75,000	35,000	25%

4. (b)

Calculation of specific costs of capital

$$K_e \text{ (under CAPM)} = R_f + \beta (R_m - R_f) = 10 + 1.06 \times 6 = 16.36\%$$

$$K_p = \frac{D_p}{P_0} = 1.10/12 = 0.0917 \text{ i.e., } 9.17\%$$

$$K_r = K_e \text{ which is } 16.36\%$$

$$K_d = \frac{I(1 - \text{tax}) + (F - P)/n}{(F + P)/2} = \frac{12(1 - 0.40) + (100 - 102.50)/3}{(100 + 102.50)/2} = 0.0629 = 6.29\%$$

$$K_l = I(1 - \text{tax}) = 0.14(1 - 0.4) = 8.4\%$$

Calculation of market values

$$\text{MV of Equity} = 15 \times 240/10 = ₹ 360 \text{ lakh}$$

$$\text{Equity share capital: Reserve and Surplus} = 24: 36 = 2:3$$

$$\text{MV of ESC} = ₹ 360 \times 2/5 = ₹ 144 \text{ lakh}$$

$$\text{MV of Reserves and Surplus} = ₹ 360 \times 3/5 = ₹ 216 \text{ lakh}$$

$$\text{MV of PSC} = 12 \times 120/10 = ₹ 144 \text{ lakh}$$

$$\text{MV of Debentures} = 102.50 \times 120/100 = ₹ 123 \text{ lakh}$$

$$\text{MV of Term Loan} = \text{BV of Term Loan} = ₹ 360 \text{ lakh}$$

Calculation of WACC

Sources	Market Value (₹ in lakh)	Weights (W _i)	Specific Costs (K _i) (%)	K _i W _i
ESC	144	0.146	16.36	2.38856
RS	216	0.219	16.36	3.58284
PSC	144	0.145	9.17	1.32965
Debentures	123	0.125	6.29	0.78625
Term Loan	360	0.365	8.40	3.066
Total	987	1.000		11.1533

$$\text{So, } K_0 = 11.1533 \text{ i.e., } 11.15\%$$

5. (a)

Y_0 means initial investment

Y_1 means cash flow at the end of 1st year

Y_2 means cash flow at the end of 2nd year

Y_3 means cash flow at the end of 3rd year

Jai & Karti Ltd.
PV of Cash Inflows

Year	Cash Inflows			PV Factor	PV		
	Alfa	Beta	Gamma		Alfa	Beta	Gamma
	₹	₹	₹		₹	₹	₹
1	60,000			0.909	54,540		
2	45,000	60,000	80,000	0.826	37,170	49,560	66,080
3	15,000	70,000	86,000	0.751	11,265	52,570	64,586
	PV of Cash inflows:				1,02,975	1,02,130	1,30,666
	Less : PV of Cash Outflows:						
	Project Alfa				1,00,000		
	Project Beta 80,000 + (20,000x0.909)					98,180	
	Project Gama 90,000 + (40,000x0.909)						1,26,360
	NPV				2,975	3,950	4,306
	PI Index				102975	102130	130666
					100000 = 1.03	98180 = 1.04	126360 = 1.034

Comments: When investment is different in various projects, PI method is preferred in comparison to NPV method because it measures the profitability in relation to the investment in the project. Hence, although NPV of Gamma is the highest, the company will prefer project Beta because of its highest profitability index.

5. (b)

Calculation of NPV @ 20%

Year	PBDT	Dep.	PBT	PAT	CF	PVIF	PV
1	2,00,000	1,33,333	66,667	46,667	1,80,000	0.833	1,49,940
2	2,40,000	88,889	1,51,111	1,05,778	1,94,667	0.694	1,35,099
3	2,40,000	59,259	1,80,741	1,26,519	1,85,778	0.579	1,07,565
4	2,40,000	39,506	2,00,494	1,40,346	1,79,852	0.482	86,689
5	1,20,000	26,337	93,663	65,564	91,901	0.402	36,944
6	1,20,000	17,558	1,02,442	71,709	89,267	0.335	29,905
7	1,20,000	11,706	1,08,294	75,806	87,512	0.279	24,416
8	1,20,000	7,804	1,12,196	78,537	86,341	0.233	20,117
9	1,20,000	5,202	1,14,798	80,358	85,561	0.194	16,599
10	1,20,000	3,468	1,16,532	81,572	85,040	0.162	13,777
10	Working Capital released				70,000	0.162	11,340
10	Scrap Value of the plant				80,000	0.162	12,960
	Present Value of Inflows						6,45,351

(Note: Profit for the year-1 has been taken as ₹ 2,00,000 i.e., (2,40,000 – 40,000). The amount of advertisement expenses of ₹ 40,000 has been deducted to find out net cash inflow for that year.)

Present Value of Outflows:

Initial outflow	₹ 4,00,000
Working Capital Required at T ₀	40,000
Working Capital required at T ₁ (₹ 30,000 × .833)	24,990
	4,64,990

NPV = PV of Inflows – PV of Outflows

= ₹ 6,45,351 – 4,64,990 = ₹ 1,80,361

Decision : The proposal has a positive NPV and hence may be acceptable.

6. (a)

Particulars	Amount (₹)
Current Assets :-	
Stock of finished product	3,00,000
Stock of stores, materials, etc.,	5,00,000
Sundry Debtors :	
Inland sales (4 weeks) = 2,60,00,000 × 4/52	20,00,000
Export sales (1.5 weeks) = 65,00,000 × 1.5/52	1,87,500
Payment in advance = 6,00,000 × 1/4	1,50,000
Total Current Assets (A)	31,37,500
Current Liabilities :-	
Wages (1.5 weeks) = 24,00,000 × 1.5/52	69,230
Stock of materials, etc. (1.5 months) = 3,60,000 × 1.5/12	45,000
Rent, Royalties, etc. (6 months) = 80,000 × 6/12	40,000
Clerical staff (1.5 months) = 6,00,000 × 1.5/12	75,000
Manager (½ month) = 4,00,000 × 0.5/12	16,667
Miscellaneous expenses (1.5 month) = 3,60,000 × 1.5/12	45,000
Total Current Liabilities (B)	2,90,897
Net Working Capital (A – B)	28,46,603

6. (b)

EVALUATION OF DIFFERENT CREDIT POLICIES

Particulars	Existing	Proposal I	Proposal II
Credit Period	1 month	2 months	3 months
No. of Units	20,000	23,000	26,000
Sales @ ₹ 300 per unit (A)	₹ 60,00,000	₹ 69,00,000	₹ 78,00,000
Variable Cost @ ₹ 200 per unit	40,00,000	46,00,000	52,00,000
Fixed Cost	6,00,000	6,00,000	7,00,000
Total Cost (B)	46,00,000	52,00,000	59,00,000
Average Debtors at Cost	3,83,333	8,66,667	14,75,000
Interest Cost @ 20% (C)	76,667	1,73,333	2,95,000
Bad Debts 1/3/5% of Sales (D)	60,000	2,07,000	3,90,000
Net Profit (A – B – C – D)	12,63,333	13,19,667	12,15,000
Incremental Profit	-	56,334	(48,333)

Decision : The firm should select Proposal I to increase the credit period from 1 month to 2 months. It will give an incremental Profit of ₹ 56,334.

OR

The firm should select Proposal I to increase the credit period from 1 month to 2 months. It will give a higher Profit of ₹ 13,19,667.

7. (a)

As per Walter's Model, value per share is given by:

$$P = \frac{D + \frac{r}{k}(E - D)}{k}$$

where, P = Market price per share; D = Dividend per share; E = Earnings per share; r = Rate of Return on Investment; k = Cost of Capital.

Here, $E = 12,00,000 / 1,00,000 = ₹ 12$, $k = 10\% = 0.10$

When Rate of Return on Investment = 8%

Here Rate of Return, i.e. r (8%) < Cost of Capital, i.e. k (10%). Hence, the company is a declining company. According to Walter's Model, the market price for a declining firm is the maximum when dividend payout is 100%. So, here 100% dividend payout is recommended.

If such recommendation is accepted, the market price per share will be:

$$P = \frac{D + \frac{r}{k}(E - D)}{k} = \frac{12 + \frac{0.08}{0.10}(12 - 12)}{0.10} \text{ (Since } D = 12 \times 100\% = 12 \text{)}$$
$$= ₹ 120.00$$

When Rate of Return on Investment = 12%

Here Rate of Return, i.e. r (12%) > Cost of Capital, i.e. k (10%). Hence, the company is a growth company. According to Walter's Model, the market price for a growth firm is the maximum when dividend payout is zero. So, here no dividend payout is recommended.

If such recommendation is accepted, the market price per share will be:

$$P = \frac{D + \frac{r}{k}(E - D)}{k} = \frac{0 + \frac{0.12}{0.10}(12 - 0)}{0.10} \text{ (Since } D = 12 \times 0\% = 0 \text{)}$$
$$= ₹ 144.00$$

7. (b)

$$\begin{aligned} \text{Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= 3,40,000 - (120,000 - 55,000) \\ &= 2,75,000 \end{aligned}$$

$$\begin{aligned} \text{Operating Leverage} &= \frac{\text{contribution}}{\text{EBIT}} \\ &= \frac{275000}{220000} \\ &= 1.25 \end{aligned}$$

$$\begin{aligned} \text{Financial Leverage} &= \frac{\text{EBIT}}{\text{EBT}} \\ &= \frac{220000}{160000} \\ &= 1.375 \end{aligned}$$

$$\begin{aligned} \text{Combined Leverage} &= \frac{\text{Contribution}}{\text{EBT}} \\ &= \frac{275000}{160000} \\ &= 1.71875 \end{aligned}$$

Earnings per share at the new sales level

	Case (i) ₹	Case (ii) ₹
Sales Level	4,08,000	2,72,000
Less: Variable Cost	78,000	52,000
Less: Fixed Cost	55,000	55,000
Earnings before interest and taxes	2,75,000	1,65,000
Less: Interest	60,000	60,000
Earnings before taxes	2,15,000	1,05,000
Less: Taxes (@35%)	75,250	36,750
Earnings after taxes (EAT)	1,39,750	68,250
Number of equity shares	80,000	80,000
EPS (approx.)	1.75	0.85

1. Variable Cost = Operating Exp. - Depreciation
= ₹ 1,20,000 - ₹ 55,000 = ₹ 65,000

2. Variable Cost at sales level of ₹ 4,08,000 = ₹ 65,000 $\times \frac{120}{100}$ = ₹ 78,000

Variable Cost at sales level of ₹ 2,72,000 = ₹ 65,000 $\times \frac{80}{100}$ = ₹ 52,000

Rate of Tax = $\frac{₹ 56,000}{₹ 1,60,000} \times 100 = 35\%$

Alternatively,

Existing EPS = 104,000 / 80,000 = ₹ 1.30

Using DCL = 1.71875

% change in EPS / % change in sales = 1.71875

or, % change in EPS = 1.71875 \times 20% = 34.375%

So, (i) EPS for 20% increase in sales = 1.30 + 1.30 \times 34.375% = ₹ 1.75 (approx.)

(ii) EPS for 20% increase in sales = 1.30 - 1.30 \times 34.375% = ₹ 0.85 (approx.)

8. (a)

Large institution takes up digitization projects with meticulous planning and execution. The entire process of digitization may be segregated into six phases:

Phase 1: Justification of the proposed digitization project: -

At the very initiation of the digitization project, the actual benefit of the project needs to be identified. Also, one needs to compute the cost aspect of the project and the assessment of availability of resources. Risk assessment is an important part project assessment.

Most importantly, the expected value generation through digitization should be expressed in clear terms.

Phase 2 : Assessment: -

In any institutions, all records are never digitized. The data that requires digitization is to be decided on the basis of content and context. Some data may be digitized in a consolidated format, and some in detailed format. The files, tables, documents, expected future use etc. are to be accessed and evaluated for the assessment.

The hardware and software requirements for digitization is also assessed at this stage.

Phase 3 : Planning :-

Successful execution of digitization project needs meticulous planning. There are several stages for planning e.g. selection of digitization approach, Project documentation, Resources management, Technical specifications and Risk management.

Phase 4 : Digitization activities :-

Upon the completion of assessment and planning phase, the digitization activities start. The Wisconsin Historical Society developed a six-phase process viz. Planning, Capture, Primary quality control, Editing, Secondary quality control, and storage and management.

The planning schedule is prepared at the first stage, calibration of hardware/software and scanning etc. is done next. A primary quality check is done on the output to check the reliability. Cropping, colour correction, assigning Metadata etc. is done at the editing stage.

Phase 5 : Processes in the case of records: -

Once the digitization of records is complete, there are few additional requirements arise which may be linked to administration of records. The permission for accession of data, intellectual control (over data), classification (if necessary), and up keeping and maintenance of data are few additional requirements for data management.

Phase 6 : Evaluation: -

Once the digitization project is updated and implemented, the final phase should be a systematic determination of the project's merit, worth and significant using objective criteria. The primary purpose is to enable reflection and assist identify changes that would improve future digitization processes.

8. (b)

The steps are explained below:

(i) Validation: -

Data validation may be defined as 'An activity aimed at verifying whether the value of a data item comes from the given (finite or infinite) set of acceptable values. data validation leads to the acceptance or rejection of data as acceptable. Data is subjected to rules. Data are deemed legitimate for the intended final use if they comply with the rules, which means that the combination stated by the rules is not broken. The objective of data validation is to assure a particular degree of data quality. In official statistics, however, quality has multiple dimensions: relevance, correctness, timeliness and punctuality, accessibility and clarity, comparability, coherence, and comprehensiveness. Therefore, it is essential to determine which components data validation addresses.

(ii) Aggregation: -

Data aggregation refers to any process in which data is collected and summarized. When data is aggregated, individual data rows, which are often compiled from several sources, are replaced with summaries or totals. Groups of observed aggregates are replaced with statistical summaries based on these observations. A data warehouse of ten contains aggregate data since it may offer answers to analytical inquiries and drastically cut the time required to query massive data sets.

A common application of data aggregation is to offer statistical analysis for groups of individuals and to provide relevant summary data for business analysis. Utilizing software tools known as data aggregators, large-scale data aggregation is in commonplace. Typically, data aggregators comprise functions for gathering, processing, and displaying aggregated data.

(iii) Analysis: -

Data analysis is described as the process of cleaning, converting, and modelling data to obtain actionable business intelligence. The objective of data analysis is to extract relevant information from data and make decisions based on this knowledge.

Every time we make a decision in our day-to-day life, we consider what occurred previously or what would occur if we choose a specific option. This is a simple example of data analysis. This is nothing more than studying the past or the future and basing judgments on that analysis. We do so by recalling our history or by imagining our future. That consists solely of data analysis. Now, the same task that an analyst does for commercial goals is known as Data Analysis.