The figures in the margin on the right side indicate full marks.

Where considered necessary, suitable assumptions may be made and

clearly indicated in the answer.

Answer Question No. 1 and any five from Question No. 2, 3, 4, 5, 6, 7 and 8.

SECTION - A

1. (a)

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

(b)

(i)	T
(ii)	T
(iii)	T
(iv)	F
(v)	T
(vi)	F
(vii)	T

(c)

(i)	equity
(ii)	cost of capital
(iii)	market price
(iv)	cost of capital
(v)	cash
(vi)	Private

SECTION - B

2. **(a)** In the economic theory, the behaviour of a firm is analysed in terms of profit maximization. It implies that a firm either produces maximum output for a given amount of input or uses minimum input for producing a given output. So, profit is considered to be the main driving force in business. Profit maximization is the main objectives of business also because (i) profit acts as a measure of efficiency and (ii) it serves as a protection against risk. However, profit maximization is a short-term objective. A firm should manage all aspects of the business in such a way that revenues are maximised and costs are minimised to obtain maximum profit. The objective of profit maximization is now replaced by value/ wealth maximization. This is because profit maximization cannot be the sole objective of a firm. Creating wealth for shareholders by increasing the value for their investment is the key goal of financial management today. When the firms maximize the shareholder's value/wealth, the individual shareholder can use this wealth to maximize his individual utility.

Profit Maximisation and Wealth Maximisation are not mutually exclusive rather profit maximisation complements Wealth Maximisation. In other words, Wealth Maximisation depends on profit maximisation. In its process to achieve the maximum wealth for shareholders by increasing the market value of shares, a firm focuses on many aspects like increasing the market share, increasing sales volume, reducing cost through efficient utilisation of resources and increasing customer satisfaction, etc. All these positively contribute towards the profitability of the firm and as a consequence the profit is maximised.

(b) **(i)** The features of treasury bills are as follows:
I. They are negotiable securities.
II. They are highly liquid as they are of shorter tenure and there is a possibility of inter-bank repos in them.
III. There is an absence of default risk.
IV. They have an assured yield, low transaction cost, and are eligible for inclusion in the securities for SLR purposes.
V. They are not issued in scrip form. the purchases and sales are effected through the subsidiary general ledger (SGL) account.
VI. At present, there are 91-day, 182-day, and 364-day T-bills in vogue. The 91-day T-bills are auctioned by the RBI every Friday and the 364-

day T-bills every alternate Wednesday, i.e., the Wednesday preceding the reporting Friday.

    VII.   Treasury bills are available for a minimum amount of ₹ 25,000 and in multiples thereof.

  (ii)   The features of hedge funds are as follows:

    I.   Hedge funds reduce risk, enhance returns and minimize the correlation with equity and bond markets.

    II.   It has flexibility in investment options.

    III.   It offers variety in terms of investment returns, volatility and risk.

    IV.   It ensures consistency of returns and capital preservation.

    V.   It is managed by experienced investment professionals who are generally disciplined and diligent.

    VI.   Pension funds, endowments, insurance companies, private banks and high net worth individuals and families invest in hedge funds to minimize overall portfolio volatility and enhance returns.

    VII.   Hedge funds benefit by heavily weighting hedge fund managers' remuneration towards performance incentives.

3.   **(a)**   **Working notes:**

    1.   **Total Sales:**

      GP Margin = 30%

      GP = ₹ 5,40,000

      Sales = 5,40,000/30% = ₹18,00,000

    2.   **Credit Sales:**

      Credit sales = 80% of total sales = 18,00,000 X 80% = ₹14,40,000

    3.   **Total Assets:**

      Total Assets Turnover = Sales/ Total Assets =0.3times

      Total Assets = 18,00,000/0.3 = ₹60,00,000

    4.   **Inventory:**

      Inventory Turnover = Cost of Goods Sold / Inventory X 100

                = 18,00,000 – 5,40,000 / Inventory

      Inventory = 12,60,000 / 4 = ₹3,15,000

    5.   **Debtors:**

      Debtors   = Credit Sales X 20 days / 360 days

                 = 14,40,000 X 20/360 days

                 = ₹ 80,000

6. **Long Term Debt and Current Liabilities**

Total Assets = 60,00,000

Total of Balance Sheet = 60,00,000

Now, Long Term Debt

Long Term Debt / Equity = 40%

Long Term Debt = 40% of Equity = 40,00,000 X 40% = ₹ 16,00,000

Current Liabilities = 60,00,000 (Total Assets) – 40,00,000 (Equity) – 16,00,000 (Long Term Debt) = ₹ 4,00,000

7. **Cash and Bank:**

Current ratio = Current Assets / Current Liabilities

1.8 = (Debtors + Inventory + Cash and Bank)/ Current Liabilities

1.8 = 80,000 + 3,15,000 + Cash and Bank / 4,00,000

7,20,000 = 3,95,000 + Cash and Bank

Cash and Bank = ₹ 3,25,000

8. **Fixed Assets**

Total Assets – Current Assets = ₹ 60,00,000 – (3,15,000 + 80,000 + 3,25,000) = ₹ 52,80,000

Balance Sheet as at the end of Year ending -----

	Schedule No.	Current Year	Previous Year
Capital and Liabilities		₹	₹
Shareholders' funds		40,00,000	
Long term liabilities		16,00,000	
Current liabilities		4,00,000	
Total		**60,00,000**	
Assets			
Cash		3,25,000	
Debtors		80,000	
Fixed Assets		52,80,000	
Inventory		3,15,000	
Total		**60,00,000**	

(b)

Item Description	Inflow	Outflow	Category
Normal income tax refund	Yes		Operating Activity
Proceeds of a share issue	Yes		Financing Activity

Interest received by a financial enterprise	Yes		Operating Activity
Decrease in debtors	Yes		Operating Activity
Dividend received by a manufacturing company	Yes		Financing Activity

4. **(a)** Cost of equity $(K_e) = D_1/P + g = 2.5/20 + 0.05 = 17.5\%$

Cost of preference shares $(K_p) = 9/100 = 9\%$

Cost of debenture $(K_d) = 12 (1-0.30) = 8.4\%$

Calculation of WACC

Sources	Book Value (₹ in thousand)	Proportion (W_i)	Costs (K_i)	$K_i \times W_i$
Equity Share Capital	6,000	0.6	17.5%	10.5%
Preference Share Capital	1,000	0.1	9%	0.9%
Debentures	3,000	0.3	8.4%	2.52%
Total	10,000	1.0		13.92%

So, WACC = 13.92%

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

i) 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.

ii) 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 create useful information for the target user groups.

iii) 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 need to be addressed. The options available for presentation format for the data also need to be decided.

iv) Integration of data: Data integration is the process of combining data from various sources into a single, unified form. This step include creation of data network sources, a master server and users accessing the data from master server. Data integration eventually enables the analytics tools to produce effective, actionable business intelligence.

v) 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. The objective is, a user, who wants to understand the financial position of the company should get the relevant and accurate information.

vi) 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'.

5. (a) Assuming that PQR Ltd. belongs to 50% tax bracket, the EPS under the above four options can be calculated as follows:

	Option (i)	Option (ii)	Option (iii)	Option (iv)
Capital Structure				
Equity share capital	5,00,000	2,50,000	2,50,000	1,25,000
12% Preference Share Capital	—	2,50,000	1,25,000	1,25,000
10% debentures	—	—	1,25,000	2,50,000
Total	5,00,000	5,00,000	5,00,000	5,00,000
EBIT	1,50,000	1,50,000	1,50,000	1,50,000
Less: Interest	0	0	12,500	25,000
EBT	1,50,000	1,50,000	1,37,500	1,25,000
Less: Tax @ 50 % on EBT	75,000	75,000	68,750	62,500
EAT	75,000	75,000	68,750	62,500
Less: Preference dividend	0	30,000	15,000	15,000
Earnings available to equity shareholders (EATESH)	75,000	45,000	53,750	47,500
Number of equity shares of ₹100 each	5,000	2,500	2,500	1,250
EPS	15	18	21.5	38

In this case, the financial plan under option (iv) seems to be the best as it has given the highest EPS of ₹.38. In this plan, the firm has applied maximum financial leverage by employing the maximum amount of debt.

(b) In artificial intelligence, there are two schools of thought: data-driven and model-driven. The data-driven strategy focuses on enhancing data quality and data governance in order to enhance the performance of a particular problem statement. In contrast, the model-driven method attempts to increase performance by developing new models and algorithmic manipulations (or upgrades). In a perfect world, these should go hand in hand, but in fact, model-driven techniques have advanced far more than data-driven ones. In terms of data governance, data management, data quality handling, and general awareness, there is still much room for improvement.

Recent work on Covid-19 serves as an illustration in this perspective. While the globe was struggling from the epidemic, several AI-related projects emerged. Whether it's recognizing Covid-19 from a CT scan, X-ray, or other medical imaging, estimating the course of the disease, or even projecting the overall number of fatalities, artificial intelligence is essential. On the one hand, this extensive effort around the globe has increased our understanding of the illness and, in certain locations, assisted clinical personnel in their work with vast populations. However, only few of the vast quantity of work was judged suitable for any actual implementation procedure, such as in the healthcare industry. Primarily data quality difficulties are responsible for this deficiency in practicality. Numerous projects and studies utilised duplicate photos from different sources. Even still, training data are notably lacking in external validation and demographic information. The majority of these studies would fail a systematic review and fail to reveal biases. Consequently, the quoted performance cannot be applied to real-world scenarios. A crucial feature of Data science to keep in mind is that poor data will never result in superior performance, regardless of how strong your model is. Real-world applications require an understanding of systematic data collection, management, and consumption for a Data Science project. Only then can society reap the rewards of the 'wonderful AI'

6. **(a)** Appraisal of Replacement decision Under NPV Method: Calculation of Present Value of Net Cash outflow:

(Amount in ₹)

Cost of Machine B		2,50,000
Less : Sale proceeds of Machine A	1,00,000	
Cost of dismantling and removal	(30,000)	(70,000)
Net outflow		1,80,000

Calculation of Present Value of Incremental Cash inflow:

(Amount in ₹)

Particulars	Machine-A	Machine-B	Incremental
Sales P.A (units)	1,50,000	1,50,000	-
Sales P.A (1,50,000 × 8)	12,00,000	12,00,000	
Less : Expenditures :			
Operating Cost	2,00,000	1,50,000	50,000
Fixed Cost	4,50,000	4,50,000	-
Net Cash inflow		50,000	
Present Value	50,000 ×3.433		1,71,650
Less: Out flow			(1,80,000)
Net Present Value			(8,350)

Decision: As incremental NPV on purchase of Machine B is negative, the replacement decision is not financially feasible. So, the company should not replace the Machine A.

(b) **Project A**

PV of Annuity of ₹ 3,50,000 for 5 years at 4% rate of discount —

3,50,000 × 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 × 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 × 3.791 = ₹ 18,95,500

NPV = ₹18,95,500 - ₹ 15,00,000 = ₹ 3,95,500

Decision: Accept Project C

7. **(a)** **Analysis of Profitability of Credit Policies**

Category (i) 10% risk of non-payment

Particulars	₹	₹
Incremental sales		2,40,000
Less: Bad debts @ 10%		24,000

INTERMEDIATE EXAMINATION
SET 1

MODEL ANSWERS
TERM – JUNE 2023

PAPER – 11

FINANCIAL MANAGEMENT AND BUSINESS DATA ANALYTICS

Sales realized		2,16,000
Less: Cost of production and selling cost (2,40,000×60%)	1,44,000	
Less: Collection cost (2,40,000 × 5%)	12,000	1,56,000
Incremental Profit		60,000

Category (ii) 25% risk of non - payment

Particulars	₹	₹
Incremental Sales		6,50,000
Less: Bad Debts @ 25%		1,62,500
Sales realized		4,87,500
Less: Cost of production and selling cost (650000 × 60%)	3,90,000	
Less: Collection cost (650000 × 10%)	65,000	4,55,000
Incremental Profit		32,500

Incremental profit in case of category (i) is more than as same in case of category (ii). Hence, advised to extend credit facility to category (i).

(b) Statement Showing the Requirement of Working Capital of Goldilocks Ltd. for 2019-20.

(Amount in ₹ Lakh)

Particulars		
(A) Current Assets :		
Raw Materials (600 x 1/12)	50.0	
Finished Goods (1800 x 1/12)	150.00	200.00
Debtors :		
Domestic Market Sales (1600 x 0.75x 2/12)	200.00	
Export Market (600 x 0.75 x 3/12)	112.50	312.50
Sales Promotion Expenses (80 x 0.25)		20.00
Cash Balance to be maintained		20.00
Total Current Assets		552.50
(B) Current Liabilities :		
Creditors for Raw materials (600 x 2/12)	100.00	
For wages (400 x 1/24)	16.67	
For Manufacturing Expenses (600 x 1/ 12)	50.00	
For Administration Expenses (200 x 1/12)	16.67	183.34
Total Current Liabilities		183.34
Working Capital Required (A – B)		369.16

Working Note: (₹ in lakh)

(i)   Cost of Production:

Material used	600
Wages paid	400
Manufacturing Expenses	600
Administration Expenses	200
	1,800

(ii)   Export sales at equivalent to D. Sales (540/0.90) = 600

8.   **(a)**   This is particularly true for finance, which is becoming the data hub of the majority of progressive enterprises. David A.J. Axson of Accenture highlights in his paper "Finance 2020: Death by Digital" that finance is transitioning from "an expenditure control, spreadsheet-driven accounting and reporting centre" to "a predictive analytics powerhouse that generates business value."

Finance is able to communicate these analytic findings to the entire business through the use of data visualisation. Several studies indicate that sixty-five percent of individuals are visual learners. Giving decision makers an opportunity to have visual representations of facts improves comprehension and can eventually lead to better judgments.

In addition, the technique of developing data visualisations may aid finance in identifying more patterns and gaining deeper insights, particularly when many data sources or interactive elements are utilised. For example, contemporary finance professionals frequently monitor both financial and non-financial KPIs. Data visualisation may assist in correlating these variables, revealing relationships, and elucidating the actions required to enhance performance.

(b)   The relevance of data processing and data science in the area of finance is increasing every day. The three significant areas where data science play important role are:

(i)   Risk analytics: Business inevitably involves risk, particularly in the financial industry. It is crucial to determine the risk factor before making any decisions. For example, a better method for defending the business against potential cybersecurity risks is risk analytics, which is determined through data science. Given that a large portion of a company's risk- related data is "unstructured," its analysis without data science methods can be challenging and prone to human mistake.

ii) Real time analytics: With technological advancement and improved hardware, real-time analytics are now available, as Data Engineering, Data Science, Machine Learning, and Business Intelligence work together to provide the optimal user experience. Thanks to dynamic data pipelines, data streams, and a speedier data transmission between source and analyzer, businesses can now respond quickly to consumer interactions. With real-time analysis, there are no delays in establishing a customer's worth to an organisation, and credit ratings and transactions are far more precise.

iii) Customer data management: Using methods such as text analytics, data mining, and natural language processing, data science is well-equipped to deal with massive volumes of unstructured new data. Consequently, despite the fact that data availability has been enhanced, data science implies that a company's analytical capabilities may also be upgraded, leading to a greater understanding of market patterns and client behaviour.