INTERMEDIATE EXAMINATION **SET - 1**

MODEL ANSWERS **TERM – JUNE 2025**

PAPER – 11 **SYLLABUS 2022**

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: **[15x2=30]**

(i) A company wants to repay a loan of ₹5,00,000, 10 years from today. What amount should it invest each year for 10 years if the funds can earn 8% per annum. The first investment will be made at the beginning of this year.

(a) ₹50,000
(b) ₹31,950
(c) ₹40,000
(d) ₹32,950

(ii) Mr. X is depositing ₹20,000 in a recurring bank deposit which pays 9% p.a. compounded interest. How much Mr X amount will get at the end of 5th Year?

(a) ₹1,19,694
(b) ₹1,15,794
(c) ₹1,18,694
(d) ₹1,16,794

(iii) In India, NIFTY and SENSEX are calculated on the basis of_____.

(a) Market Capitalization
(b) Paid up Capital
(c) Free-float Capitalization
(d) Authorized Share Capital

(iv) Gross Profit Ratio for a firm remains same but the Net Profit Ratio is decreasing. The reason for such behaviour could be:

(a) Increase in Costs of Goods Sold
(b) Increase in Dividend
(c) If Increase in Expense
(d) Decrease in Sales.

(v) BP Ltd. issued 60,000 12% Redeemable Preference Shares of ₹100 each at a premium of ₹5 each, redeemable after 10 years at a premium of ₹10 each. The floatation cost of each share is ₹3. What is the cost of preference share capital?

(a) 10.50%
(b) 11.76%
(c) 13.42%
(d) 12.08%

(vi) **JPR Company's share is currently quoted in the market at ₹20. The company pays a dividend of ₹2 per share and the investors expect a growth rate of 5% per year. What is the market price per share if the anticipated growth rate dividend is 7%.**

(a) ₹25.00

(b) ₹26.50

(c) ₹22.50

(d) ₹23.00

(vii) **A project requires an initial investment of ₹2,25,000 and is expected to generate the following net cash inflows: Year 1 (2018): ₹95,000; Year 2 (2019): ₹80,000; Year 3 (2020): ₹60,000; Year 4 (2021): ₹55,000. Compute net present value of the project if the minimum desired rate of return is 12%.**

(a) ₹1,385

(b) ₹1,295

(c) ₹1,265

(d) ₹1,345

(viii) **Which of the following is not true with reference capital budgeting?**

(a) Capital budgeting is related to asset replacement decisions

(b) Cost of capital is equal to minimum required return

(c) Timing of cash flows is relevant.

(d) Existing investment in a project is not treated as sunk cost

(ix) **Consumption of materials per annum: 10,000 kg,**
Order placing cost per order: ₹50
Cost per kg of raw materials: ₹2 and
Storage costs: 8% on average inventory.
Calculate the number of orders to be placed in a year.

(a) 7

(b) 3

(c) 4

(d) 5

(x) **If a company issues new share capital to redeem debentures, then:**

(a) OL will increase

(b) FL will increase

(c) OL will decrease

(d) FL will decrease

(xi) **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 lakhs, tax rate is 35 % under M-M approach?**

(a) ₹770 lakh

(b) ₹500 lakh

(c) ₹630 lakh

(d) ₹900 lakh

(xii) **Conversation 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**

(xiii) **What does 'disparate impact' refer to in data ethics?**
- **(a) A situation where data is intentionally manipulated to cause harm to individuals**
- **(b) The ethical concern where even well-intentioned data analysis results in unintended harm to certain groups**
- **(c) The positive outcomes generated from using data analysis to benefit a select group**
- **(d) A situation where data analysis leads to clear financial benefits for all involved parties**

(xiv) **The probability density function describes**
- **(a) the characteristics of a random variable**
- **(b) the characteristics of a non-random variable**
- **(c) the characteristics of a random constant**
- **(d) the characteristics of a non-random constant**

(xv) **Data _____ techniques are utilised to develop descriptions and hypotheses on a specific data set.**
- **(a) Modeling**
- **(b) Analysis**
- **(c) Mining**
- **(d) Visualization**

Answer:

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

SECTION – B

Answer any 5 questions out of 7 questions given. Each question carries 14 marks.

[5 x 14 = 70]

2) **(a) Discuss the concept of Hedge Fund with its benefits. Also explain the Hedging strategies adopted in case of Hedge Funds. [7]**

(b) Identify the role of modern Business Intelligence systems in organizations. [7]

Answer:

(a) Hedge funds are private investment vehicles not open to the general investment public. Hedge funds face less regulation than publicly traded mutual funds, allowing them to hold substantial short positions to preserve capital during market downturns. Typically, hedge fund managers generate profit from both long as well as short positions. The private nature of hedge funds often suits both the needs of investors and managers.

Benefits of Hedge Funds

- **Seek higher returns**: Hedge fund strategies generate positive returns in both rising and falling equity and bond markets.
- **Investment styles**: Huge variety of hedge fund investment styles - many uncorrelated with each other provides investors with a wide choice of hedge fund strategies to meet their investment objectives.
- **Long term Solution**: Hedge funds provide an ideal long-term investment solution, eliminating the need to correctly time entry and exit from markets.
- **Diversification**:
  (i) Inclusion of hedge funds in a balanced portfolio reduces overall portfolio risk and volatility and increases returns.
  (ii) Adding hedge funds to an investment portfolio provides diversification not otherwise available in traditional investing.

Hedging strategies adopted in case of Hedge Funds

- **Selling short:** Selling shares without owning them, to buy them back at a future date at a lower price in the expectation that their price will drop.
- **Using arbitrage:** Seeking to exploit pricing inefficiencies between related securities.
- **Trading options or Derivatives:** Contracts whose values are based on the performance of any underlying financial asset, index or other investment.
- **Investing in anticipation of a specific event:** Merger transaction, hostile takeover, spin-off, exiting of bankruptcy proceedings, etc.
- **Investing in deeply discounted securities:** Of companies about to enter or exit financial distress or bankruptcy, often below liquidation value.

(b) Business intelligence includes business analytics, data mining, data visualisation, data tools and infrastructure, and best practises to assist businesses in making choices that are more data-driven. When you have a complete picture of your organization's data and utilise 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.

Company intelligence is a broad word that encompasses the procedures and methods of gathering, storing, and evaluating data from business operations or activities in order to maximise performance. All of these factors combine to provide a full perspective of a firm, enabling individuals to make better,

proactive decisions. 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.

3) (a) The following are the ratios relating to the activities of X Ltd.

Debtors' velocity (months)	**3**
Stock velocity (months)	**8**
Creditors' velocity (months)	**2**
Gross profit ratio (%)	**25**

Gross profit for the current year ended December, 31st, 2024 amounts to ₹4,00,000. Closing stock of the year is ₹10,000 above the opening stock. Bills receivables amount to ₹25,000 and bills payable to ₹10,000. Find out(I) Sales, (II) Closing Stock, and (III) Sundry Creditors. [7]

(b) The Balance Sheets of A, B, & C Co. Ltd. as at the end of 2023 and 2024are given below:

Liabilities	2023 (₹)	2024 (₹)	Assets	2023 (₹)	2024 (₹)
Share Capital	1,00,000	1,50,000	Freehold land	1,00,000	1,00,000
Share premium		5,000	Furniture at cost	7,000	9,000
General Reserve	50,000	60,000	Investments	60,000	80,000
Profit & Loss Account	10,000	17,000	Debtors	30,000	70,000
6% Debentures	70,000	50,000	Stock	60,000	65,000
Provision for Depreciation on	50,000	56,000	Cash	30,000	45,000

Plant					
Provision for Dep. on Furniture	**5,000**	**6,000**			
Provision for taxation	**20,000**	**30,000**			
Sundry Creditors	**86,000**	**95,000**			
	3,91,000	**4,69,000**		**3,91,000**	**4,69,000**

A Plant purchased for ₹4,000 (Depreciation ₹2,000) was sold for Cash for ₹800 on September. 30, 2024. On June 30, 2024 an item of furniture was purchased for ₹2,000. These were the only transactions concerning fixed assets during 2024.
A dividend of 22½% on original shares was paid. You are required to prepare Funds Flow Statement and verify the results by preparing a schedule of changes in Working Capital.

[7]

Answer:

(a)

I. **Determination of sales:**

Sales $= \frac{₹\,4,00,000}{25} \times 100 = ₹16,00,000$

II. **Determination of sundry debtors:**

Debtors' velocity is 3 months. In other words, debtors collection period is 3 months, or debtors' turnover ratiois 4. Assuming all sales to be credit sales and debtors' turnover ratio being calculated on the basis of year-endfigures.

Debtors' turnover ratio $= \frac{Credit Sales}{Closing Debtors' + Bills Receivables}$

Closing debtors + Bills Receivables $= \frac{Credit\ Sales}{\text{Debtors' turnover ratio}}$

$= \frac{₹\,16,00,000}{4} = ₹4,00,000$

Closing Debtors = ₹4,00,000 – ₹25,000 = ₹3,75,000

III. **Determination of Closing Stock:**

Stock velocity of 8 months signifies that the inventory holding period is 8 months, stock turnover ratio is 1.5 i.e., (12 months / 8).

Stock Turnover $= \frac{Cost\ of\ goods\ sold (Sales - Gross\ Profit)}{Average\ Stock} = \frac{₹\,12,00,000}{Average\ Stock} = 1.5$

Average Stock $= \frac{₹\,12,00,000}{1.5} = ₹\ 8,\ 00,000$

Closing Stock – Opening Stock = ₹10,000…….(i)

$\frac{Closing\ Stock + opening\ Stock}{2}$ = ₹8, 00,000…….... (ii)

Closing Stock + Opening stock = ₹16, 00,000 …….(iii)

Subtracting (i) from (iii) we have,
2 Opening Stock = ₹15, 90,000
Opening Stock = ₹7, 95,000
Therefore, Closing Stock = ₹8, 05,000

IV. **Determination of Sundry Creditors:**

Creditors' velocity of 2 months signifies that the credit payment period is 2 months. In other words, creditors' turnover ratio is 6 (i.e., 12 months/2). Assuming all purchases to be credit purchases and creditors turnoveris based on year- end figure.

Creditors turnover ratio = $\frac{Credit\ Purchase}{Creditors' + Bills\ payables}$

$6 = \frac{₹\ 12{,}00{,}000}{Creditors + 10{,}000}$

or,Creditors + ₹10,000 = $\frac{₹\ 12{,}00{,}000}{6}$
or, Creditors = ₹2,01,667 – ₹10,000
Therefore, Creditors = ₹1,91,667
Credit purchases are calculated as follows:
Cost of Goods Sold = Opening Stock + Purchases + Closing Stock
or, ₹12,00,000 = ₹7,95, 000 + Purchases – ₹8,05,000
or, ₹12,00,000 + ₹10,000 = Purchases
or, ₹12,10,000 = Purchases (credit)

(b) **P & L Adjustment A/C**

Dr. **Cr.**

Particulars	₹	Particulars	₹
To General Reserve	1,000	By Balance b/d	10,000
To Depreciation	9,000	By Funds from operations	49,700
To Loss on Sale of plant	1,200		
To Dividend	22,500		
To Balance c/d	17,000		
	59,700		59,700

Provision for depreciation on plant :

Closing Balance		- 56,000
Opening Balance	50,000	
(-) Sold	(2,000)	48,000
		8,000
Dep. on Furniture		1,000
Total Depreciation		**9,000**

	2023 ₹	2024 ₹
A. Current assets		
Debtors	30,000	70,000
Stock	60,000	65,000
Cash	30,000	45,000
	1,20,000	1,80,000
B. Current Liabilities		
Provision for tax	20,000	30,000
Creditors	86,000	95,000
	1,06,000	1,25,000
C. Working Capital (A-B)	14,000	55,000
Increase in Working Capital	41,000	
	55,000	55,000

Funds Flow statement for the year 2024:

Sources:	₹
Funds from operations	49,700
Issue of Shares	55,000
Sales of Plant	800
	1,05,500
Applications:	
Increase in working capital	41,000
Redemption of Debentures	20,000
Purchase of Furniture	2,000
Purchase of Investments	20,000
Payment of Dividend	22,500
	1,05,500

4. (a) From the Balance Sheet of X Ltd., prepare:

(A) Statement of changes in the Working Capital and

(B) Funds Flow Statement.

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
P & L A/c	30,000	48,000	Plant	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 is the additional information available.

i. Depreciation of ₹10,000 and ₹20,000 have been charged on Plant and Land and 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]

(b) Asianol Ltd. has the following Capital Structure:

	₹ (in Lakhs)
Equity Share Capital (10 lakhs shares)	100
12% Preference Share Capital (10,000 shares)	10
Retained Earnings	120
14% Debentures (70,000 Debentures)	70
14 % Term Loan	100
	400

The market price per equity share is ₹25. The next expected dividend per share is ₹2 and is expected to grow at 8%. The preference shares are redeemable after 7 years at par and are currently quoted at ₹75 per share. Debentures are redeemable after 6 years at par and their current market quotation is ₹90 per debenture. The tax rate applicable to the firm is 50%.

Calculate WACC under Book value method and Market value method. **[7]**

Answer:

(a)

A. Calculation of changes in Working Capital

Current Asset	2023 (₹)	2024 (₹)
Debtors	1,60,000	2,00,000
Stock	77,000	1,09,000
Bills Receivable	20,000	30,000
Cash in hand	15,000	10,000
Cash at Bank	10,000	8,000
A: Total Current Assets	2,82,000	3,57,000

Current Liabilities	2023(₹)	2024(₹)
Creditors	55,000	83,000
Bill Payable	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

B. Funds Flow Statement

Sources	Amount (₹)	Application	Amount (₹)
Funds from Operations	2,30,000	Purchases of Plant	1,30,000
Sale proceeds of Land & Building	10,000	Increase in Working Capital	51,000
Issue of Equity Share Capital	1,00,000	Tax Paid	35,000
		Redemption of Preference Share Capital	50,000
		Proposed Dividend	42,000
		Interim Dividend paid	20,000
		Preference Dividend paid	12,000
	3,40,000		3,40,000

Working note:

Dr. 1. Land & Buildings A/c Cr.

Particulars	Amount (₹)	Particulars	Amount (₹)
To, Balance b/d	2,00,000	By, Depreciation provided	20,000
		By, Bank – sale proceeds (b/f)	10,000
		By, Balance c/f	1,70,000
	2,00,000		2,00,000

Dr. 2. Plant A/c Cr.

Particulars	Amount (₹)	Particulars	Amount (₹)
To, Balance b/d	80,000	By, Depreciation provided	10,000
To, Bank (b/f)	1,30,000	By, Balance c/f	2,00,000
	2,10,000		2,10,000

Dr. 3. Provision for Tax A/c Cr.

Particulars	Amount (₹)	Particulars	Amount (₹)
To, Bank – paid	35,000	By, Balance b/d	40,000
To, Balance c/f	50,000	By, P & L A/c –provided	45,000
	85,000		85,000

Dr. 4. P/L Adjustment A/c Cr.

Particulars	Amount (₹)	Particulars	Amount (₹)
To, Depreciation	30,000	By, Balance b/d	30,000
To, Preference Dividend (1, 50,000 × 8%)	12,000	By, Funds from Operation,(b/f)	2,30,000
To, Transfer to G/R	30,000		
To, Provision for Tax	45,000		
To, Proposed Dividend	50,000		
To, Goodwill written off	25,000		
To, Interim Dividend	20,000		
To, Balance C/f	48,000		
	2,60,000		2,60,000

(b)

(i) Under Book Value Method

1. Cost of Equity Shares (k_e)

$k_e = (D1 \div P0 \times 100) + g$

$= (2 \div 25 \times 100) + 8\%$

$= 16\%$

2. Cost of Preference Shares (k_p)

K_p = PD+ (RV-NP)/N÷ RV+NP/2× 100

K_p = [12 + (100 – 75)/7] ÷ (100+75 /2) × 100

= 17.8%

3. Cost of Debentures (k_d)

k_d = [I (1-t)+((RV−NP)/n)] ÷(RV+NP)/2

k_d = [14(1-.5) + (100 – 90)/6 ÷(100 + 90/2

= 9.13%

4. Cost of Term Loan (k_d)

k_d = Interest (1 – t)

= 14% (1 – 0.5)

= 7%

Computation of WACC of Asianol Ltd.

(Weights under Book Value)

Sources of Finance	Book-value (in ₹lakhs)	Weight Proportion	After Tax cost of capital	WACC (%)
Equity share capital	100	0.250	16.00%	4.000
12% Preference share capital	10	0.025	17.80%	0.446
Retained earnings	120	0.300	16.00%	4.800
14% Debentures	70	0.175	9.31 %	1.63
14% Term Loan	100	0.250	7.00%	1.750
Total	400	1.000		12.63

Therefore, WACC under book value is 12.63%.

(ii) Under Market Value Method

Total Market value of Equity Shares = 10,00,000 shares@ ₹25

= ₹2,50,00,000

Ratio between equity shares and retained earnings

= 100:120

= 5:6

Market value of equity = ₹2,50,00,000 × 5/11

= ₹1,13,63,637

Market value of retained earnings = ₹2,50,00,000 × 6/11

= ₹1,36,36,363

Computation of WACC of Asianol Ltd.

(Weights under Market Value)

Sources of Finance	Market-value (in ₹)	Weight Proportion	After Tax Cost of capital	WACC (%)
Equity share capital	1,13,63,637	0.2700	16.00%	4.32
12% Preference share capital	7,50,000	0.0178	17.80%	0.32
Retained earnings	1,36,36,363	0.3243	16.00%	5.20
14% Debentures	63,00,000	0.1498	9.31%	1.39
14% Term Loan	1,00,00,000	0.2381	7.00%	1.67
Total	4,20,50,000	1.000		12.89

Therefore, WACC under market value is 12.89%.

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.

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) Modern Enterprises Ltd. is considering the purchase of a new computer system for its research and development division, which would cost ₹35 lakh. The operation and maintenance costs (excluding depreciation) are expected to be ₹7 lakh per annum. It is estimated that the useful life of the system would be 6 years, at the end of which the disposal value is expected to be ₹1 lakh.

The tangible benefits expected from the system in the form of reduction in design and draftsmanship costs would be ₹12 lakh per annum. The disposal ofused drawing office equipment and furniture initially is anticipated to net ₹9 lakh.

As capital expenditure in research and development, the proposal would attract a 100% write-off for tax purposes. The gains arising from disposal of used assets may be considered tax free. The effective tax rate is 35%. The average cost of capital of the company is 12%.

After appropriate analysis of cash flows, advise the company of the financial viability of the proposal. Ignore tax on salvage value. [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

Calculation of Cash Flow after Tax (CFAT)

Year	CBDT (₹)	Dep	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)

Assessment of Financial Viability of proposal	**(₹ in lakh)**
Incremental cash outflows	
Cost of new computer system	35
Less: Sale proceeds from drawing office equipment and furniture	9
	26
Incremental CFAT and NPV:	
(a) Cost savings (years 1–6)	
Reduction in design and draftsmanship costs	12
Less: Operation and maintenance costs	7
Cost savings (earnings) before taxes	5
Less: Taxes (0.35)	1.75
Earnings after taxes (CFAT)	3.25
(×) PV factor of annuity for 6 years (0.12)	× 4.111
Total PV of cost savings	13.36
(b) Tax savings on account of depreciation	
Cost of new computer system (₹35 lakhs × 0.35)	12.25
(×) PV factor for year 1	× 0.892
Total PV	9.93
(c) Terminal salvage value at the end of year 6 (₹1 lakh × 0.507)	**0.507**
(d) Gross PV of CFAT [(a) + (b) + (c)]	**24.797**
Less: Cash outflows	**26.000**
NPV	**(1.203)**

Recommendation: Since NPV is negative, the proposal is not financially viable.

6. **(a) Solaris Ltd. sells goods in domestic market at a gross profit of 25%, not counting on depreciation as a part of the 'cost of goods sold'. Its estimates for next year are as follows:**

Amount (₹in lakh)

Sales - Home at 1 month's credit	**1,200**
Exports at 3 months' credit, selling price 10 %below home price	**540**
Materials used (suppliers extend 2 months' credit)	**450**
Wages paid, 1⁄2 month in arrears	**360**
Manufacturing expenses, paid 1 month in arrears	**540**
Administrative expenses, paid 1 month in arrears	**120**
Sales promotion expenses (payable quarterly - in advance)	**60**
Income - tax payable in 4 instalments of which one falls in the next financial year	**150**

The company keeps 1 month's stock of each of raw materials and finished goods and believes in keeping ₹20 lakh as cash. Assuming a 15% safety margin, ascertain the estimated working capital requirement of the company. (ignore work -in-process).

[7]

(b) Surya Industries Ltd. is marketing all its products through a network of dealers. All sales are on credit and the dealers are given one-month time to settle bills. The company is thinking of changing the credit period with a view to increase its overall profits. The marketing department has prepared the following estimates for different periods of credit:

Particulars	Present Policy	Plan I	Plan II	Plan III
Credit period (in months)	**1**	**1.5**	**2**	**3**
Sales (₹Lakhs)	**120**	**130**	**150**	**180**
Fixed costs (₹ Lakhs)	**30**	**30**	**35**	**40**
Bad debts (% of sales)	**0.5**	**0.8**	**1**	**2**

The company has a contribution/sales ratio of 40% further it requires a pre-tax return on investment at 20%. Examine each of the above proposals and recommend the best credit period for the company.

[7]

Answer:

(a) Statement showing determination of Working Capital (Amount in ₹lakhs)

Current Assets	(₹)	Computation	
Cash	20.00		
Raw Materials	37.50	(450 lakh / 12)	
Finished Goods	122.50	(1,470 lakh / 12)	
Debtors-Domestic market	100.00	(1,200 / 12)	
Export Market	135.00	(540 × 3 / 12)	
Sales Promotion Expense	15.00	3(60 lakh × 3 /12)	
Total Current Assets (A)	**430.00**		
Current Liabilities			**(₹)**
Raw Materials (450 × 2 / 12)			75.00
Wages (360 / 24)			15.00
Manufacturing Expenses (540 /12)			45.00
Administration Expenses (120/12)			10.00
Total Current Liabilities (B)			**145.00**
Net Current Assets (A-B)			**285.00**
Add: Safety Margin @ 15%			42.75
Working Capital Requirement			**327.75**

Working notes:

1. Cost of Production

Particulars	₹ in lakhs
Material used	450
Wages paid	360
Manufacturing exp	540
Administration exp	120
Total	1470

Tax aspect is ignored as it is to be paid out of profits.

(b)

Analysis of Credit Policies (₹ in Lakhs)

Credit Period (months)	Current Policy	Plan I	Plan II	Plan III
Fixed Costs	30	30	35	40
Profit Before Bad debts and ROI in Debtors	18	22	25	32
Cost	(120-18) 102	(130-22) 108	125	148
Amt. invested in Receivable	(102 × 1/12) 8.5	13.5	20.83	37
Required return on investment in receivables @ 20%	(8.5 × 20%) 1.7	2.7	4.166	7.4
Bad debs (%)	0.5	0.8	1	2
Bad debts amount	0.60	1.04	1.5	3.6
Net profit (18-17-0.60)	**15.7**	**18.26**	**19.334**	**21**

Better to choose plan – III as it gives the highest Net Income.

7. (a) 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:

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

(i) Determine the firm's EPS.

(ii) Determine the percentage change in EPS associated with 30% change (both increase and decrease) in EBIT.

(iii) Determine the degree of financial leverage at the current level of EBIT.

(iv) What additional data do you need to compute operating as well as combined leverage?

[7]

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

(i) Calculate the firm's ROI.

(ii) Does it have favorable financial leverage?

(iii) If the firm belongs to an industry whose asset turnover is 3, does it have high or low asset leverage?

(iv) If the firm belongs to an industry whose asset turnover is 3, does it have high or low asset leverage?

(v) If the sales drop to ₹50 lakhs what will the new EBIT be?

(vi) At what level will the EBT of the firm equal to zero?

[7]

Answer:

(a)

(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 (Δ EPS ÷ EPS)	(+60.05%)	(–60.05%)

(iii) DFL = EBIT / EBIT – I – [D_p/(1 – t)]
= ₹1,86,000 / (₹1,86,000 – ₹70,000 – [₹15,000 ÷ (0.65)]
= 2 (times)

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

(b) (i) ROI = EBIT/Investment
EBIT = Sales – VC – FC
= ₹75 lakhs – ₹42 lakhs – ₹6 lakhs
= ₹27 lakhs
ROI = ₹27 lakhs / ₹100 lakh
= 27 %

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

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

(iv) Operating Leverage $= \frac{\text{Sales – Variable Costs}}{\text{EBIT}} = \frac{\text{5 lakh – 42 lakh}}{\text{27 lakh}}$ = 1.22

Financial Leverage $= \frac{\text{EBIT}}{\text{EBIT–Interest}} = \frac{\text{27 lakh}}{\text{27 lakh– 4.05 lakh}}$ = 1.18

Combined Leverage $= \frac{\text{Sales – VC}}{\text{EBIT–Interest}} = \frac{\text{33 lakh}}{\text{22,95,000}}$ = 1.44

Alternatively, = OL × FL = 1.22 × 1.18 = 1.44

(v) EBIT at sales level of ₹50 lakhs

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

(vi) Zero EBT implies Break-Even Sales (BESR) = FC/CV ratio, CV ratio = ₹33 lakhs/₹75 lakhs = 44%. BESR = (₹6 lakhs + ₹4.05 lakhs)/0.44 = ₹22,84,091.

Confirmation Table

Particulars	Amount (₹)
Sales revenue	22,84,091
Less: Variable costs (0.56)	12,79,091
Less: Fixed costs (operating)	6,00,000
Less: Interest (additional fixed cost)	4,05,000
EBT	ZERO

8.(a) "To make the data turn into user friendly information, it should go through six core steps" – discuss. **[7]**

(b) Describe Data Analytics and the steps involved in Data Analytics. **[7]**

Answer:

(a) 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. Appropriatesoftware and hardware may be used for this purpose. Appointment of trained staff also plays an importantrole in collecting accurate and relevant data.
2. **Organising the data**: The raw data needs to be organized in an appropriate manner to generate relevantinformation. The data may be grouped, arranged in a manner that create useful information for the targetuser groups.
3. **Data processing**: At this step, data needs to be cleaned to remove the unnecessary elements. If any datapoint is missing or not available, that also need to be addressed. The options available for presentationformat 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 datafrom master server. Data integration eventually enables the analytics tools to produce effective, actionablebusiness intelligence.
5. **Data reporting**: Data reporting stage involves translating the data into a consumable format to makeit accessible by the users. For example, for a business firm, they should be able to provide summarizedfinancial information e.g. revenue, net profit etc. The objective is, a user, who wants to understand thefinancial position of the company should get the relevant and accurate information.
6. **Data utilization**: At this ultimate step, data is being utilized to back corporate activities and enhanceoperational efficiencies and productivity for the growth of business. This makes the corporate decisionmaking really 'data driven'.

(b) Data analytics is the science of evaluating unprocessed datasets to draw conclusions about the information theycontain. It helps us to identify patterns in the raw data and extract useful information from them. Applications containing machine learning algorithms, simulation, and automated systems may be utilised by dataanalytics procedures and methodologies. For human usage, the systems and algorithms process unstructured data.

These data are evaluated and used to assist firms in gaining a deeper understanding of their customers, analysingtheir promotional activities, customising their content, developing content strategies, and creating new products.Data analytics enables businesses to boost market efficiency and increase profits.

Following are the steps for data analytics:

- Step 1: Criteria for grouping data
  Data may be segmented by a variety of parameters, including age, population, income, and sex. The data values might be either numeric or category.
- Step 2: Collecting the data
  Data may be gathered from several sources, including internet sources, computers, personnel, and communitysources.
- Step 3: Organizing the data
  After collecting the data, it must be arranged so that it can be analysed. Statistical data can be organised ona spreadsheet or other programme capable of handling statistical data.
- Step 4: Cleaning the data
  The data is initially cleansed to verify that there are no duplicates or errors. The document is then examinedto ensure that it is comprehensive. Before data is sent to a data analyst for analysis, it is beneficial to rectifyor eliminate any errors by cleaning the data.
- Step 5: Adopt the right type of data analytics process:
  There are four types of data analytics process:
  (i) Descriptive analytics
  (ii) Diagnostics analytics
  (iii) Predictive analytics
  (iv) Prescriptive analytics