

INSTITUTE OF ACTUARIES OF INDIA

Subject CB1 - Business Finance

May 2026 Examination

INDICATIVE SOLUTION

Introduction:

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiners have given credit for any alternative approach or interpretation which they consider to be reasonable.

Solution 1 :	C	[2]
Solution 2 :	A	[2]
Solution 3:	C	[2]
Solution 4:	A	[2]
Solution 5:	C	[2]
Solution 6:	A	[2]
Solution 7:	B	[2]
Solution 8:	C	[2]
Solution 9:	B	[2]
Solution 10:	B	[2]

Solution 11: Financial derivatives are contracts whose value is derived from an underlying asset, index, or rate—such as stocks, bonds, commodities, currencies, interest rates, or market indices. Instead of owning the underlying asset directly, parties enter into agreements about its future price or performance.

The most common (key types) types of derivatives include forwards, futures, options (call/ put), and swaps (interest/ currency), each offering different structures and payoff profiles.

Derivatives are primarily used for hedging, speculation, and arbitrage.

Hedging allows firms to reduce exposure to risks such as interest-rate risk, currency risk, commodity price volatility, or credit risk.

Speculators use derivatives to take positions based on expectations of future price movements, while arbitrageurs exploit price discrepancies across markets to earn risk-free profits, helping improve market efficiency.

Derivatives help in effective risk management by enabling firms to transfer unwanted risks to parties more willing to bear them.

1) Currency Risk: would Occurs when exchange rates fluctuate.

Example: An Indian exporter expects to receive \$2 million in 5 months. If the rupee strengthens, they receive fewer rupees. If taken a forward contract to lock in the exchange rate, then this risk could be controlled.

2. Interest Rate Risk: Arises from changes in interest rates affecting borrowing costs. For instance, an interest-rate swap allows a company with floating-rate debt to convert it into fixed-rate payments, thereby stabilising its financing costs. (0.5)
3. Commodity Price Risk: Prices of raw materials can fluctuate. Example: An airline company worries about rising fuel prices. Can buy fuel futures to lock in prices.
4. Equity Price Risk: Risk of stock price movements. Example: An investor holds shares and fears a price drop. Buying a put option to limit downside loss.

Similarly, options provide asymmetric protection—such as using a put option to limit downside losses while retaining upside potential. Example- Buying **put options** on a stock allows investors to sell at a predetermined price, protecting against a fall in market value.

Overall, derivatives enhance the ability of firms to manage uncertainty, reduce volatility in cash flows, and improve financial planning.

[7 marks]

Solution 12: Insurance companies deal with several stakeholders whose objectives often conflict because each group values different outcomes.

Shareholders generally seek higher profits and higher returns, which may encourage management to take on greater underwriting risk or invest in higher-yield but riskier assets.

Potential Conflicts:

With Policyholders: Shareholders may prefer higher premiums /lower claim payouts to increase profits. Example: An insurer delays or disputes claims aggressively to reduce payouts, boosting profits but harming customer trust.

With Regulators: Shareholders may push for riskier investments to earn higher returns whereas Regulators prioritize solvency and stability.

In contrast, policyholders prioritise security and fair premiums, preferring the company to adopt conservative underwriting and maintain strong reserves. This creates a conflict between profitability and prudence.

Potential Conflicts:

With Shareholders: Policyholders want high coverage and low cost whereas Shareholders want profit margins maintained.

With Management: Management may focus on sales targets rather than suitability of products. Selling complex insurance products to customers who don't fully understand them (mis-selling).

With Other Policyholders: In pooled risk systems, one group may subsidize another. Low-risk customers paying higher premiums due to poor risk classification.

Regulators aim to ensure solvency, consumer protection, and market stability. They may impose capital requirements, restrictions on investment, and reporting standards. These regulations protect policyholders but may limit shareholder returns or increase operational costs, creating tension between compliance and profitability. Example: A regulator restricts dividend distribution because solvency margins are low. With Management it can be, New product launches delayed due to regulatory approvals.

Management has its own set of objectives—such as growth targets, market share, and personal compensation—which may not fully align with shareholder value or policyholder fairness. For example, management might pursue rapid expansion (to increase bonuses) even if it strains capital adequacy, conflicting with regulatory expectations and policyholder protection.

Or Cutting underwriting standards to boost short-term sales.

Or Denying borderline claims to meet financial targets.

Overall, the core conflicts arise because policyholders value security, shareholders value returns, regulators value stability, and management may value growth and incentives, requiring careful balancing to ensure long-term sustainability.

[8 marks]

Solution 13:

i) Statement of Profit and Loss Account of XYZ Manufacturing Ltd.

Particulars	In Cr.	
Sales	38,07,000	
Cost of Goods Sold (Note 1)	-21,52,000	

Wages (Note 2)	-148000	
Depreciation (Note 4) for Plant and Machinery	-180000	
Gross Profit		13,27,000
Rent (Note 3)	-1,00,000	
Depreciation (Note 4) for furniture	-15,000	
Doubtful Debts Adjustment (Note 5)	4,000	
Other Expenses (Note 6)	-2,00,000	
Total Operating Expenses		-3,11,000
Operating Profit		10,16,000
Profit before interest and Taxation		10,16,000
Interest on Debentures	-30,000	
Profit Before Taxation		9,86,000
Tax		-
Profit for the year		9,86,000
Add: Opening P&L Credit		1,50,000
Closing Profit & Loss balance		11,36,000

Notes:**Note 1: Calculate Cost of Goods Sold (COGS)**

Opening Inventory	4,20,000
Add: Purchases	22,00,000
Add: Carriage Inwards	42,000

Goods Available for Sale	26,62,000
Less: Closing Inventory	5,10,000

COGS	21,52,000

Operating Expenses**Note 2: Wages**

Wages (given)	1,08,000
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Add: Outstanding salaries	40,000
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Total Salaries	1,48,000
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Note 3: Rent

Rent (given)	1,10,000
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Less: Prepaid rent	10,000
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Rent expense	1,00,000
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Note 4: Depreciation

Plant & Machinery @10%	1,80,000
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Furniture @5%	15,000
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Total Depreciation	1,95,000
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Note 5: Doubtful Debts Adjustment

Trade receivables	5,20,000
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Required provision @5%	26,000
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Existing provision	30,000
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Provision decreases	(4,000)
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(Write back as income)

Note 6: Other Expenses

Carriage outwards	56,000
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General expenses	1,24,000
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Write-off preliminary expenses

20,000

Total other expenses

2,00,000

6. Interest Expense

Interest on Debentures (given)

30,000

[14]

ii) Balance Sheet of XYZ Manufacturing Ltd. as at 31-3-20X5

I. Equity & Liabilities

1. Shareholders' Funds

Equity Share Capital

20,00,000

Add: Surplus (Closing P&L)

11,36,000

Total Shareholders' Funds

31,36,000

2. Non-Current Liabilities

12% Debentures

5,00,000

3. Current Liabilities

Outstanding Wages

40,000

TOTAL EQUITY & LIABILITIES = 36,76,000

II. Assets

1. Non-Current Assets

(i) Property, Plant & Equipment

Plant & Machinery

$18,00,000 - 1,80,000 = 16,20,000$

Furniture

$3,00,000 - 15,000 = 2,85,000$

Total PPE	19,05,000
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2. Current Assets

Closing Inventory	5,10,000
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Trade Receivables (5,20,000 – 26,000)	4,94,000
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Cash at Bank	7,17,000
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Prepaid Rent	10,000
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Total Current Assets	17,31,000
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3. Other Non-Current Assets

Preliminary expenses (60,000 – 20,000)	40,000
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TOTAL ASSETS = 36,76,000

[10]
[24 marks]

Solution 14:**i) Current Ratio**

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$= \frac{12,50,000}{6,25,000} = 2:1$$

Answer: 2.0

[1]

ii) Quick Ratio

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$$

$$= \frac{12,50,000 - 3,00,000}{6,25,000} = \frac{9,50,000}{6,25,000} = 1.52$$

Answer: 1.52 : 1

[1]

iii) Gross Profit Ratio

$$\text{Gross Profit} = \text{Sales} - \text{COGS} = 48,00,000 - 32,00,000 = 16,00,000$$

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Sales}} \times 100$$
$$= \frac{16,00,000}{48,00,000} \times 100 = 33.33\%$$

Answer: 33.33%

[1]

iv) Net Profit Ratio

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Sales}} \times 100$$
$$= \frac{4,80,000}{48,00,000} \times 100 = 10\%$$

Answer: 10%

[1]

v) Return on Equity (ROE)

$$\text{ROE} = \frac{\text{Net Profit}}{\text{Shareholders' Equity}} \times 100$$
$$= \frac{4,80,000}{20,00,000} \times 100 = 24\%$$

Answer: 24%

[1]

vi) Total Asset Turnover Ratio

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}}$$
$$= \frac{48,00,000}{32,00,000} = 1.5 \text{ times}$$

Answer: 1.5 times

[1]

vii) Comment on Liquidity & Profitability

ABC Ltd. shows **strong liquidity**, with a current ratio of 2.0 and a healthy quick ratio of 1.52, indicating the firm can easily meet short-term obligations.

Profitability is also **satisfactory**, with a gross margin of 33.33%, net margin of 10%, and a strong ROE of 24%, suggesting efficient use of equity capital.

[2]

[8 Marks]

Solution 15:

1. Loans

Key Features

- A loan is money borrowed from a bank or financial institution.
- Usually comes with a fixed or floating interest rate.
- Often **secured** against assets (e.g., property, machinery) but can also be unsecured.
- Repaid over a fixed period through instalments.

How a Company Uses It

- Companies use loans for funding expansion, purchasing equipment, building factories, or working capital needs.

Example

A manufacturing company takes a ₹10 crore bank loan to buy new machinery for production.

2. Debentures**Key Features**

- Debentures are long-term debt instruments issued to the public or investors.
- They carry a **fixed rate of interest** (coupon rate).
- They may be **secured** (charge over assets) or **unsecured**.
- Interest is paid periodically, usually half-yearly.
- Holders are creditors, not owners.

How a Company Uses It

- Companies issue debentures to raise large amounts of capital without giving up ownership.
- Useful for financing long-term projects or diversification.

Example

A company issues ₹200 crore of 10% non-convertible debentures (NCDs) to fund the construction of a new plant

3. Bonds**Key Features**

- **Include Government and Corporate Bonds.**
- Standardized and highly tradeable.
- Interest rates may be fixed or floating.
- Typically non-convertible (though convertible bond exist)

How a Company Uses It

- Large Scale fund raising in capital markets
- Preferred for institutional Investor.

Example

A company issues ₹500 corporate bonds at 7.5% interest.

[12 marks]

Solution 16:

i)

- Low P/E ratio means lack of confidence on the part of the stock market.
- The share price is depressed as compared to its competitors, because the shareholders may pay smaller multiple of earnings.
- The Directors must be concerned that the shareholders are dissatisfied with the return on their investment and may therefore consider replacing the board.
- It may be difficult for the Directors to do much with respect to the P/E ratio. If they can increase the profits and the financial performance, then they might boost the share price and the P/E ratio.

- The share price may take account of the management's likely performance and so there may be very little scope to for improving the P/E ratio.
- A low P/E ratio may make it difficult to raise fresh equity.
- The shareholders may believe that issuing additional share at a discount to the current share price would cause an unrealistic dilution of their shares.
- A low P/E ratio indicates that the stock is undervalued. If a company has stable earnings, good cash flows, sound management, it may represent a buying opportunity.
- A low P/E ratio may reflect investors expect slow or declining future growth.
Investors may assign a low P/E due to uncertainty such as business instability, industry downturn, Regulatory or economic concerns.

[6]

ii) The hotel chain may have a lower P/E ratio because of the following reasons

1. The financial performance of the hotel chain may be weak. For example, lower profits, declining revenue, higher operational cost such as staff salaries or hotel maintenance cost.
2. If the hotel chain may have borrowed heavily to renovate properties and the investors may be worried about its ability to repay loans, which can lower P/E ratio.
3. Temporary factors such as lower tourism demand, travel restrictions or economic slowdown can reduce expected earnings in the hotel sector.
4. Management Problems, poor customer service or negative customer reviews may reduce investor confidence
5. Investors may expect lower future growth prospects from the hotel chain, examples are fewer expansion plans or declining tourist demand in its locations.
6. If the hotel chain operates in areas of economic or political uncertainty investors may perceive it as high risk and therefore value the company at a lower P/E ratio.

[5]

[11 marks]

Solution 17: Application of Corporate Governance issues

1. Accountability- Management is accountable to the board and the stakeholders for ensuring employee welfare. If these issues disrupt work or expose employees to risk, management must take responsibility and implement solutions
2. Fairness- All the employees must be treated fairly; decisions should not be in favour of certain employees or departments. Allocation policy must be transparent and implemented so that the accommodation is provided based on clear criteria such as travel purpose and safety
3. Responsibility- Ensuring safe and adequate accommodation during official travel is part of the company's responsibility under corporate governance and ethical management practices. Establish approved hotel partnerships or corporate booking arrangements to ensure availability
4. Transparency- Management should clearly communicate the travel and accommodation policy, including reimbursement rules and alternative arrangements when hotels are unavailable. Create a feedback and grievance mechanism so that employees can report problems.

[6 marks]

Solution 18:

Types of Crowdfunding

1. **Donation-based:** Contributors donate without expecting returns (e.g., charity campaigns).
2. **Reward-based:** Funders receive non-financial rewards such as prototypes or early access.
3. **Equity-based:** Investors receive shares in the company.
4. **Debt-based (Peer-to-peer lending):** Contributors lend money expecting repayment with interest.

[4 marks]
