

### Question 1

**(a) "Financial management encapsulates managerial decision making on assets mix, capital mix and profit allocation." Explain this statement. (6 marks)**

Financial management is a crucial function in any organization that involves making strategic decisions regarding the acquisition, financing, and management of assets with the primary objective of maximizing shareholder wealth. This statement highlights three core areas of managerial decision-making within financial management:

- **Assets Mix (Investment Decisions):** This aspect deals with decisions related to the optimal allocation of funds across various assets, both long-term (fixed assets) and short-term (current assets). Long-term investment decisions, often referred to as capital budgeting, involve evaluating and selecting projects that will generate returns over an extended period, such as investing in new plant and machinery or expanding operations. Short-term investment decisions, part of working capital management, focus on managing current assets like inventory, cash, and receivables to ensure liquidity and efficient operations. The goal is to choose assets that offer the best risk-return trade-off, thereby maximizing the firm's value.
- **Capital Mix (Financing Decisions):** This involves determining the optimal blend of different sources of funds (e.g., equity, debt, preference shares) to finance the firm's assets. Key decisions here include the choice between debt and equity, the proportion of each in the capital structure, and the terms of financing. The objective is to minimize the overall cost of capital while ensuring financial flexibility and maintaining a healthy financial risk profile. An optimal capital mix contributes to maximizing shareholder wealth by lowering the cost of financing.
- **Profit Allocation (Dividend Decisions):** This refers to the decisions regarding how the net profits of the company should be utilized. Management must decide whether to retain profits within the business for reinvestment in growth opportunities or distribute them to shareholders in the form of dividends. This decision impacts the company's future growth potential, its liquidity, and the immediate returns to shareholders. A balanced dividend policy

aims to satisfy shareholder expectations while also providing sufficient funds for future investments to enhance firm value.

In essence, effective financial management integrates these three decision areas to ensure that funds are acquired cost-effectively, invested wisely, and profits are distributed optimally, all contributing to the ultimate goal of maximizing the wealth of the company's shareholders.

**(b) If you want to accumulate ₹50,000 in four years and can earn an interest rate of 8%, what amount should you invest today? (3 marks)**

This is a present value problem. We need to calculate the lump sum amount that should be invested today to reach a future value of ₹50,000 in four years at an 8% annual interest rate.

The formula for Present Value (PV) is:  $PV = FV / (1+r)^n$

Where:

- FV = Future Value = ₹50,000
- r = Interest Rate = 8% or 0.08
- n = Number of Years = 4

Let's plug in the values:  $PV = ₹50,000 / (1+0.08)^4$   $PV = ₹50,000 / (1.08)^4$   $PV = ₹50,000 / 1.360489$   $PV \approx ₹36,752.61$

Therefore, you should invest approximately **₹36,752.61** today to accumulate ₹50,000 in four years at an 8% interest rate.

**(c) Following information is available for Lana Del Rey Limited: (9 marks)**

- Degree of Operating Leverage (DOL) = 3:1
- Degree of Financial Leverage (DFL) = 3.42857:1
- Degree of Combined Leverage (DCL) = 10.28571:1
- Interest = ₹4,00,000
- Margin preference share capital = 10%
- Contribution = ₹10,00,000
- Tax rate = 40%

**Prepare income statement of the company.**

### Calculations based on provided direct figures:

1. **Calculate EBIT (Earnings Before Interest and Taxes):** We know that Degree of Operating Leverage (DOL) = Contribution / EBIT  
Given DOL = 3 and Contribution = ₹10,00,000  $3 = ₹10,00,000 / \text{EBIT}$   
 $\text{EBIT} = ₹10,00,000 / 3$   $\text{EBIT} \approx ₹3,33,333.33$
2. **Calculate Fixed Costs:** Contribution - Fixed Costs = EBIT  
 $₹10,00,000 - \text{Fixed Costs} = ₹3,33,333.33$  Fixed Costs =  $₹10,00,000 - ₹3,33,333.33$  Fixed Costs  $\approx ₹6,66,666.67$
3. **Calculate EBT (Earnings Before Taxes):** EBT = EBIT - Interest  
 $\text{EBT} = ₹3,33,333.33 - ₹4,00,000$  EBT = (₹66,666.67)
4. **Calculate Taxes:** Since EBT is negative, the company will not have a tax liability. Taxes = 0 (at 40% tax rate)
5. **Calculate EAT (Earnings After Taxes):** EAT = EBT - Taxes  
 $\text{EAT} = (₹66,666.67) - 0$  EAT = (₹66,666.67)
6. **Calculate Preference Share Dividend:** The problem mentions "Margin preference share capital = 10%". Assuming this implies a 10% dividend rate on some preference share capital amount, and given the context of a financial management problem where a specific amount is usually implied for dividend calculation or derived, there's no explicit amount for preference share capital provided in the table, only the "Margin 10%". If we interpret "Margin preference share capital = 10%" as a preference share capital of ₹10,00,000 (often seen in such problems when a percentage is given without a base amount, and other figures are in lakhs), and the dividend rate is 10% on that. Let's assume there is preference share capital of ₹10,00,000 mentioned later in the table which has been merged due to parsing, as '10%' is given for preference share capital and '₹10,00,000' is in the row below it.  
Preference Share Dividend = 10% of ₹10,00,000 = ₹1,00,000

Since the company has a negative EAT, it cannot pay dividends out of current earnings. However, the calculation for dividend is still shown as a potential claim on earnings.

### Income Statement of Lana Del Rey Limited

Particulars	Amount (₹)
Sales	(Not provided, cannot derive from given info)
Less: Variable Costs	(Not provided, cannot derive from given info)
Contribution	10,00,000

Less: Fixed Costs	6,66,666.67
<b>EBIT (Earnings Before Interest and Taxes)</b>	<b>3,33,333.33</b>
Less: Interest	4,00,000
<b>EBT (Earnings Before Taxes)</b>	<b>(66,666.67)</b>
Less: Taxes (40%)	0
<b>EAT (Earnings After Taxes)</b>	<b>(66,666.67)</b>
Less: Preference Share Dividend (10% of ₹10,00,000)	1,00,000
<b>Earnings Available for Equity Shareholders (Net Loss)</b>	<b>(1,66,666.67)</b>
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**Note on Data Consistency:** It's important to note an inconsistency in the provided data. If EBIT is ₹3,33,333.33 and Interest is ₹4,00,000, then EBT is negative. When EBT is negative, the Degree of Financial Leverage (DFL = EBIT / EBT) would also be negative or undefined, which contradicts the given DFL of 3.42857:1. However, as the instruction is to "Prepare income statement of the company" based on the *given* information, the income statement has been constructed prioritizing the direct absolute figures (Contribution, Interest, Tax Rate, and the implied Preference Share Capital and its dividend rate) and deriving other figures based on the given DOL, leading to the presented outcome.

## Question 2

(a) Techline Industries is considering whether to replace an existing machine that was purchased three years ago for ₹20,00,000. The current machine has a remaining useful life of five years with no residual value at the end, but it can be sold now for ₹12,00,000. Maintenance costs for the existing machine are expected to increase by ₹1,00,000 annually starting in its sixth year. An alternative, more efficient machine is available for ₹30,00,000 and would have a resale value of ₹12,00,000 at the end of its five-year life. This new machine is projected to enhance annual revenue by ₹3,00,000 and reduce operating costs by ₹2,00,000 each year. With a tax rate of 50% and a 10% cost of capital, Techline Industries follows the straight-line depreciation method. Compute the relevant cashflows and Net Present Value (NPV). Should the company proceed with replacing the machine? (10+3+2 marks)

### 1. Calculate Initial Cash Outflow (Year 0):

- **Cost of new machine:** ₹30,00,000
- **Sale proceeds of old machine:** ₹12,00,000

#### **Tax Impact on Sale of Old Machine:**

- Original Cost of Old Machine: ₹20,00,000
- Useful Life of Old Machine: 3 years used + 5 years remaining = 8 years
- Annual Depreciation for Old Machine (Straight-line):  
 $\text{₹}20,00,000 / 8 \text{ years} = \text{₹}2,50,000 \text{ per year}$
- Accumulated Depreciation (for 3 years):  $3 * \text{₹}2,50,000 = \text{₹}7,50,000$
- Book Value of Old Machine:  $\text{₹}20,00,000 - \text{₹}7,50,000 = \text{₹}12,50,000$
- Sale Price: ₹12,00,000
- Loss on Sale:  $\text{₹}12,50,000 \text{ (Book Value)} - \text{₹}12,00,000 \text{ (Sale Price)} = \text{₹}50,000$
- Tax Savings on Loss (50% tax rate):  $\text{₹}50,000 * 50\% = \text{₹}25,000$
- **Initial Cash Outflow (Net Investment):** Cost of New Machine - Sale Proceeds of Old Machine + Tax Savings on Loss =  
 $\text{₹}30,00,000 - \text{₹}12,00,000 + \text{₹}25,000 = \text{₹}18,25,000$

### 2. Calculate Annual Depreciation for New Machine:

- Cost of New Machine: ₹30,00,000
- Resale Value of New Machine: ₹12,00,000
- Life of New Machine: 5 years
- Annual Depreciation (Straight-line):  $(\text{₹}30,00,000 - \text{₹}12,00,000) / 5 = \text{₹}3,60,000$

### 3. Calculate Annual Incremental Cash Flows from Operations (Years 1-5):

- Increase in Annual Revenue: ₹3,00,000
- Reduction in Operating Costs: ₹2,00,000
- Total Annual Operating Benefits:  $\text{₹}3,00,000 + \text{₹}2,00,000 = \text{₹}5,00,000$

#### **Differential Depreciation:**

- Depreciation on New Machine: ₹3,60,000

- Depreciation on Old Machine (if kept for 5 more years): ₹2,50,000
- Incremental Depreciation (New - Old): ₹3,60,000 - ₹2,50,000 = ₹1,10,000

#### Calculation of Incremental Profit Before Tax and After Tax:

Particulars   Amount (₹)     :-----   :-----
Increase in Revenue   3,00,000     Decrease in Operating Costs   2,00,000
<b>Total Operating Benefits (A)   5,00,000    </b>
Less: Incremental Depreciation (B)   1,10,000
<b>Incremental Profit Before Tax (A-B)   3,90,000    </b>
Less: Tax (50%)   1,95,000
<b>Incremental Profit After Tax   1,95,000  </b>

#### Calculation of Annual Cash Flow from Operations (Years 1-5):

Annual Cash Flow = Incremental Profit After Tax + Incremental Depreciation  
 Annual Cash Flow = ₹1,95,000 + ₹1,10,000 = **₹3,05,000**

*Note: The increase in maintenance costs for the existing machine (₹1,00,000 annually starting in its sixth year) is not relevant for the five-year life of the new machine, so it is excluded from the cash flow analysis for this comparison.*

#### 4. Terminal Cash Flow (End of Year 5):

- Resale Value of New Machine: ₹12,00,000
- Tax on Resale Value: The new machine is depreciated to its residual value of ₹12,00,000, so there is no gain or loss on sale. Therefore, Tax = ₹0.
- **Terminal Cash Flow = ₹12,00,000**

#### Summary of Relevant Cash Flows:

- **Year 0 (Initial Outflow):** (₹18,25,000)
- **Years 1-5 (Annual Cash Flow from Operations):** ₹3,05,000
- **Year 5 (Terminal Cash Flow):** ₹12,00,000

#### 5. Net Present Value (NPV) Calculation:

Discount Rate = 10%

Year	Cash Flow (₹)	PV Factor @ 10%	Present Value (₹)
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0	(18,25,000)	1.000	(18,25,000)
1	3,05,000	0.909	2,77,245
2	3,05,000	0.826	2,51,930
3	3,05,000	0.751	2,29,055
4	3,05,000	0.683	2,08,315
5 (Operating)	3,05,000	0.621	1,89,405
5 (Terminal Value)	12,00,000	0.621	7,45,200
<b>Net Present Value (NPV)</b>			<b>76,150</b>

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### Should the company proceed with replacing the machine?

Since the Net Present Value (NPV) is positive (₹76,150), the company **should proceed with replacing the machine**. A positive NPV indicates that the project is expected to generate returns exceeding the required rate of return (cost of capital), thereby increasing the wealth of the shareholders.

### (b) How can you overcome the shortcomings of Pay-Back Period (PBP) technique? (3 marks)

The Payback Period (PBP) technique is a simple capital budgeting method but suffers from significant shortcomings: it ignores cash flows occurring after the payback period and does not consider the time value of money. To overcome these limitations, more sophisticated capital budgeting techniques should be employed alongside or instead of PBP:

1. **Discounted Payback Period (DPBP):** This method addresses the time value of money by discounting future cash flows before calculating the payback period. While it still does not consider all cash flows over the project's entire life, it provides a more accurate measure of the time required to recover the initial investment in present value terms.
2. **Net Present Value (NPV):** NPV is considered a superior method as it discounts all cash flows (both inflows and outflows) throughout the project's entire life to their present value. It directly measures the absolute increase in shareholder wealth resulting from the project. A positive NPV indicates that the project is expected to generate value.
3. **Internal Rate of Return (IRR):** IRR is the discount rate that makes the Net Present Value of all cash flows from a particular project

equal to zero. It considers all cash flows and the time value of money, providing the project's inherent rate of return. Projects with an IRR higher than the company's cost of capital are generally accepted.

4. **Profitability Index (PI):** The Profitability Index, also known as the Benefit-Cost Ratio, measures the present value of future cash inflows relative to the initial investment. It incorporates the time value of money and all cash flows, offering a useful metric for ranking projects, particularly under capital rationing, as it shows the "value per unit of investment."

#### Question 4

**(a) Burnham Limited belongs to a risk class for which the approximate capitalization rate is 10%. It currently has outstanding 75,000 shares selling at ₹100 each. The firm is contemplating the declaration of a dividend of ₹15 per share at the end of the current financial year. It expects to have a net income of ₹5,00,000 and has a proposal for making new investments of ₹9,00,000. Show that under the Modigliani-Miller assumptions, the payment or non-payment of dividend does not affect the value of the Burnham Limited. (12 marks)**

Under the Modigliani-Miller (MM) hypothesis, in a perfect capital market (with no taxes, no flotation costs, perfect information, and rational investors), the value of a firm is independent of its dividend policy. The value of the firm is determined solely by its earning power and its investment policy. This means that whether a company pays dividends or retains earnings for reinvestment, its total market value should remain the same.

Let's demonstrate this with the given data:

#### Given Information:

- Capitalization Rate ( $K_e$ ) = 10% or 0.10
- Number of Shares Outstanding ( $n$ ) = 75,000 shares
- Current Market Price per share ( $P_0$ ) = ₹100
- Expected Dividend per share ( $D_1$ ) = ₹15
- Net Income for the year ( $E$ ) = ₹5,00,000
- New Investment required ( $I$ ) = ₹9,00,000

**MM Hypothesis Formula:** The value of the firm is the present value of its future earnings, irrespective of dividend payout. The formula for the



value of a firm under MM model is: Value of Firm ( $V_f$ ) = Current Shares Outstanding \* Market Price per share + Present Value of new investment (or - if investment > retained earnings) - Present Value of new shares to be issued.

Let's evaluate two scenarios: **Scenario 1: Dividends are Paid**

1. **Total Dividends Paid:** Total Dividends = Number of Shares \* Dividend per share  
Total Dividends = 75,000 shares \* ₹15/share = ₹11,25,000
2. **Retained Earnings (from current Net Income):** Retained Earnings = Net Income - Total Dividends  
Retained Earnings = ₹5,00,000 - ₹11,25,000 = (₹6,25,000) This indicates a deficit, meaning the company needs to raise external funds even if it uses all its current net income.
3. **Funds Required for New Investment from External Sources:**  
Funds Needed = New Investment - Retained Earnings (if positive)  
Since Retained Earnings is negative, the entire investment plus the deficit from dividend payment must be funded externally. Total Funds to be Raised Externally = New Investment - Retained Earnings  
Total Funds to be Raised Externally = ₹9,00,000 - (₹6,25,000) = ₹9,00,000 + ₹6,25,000 = ₹15,25,000
4. **Value of the Firm at the end of the year ( $nP_1$ ):** From MM's assumptions, the current value of the firm ( $V_0$ ) can also be calculated as:  $V_0 = (n \times P_1 + E - I) / (1 + K_e)$  where  $P_1$  is the expected price per share at the end of the year. To find  $P_1$ :  $P_0 = (D_1 + P_1) / (1 + K_e)$   
₹100 = (₹15 +  $P_1$ ) / (1 + 0.10)  
₹100 \* 1.10 = ₹15 +  $P_1$   
₹110 = ₹15 +  $P_1$   
 $P_1 = ₹110 - ₹15 = ₹95$
5. **Number of New Shares to be Issued ( $\Delta n$ ):** New Shares = Funds to be Raised Externally / Price per share at year-end  
 $\Delta n = ₹15,25,000 / ₹95$   
 $\Delta n \approx 16,052.63$  shares (approximately 16,053 shares since shares are whole numbers)
6. **Value of the Firm ( $V_0$ ):** The value of the firm at the beginning ( $V_0$ ) is given by the total market value of current shares:  $V_0 = n \times P_0$   
 $V_0 = 75,000 \times ₹100 = ₹75,00,000$

Alternatively, using MM's valuation formula:  $V_0 = (1 + K_e)(n + \Delta n)P_1 - I + E$  (This formula is for  $V_0$  at the beginning, considering future cash flows and financing needs.) Let's verify the value of the firm using the MM Proposition I (without taxes): Value of Firm = (Total Number of Shares after new issue \* Expected Price per share at year-end - New Investment + Net Income) / (1 + Capitalization Rate)  
 $V_0 = ((75,000 + 16,053) \times ₹95 - ₹9,00,000 + ₹5,00,000) / (1 + 0.10)$

$$\begin{aligned}
 V_0 &= (91,053 \times ₹95 - ₹9,00,000 + ₹5,00,000) / 1.10 \\
 &= (₹86,50,035 - ₹9,00,000 + ₹5,00,000) / 1.10 \\
 &= (₹82,50,035) / 1.10 \approx ₹75,00,031.82
 \end{aligned}$$

The small difference is due to rounding of shares. If we use precise numbers, it will be exactly ₹75,00,000.

## Scenario 2: Dividends are NOT Paid (all earnings are retained)

- Total Dividends Paid:** ₹0
- Retained Earnings (from current Net Income):** Retained Earnings = Net Income - Total Dividends  
Retained Earnings = ₹5,00,000 - ₹0 = ₹5,00,000
- Funds Required for New Investment from External Sources:**  
Funds Needed = New Investment - Retained Earnings  
Funds Needed = ₹9,00,000 - ₹5,00,000 = ₹4,00,000
- Value of the Firm at the end of the year (P1 when D=0):**  $P_0 = (D_1 + P_1) / (1 + K_e)$  If  $D = 0$ , then  $P_0 = P_1 / (1 + K_e)$   
 $₹100 = P_1 / (1 + 0.10)$   
 $P_1 = ₹100 \times 1.10 = ₹110$
- Number of New Shares to be Issued ( $\Delta n$ ):** New Shares = Funds to be Raised Externally / Price per share at year-end  
 $\Delta n = ₹4,00,000 / ₹110 \approx 3,636.36$  shares (approximately 3,636 shares)
- Value of the Firm ( $V_0$ ):**  $V_0 = ((n + \Delta n)P_1 - I + E) / (1 + K_e)$   
 $V_0 = ((75,000 + 3,636) \times ₹110 - ₹9,00,000 + ₹5,00,000) / (1 + 0.10)$   
 $V_0 = (78,636 \times ₹110 - ₹9,00,000 + ₹5,00,000) / 1.10$   
 $V_0 = (₹86,49,960 - ₹9,00,000 + ₹5,00,000) / 1.10$   
 $V_0 = (₹82,49,960) / 1.10 \approx ₹74,99,963.64$

Again, the minor difference is due to rounding. The value is approximately ₹75,00,000.

## Conclusion:

As shown in both scenarios, whether Burnham Limited pays dividends (₹15 per share) or retains all its earnings, the value of the firm remains approximately ₹75,00,000 (calculated as  $n \times P_0$ ). This demonstrates that, under the Modigliani-Miller assumptions of a perfect capital market, dividend policy has no impact on the value of the firm. The value is solely determined by the firm's investment decisions and its overall profitability. Any funds not generated internally for new investments must be raised externally, and the cost of this external financing offsets the benefit of paying dividends (or vice-versa).

**(b) Explain "the bird in hand argument" in the context of dividend theories. (6 marks)**

The "bird-in-hand" argument is a prominent concept in traditional dividend theory, particularly associated with Myron Gordon and John Lintner. It essentially argues that investors prefer current dividends over future capital gains because current dividends are considered more certain and less risky than uncertain future stock price appreciation.

**Core Idea:** The proverb "A bird in hand is worth two in the bush" encapsulates this argument. In finance, this translates to: investors value a certain dividend received today (the "bird in hand") more highly than the uncertain prospect of future capital gains that might arise from the company reinvesting its earnings (the "two in the bush").

**Key Assumptions and Implications:**

1. **Risk Aversion:** Investors are generally risk-averse. They prefer known, tangible returns (dividends) over speculative, uncertain returns (future capital gains). The uncertainty stems from various factors like market volatility, economic conditions, and the success of the company's reinvestment projects.
2. **Information Asymmetry:** Dividends can serve as a signal of a company's financial health and future prospects. A consistent dividend payout might reduce investor uncertainty about the firm's future earnings.
3. **Lower Discount Rate for Dividends:** Because current dividends are perceived as less risky, investors might apply a lower discount rate to dividend income compared to the potentially higher discount rate applied to future earnings retained and reinvested by the company. This effectively increases the present value of dividend-paying stocks.
4. **Preference for Current Income:** Some investors, such as retirees or those seeking stable income, have a strong preference for regular dividend payments.

**Critiques (often by MM Theory):** The Modigliani-Miller (MM) hypothesis directly challenges the bird-in-hand argument. MM argues that in a perfect capital market, investors are indifferent between dividends and capital gains. If investors want cash, they can simply sell a portion of their shares (creating a "homemade dividend"). If they want to reinvest, they can use their dividends to buy more shares. MM contends that the firm's value depends on its earning power and investment opportunities, not how it distributes its profits.

Despite the MM critique, the "bird-in-hand" argument still holds relevance in practical financial management. Many companies consider investor preferences for dividends, especially when their investor base includes income-seeking individuals or institutions. It highlights the psychological and behavioral aspects that can influence investor perceptions and stock valuations, even if theoretically, in a perfect market, dividend policy should be irrelevant.

## Question 5

### (a) Following figures relate to Lord of the Spices Limited:

- Sales at three months' credit: ₹9,00,000
- Material consumed (Suppliers extend 1½ month's credit): ₹22,50,000
- Wages (One month in arrear): ₹18,00,000
- Manufacturing expenses outstanding at the end of the year (expenses are paid one month in arrear): ₹2,00,000
- Total administrative expenses for the year (Cash expenses are paid one month in arrear): ₹6,00,000
- Sales promotion expenses (Paid quarterly in advance): ₹12,00,000
- The company sells its product on gross profit of 25% assuming depreciation as a part of cost of production.
- It keeps two months' stock of finished goods and one month's stock of raw material.
- It keeps cash balance of ₹2,50,000.
- Assume a 5% safety margin of required (or final) working capital, work out the working capital requirement of the Lord of the Spices Limited on cash cost basis. Ignore work-in-progress. Give working notes for the calculation of cost of production and cost of sales/total cost. (15 marks)

### Working Notes:

#### 1. Calculation of Cost of Sales / Total Cost:

- **Gross Profit Margin = 25% on Sales**
- Sales = ₹9,00,000 (Note: The provided Sales figure (₹9,00,000) seems inconsistent with other cost figures like Material, Wages, Sales Promotion etc., as total costs derived would far exceed this sales figure. It is probable that the Sales figure of ₹9,00,000 refers to sales *at three months' credit* and the larger cost figures point to a much higher annual sales volume. However, based on the instruction "The company sells its product on gross profit of 25%",

we must work with the given Sales figure of ₹9,00,000 as the basis for calculating Gross Profit for this question. If the intention was for the ₹9,00,000 to be only the credit portion, a total sales figure would typically be provided. Given the other large cost figures, there might be an implicit assumption about *annualized* costs here which is inconsistent with the presented total annual sales of ₹9,00,000. We will proceed assuming the provided cost figures are annual, and the sales figure of ₹9,00,000 is the *total* annual sales figure for consistency within the gross profit calculation.)

- Cost of Sales = Sales - Gross Profit
- Gross Profit = 25% of Sales =  $0.25 \times ₹9,00,000 = ₹2,25,000$
- Cost of Sales = ₹9,00,000 - ₹2,25,000 = ₹6,75,000

\*However, looking at the large values for Material (₹22,50,000), Wages (₹18,00,000), Sales promotion (₹12,00,000), etc., it's highly likely that the "Sales at three months' credit" figure of ₹9,00,000 is NOT the total annual sales for the purpose of calculating gross profit for the overall company operations implied by the costs. It might be a specific type of sales or a misstatement of the overall annual sales. If we proceed with this, the company would be making a huge loss. A common practice in such problems is to assume the given *cost figures* represent the total annual costs related to a particular volume of production/sales, and from these, we *derive* an implied sales figure, or assume the provided sales figure is for a specific context.

Given the phrase "The company sells its product on gross profit of 25% assuming depreciation as a part of cost of production", it implies we need to work backwards from costs to a 'Total Cost of Sales' if Sales are not the primary anchor for *all* costs.

Let's re-evaluate the costs to derive Cost of Production and then Total Cost.

**Revised Approach for Cost of Sales / Total Cost (based on the assumption that the provided material, wages, manufacturing, and administrative expenses are annual operating costs, and sales need to be consistent with these larger costs).**

This is a common issue in such questions where the 'Sales' figure might be partial or a specific type of sales, while other cost figures imply a much larger scale of operations. The instruction "work out the working capital requirement of the Lord of the Spices Limited on cash cost basis. Ignore work-in-progress. Give working notes for the calculation of cost of production and cost of sales/total cost" explicitly asks for cost of

production and cost of sales/total cost.

Let's sum up the relevant costs to determine a Cost of Production and then Total Cost.

- Material Consumed: ₹22,50,000
- Wages: ₹18,00,000
- Manufacturing Expenses: ₹2,00,000
- Administrative Expenses: ₹6,00,000
- Sales Promotion Expenses: ₹12,00,000

\*The wording "Sales at three months' credit ₹9,00,000" seems to be a red herring or a partial sales figure that doesn't align with the scale of the other costs. If we take total expenses to derive sales, Gross Profit of 25% on Sales implies: Cost of Sales = 75% of Sales. If Cost of Sales is derived from given costs, then Sales = Cost of Sales / 0.75.

Let's assume the provided costs are annual. **Cost of Production:**

- Material Consumed: ₹22,50,000
- Wages: ₹18,00,000
- Manufacturing Expenses: ₹2,00,000
- **Total Cost of Production = ₹22,50,000 + ₹18,00,000 + ₹2,00,000 = ₹42,50,000**

**Cost of Sales / Total Cost (Cash Basis):** (Excluding depreciation as it's not a cash expense, but the problem states "assuming depreciation as a part of cost of production" which is ambiguous. For Working Capital on *cash cost basis*, depreciation is excluded. We assume the provided manufacturing expenses of ₹2,00,000 *do not* solely consist of depreciation or that we are considering the *cash portion* of it. Since the problem asks for "cash cost basis", we exclude non-cash items like depreciation from the calculation of costs for working capital purposes unless explicitly stated otherwise.)

- Cost of Production: ₹42,50,000
- Administrative Expenses: ₹6,00,000
- Sales Promotion Expenses: ₹12,00,000
- **Total Annual Cash Cost = ₹42,50,000 + ₹6,00,000 + ₹12,00,000 = ₹60,50,000**

Now, if "The company sells its product on gross profit of 25% assuming depreciation as a part of cost of production", and we are asked for *working notes for the calculation of cost of production and cost of*

*sales/total cost*, it implies these components are critical.

Given the sales figure of ₹9,00,000 is much smaller than the sum of cash costs, it's highly probable that the ₹9,00,000 is *credit sales* out of a much larger *total sales*. The phrasing "Sales at three months' credit ₹9,00,000" suggests this. However, without total sales, we cannot calculate the actual gross profit.

Let's re-interpret "Sales at three months' credit ₹9,00,000" as the *Credit Sales outstanding for 3 months*. To find the annual total sales for working capital purposes, we can back-calculate. If ₹9,00,000 is 3 months' credit sales, then annual credit sales are  $(₹9,00,000 / 3) * 12 = ₹36,00,000$ . But the cost figures are much larger.

**A more plausible interpretation for such questions in Financial Management is that the provided cost figures represent the annual costs of operation, and from these, we calculate the total cost of goods sold/total operating costs on a cash basis.** The Sales figure of ₹9,00,000 could be a specific component of sales for a particular period, but not the overall annual sales to derive profit for the entire set of costs.

Let's assume the "Total Annual Cash Cost" of ₹60,50,000 is our **Cost of Sales / Total Cost** for working capital purposes (on a cash basis).

## **2. Calculation of Cost per Annum for each item (Cash Cost Basis):**

- Material Consumed: ₹22,50,000
- Wages: ₹18,00,000
- Manufacturing Expenses (Cash portion): ₹2,00,000 (assuming this is entirely cash as depreciation is typically explicitly mentioned separately if it's a significant non-cash part of 'expenses')
- Administrative Expenses (Cash portion): ₹6,00,000
- Sales Promotion Expenses: ₹12,00,000

**Total Cash Operating Cost (Excluding Sales at Credit for now) =**  
**₹22,50,000 + ₹18,00,000 + ₹2,00,000 + ₹6,00,000 + ₹12,00,000 =**  
**₹60,50,000**

**Calculation of Cost of Production (Cash Cost Basis):** Cost of Production = Material Consumed + Wages + Manufacturing Expenses (cash part)  
Cost of Production = ₹22,50,000 + ₹18,00,000 + ₹2,00,000 = **₹42,50,000**

**Calculation of Total Cost of Sales (Cash Cost Basis):** Total Cost of

Sales = Cost of Production + Administrative Expenses + Sales Promotion Expenses  
Total Cost of Sales = ₹42,50,000 + ₹6,00,000 + ₹12,00,000 = **₹60,50,000**

### Statement of Working Capital Requirement (on Cash Cost Basis)

#### Current Assets:

##### 1. Stock of Raw Material:

- Annual Material Consumed = ₹22,50,000
- Stock held = 1 month
- Value of Raw Material Stock =  $(₹22,50,000 / 12 \text{ months}) * 1 \text{ month} = ₹1,87,500$

##### 2. Stock of Finished Goods:

- Annual Cost of Production (Cash basis) = ₹42,50,000
- Stock held = 2 months
- Value of Finished Goods Stock =  $(₹42,50,000 / 12 \text{ months}) * 2 \text{ months} = ₹7,08,333.33$

##### 3. Debtors (Receivables):

- Sales at three months' credit = ₹9,00,000
- Credit Period = 3 months
- Value of Debtors =  $(₹9,00,000 / 3 \text{ months}) * 3 \text{ months} = ₹9,00,000$
- *Correction/Clarification for Debtors:* Debtors are usually valued at Cost of Sales or Total Cost, not Sales price, as working capital needs to be funded for the costs incurred. However, the problem explicitly states "Sales at three months' credit ₹9,00,000". If this ₹9,00,000 is the *total* credit sales for the *entire* year, and the credit period is 3 months, then the average debtors would be  $(₹9,00,000 / 12) * 3 = ₹2,25,000$ . If ₹9,00,000 is the *amount outstanding* as credit sales *for 3 months*, then the annual sales would be  $₹9,00,000 / 3 * 12 = ₹36,00,000$ . But this conflicts with the cost figures.

Let's re-interpret "Sales at three months' credit ₹9,00,000" as the *average amount of debtors outstanding* at any point, given a 3-month credit period. This simplifies the calculation and is a common way questions are framed. If ₹9,00,000 is indeed the value of debtors for 3 months, then the annual credit sales are implicitly 4 times this, or ₹36,00,000. However, the typical method for working capital is to take Annual Cost and then prorate for the holding period. Let's assume the ₹9,00,000 is the *value of credit*



*sales outstanding for 3 months.* This is the direct value of debtors.  
**Value of Debtors = ₹9,00,000** (This implies annual credit sales are ₹36,00,000. The cost of sales for this amount would be 75% of it, i.e., ₹27,00,000).

Given the discrepancy, let's use the annual *cash cost of sales* to compute the debtors value, which is common in working capital problems to ensure consistency with costs. Annual Cash Cost of Sales (derived above) = ₹60,50,000 Credit Period for Sales = 3 months Value of Debtors =  $(₹60,50,000 / 12 \text{ months}) * 3 \text{ months} = ₹15,12,500$  This seems more consistent with the scale of other costs. The initial ₹9,00,000 for "Sales at three months' credit" would then represent only a part of total credit sales. Given the ambiguity, we'll proceed with the cost-based calculation for debtors.

4. **Cash Balance:** ₹2,50,000

5. **Sales Promotion Expenses (Paid in Advance):**

- Annual Sales Promotion Expenses = ₹12,00,000
- Paid quarterly in advance, so 3 months advance.
- Advance Payment =  $(₹12,00,000 / 12 \text{ months}) * 3 \text{ months} = ₹3,00,000$

#### **Total Current Assets:**

- Raw Material Stock: ₹1,87,500
- Finished Goods Stock: ₹7,08,333.33
- Debtors: ₹15,12,500
- Cash Balance: ₹2,50,000
- Prepaid Sales Promotion Expenses: ₹3,00,000
- **Total Current Assets = ₹1,87,500 + ₹7,08,333.33 + ₹15,12,500 + ₹2,50,000 + ₹3,00,000 = ₹29,58,333.33**

#### **Current Liabilities:**

1. **Creditors for Material:**

- Annual Material Consumed = ₹22,50,000
- Credit Period from Suppliers = 1.5 months
- Value of Creditors =  $(₹22,50,000 / 12 \text{ months}) * 1.5 \text{ months} = ₹2,81,250$

2. **Outstanding Wages:**

- Annual Wages = ₹18,00,000
- Arrear Period = 1 month

- Value of Outstanding Wages =  $(₹18,00,000 / 12 \text{ months}) * 1 \text{ month} = ₹1,50,000$

### 3. Outstanding Manufacturing Expenses:

- Annual Manufacturing Expenses = ₹2,00,000
- Arrear Period = 1 month
- Value of Outstanding Manufacturing Expenses =  $(₹2,00,000 / 12 \text{ months}) * 1 \text{ month} = ₹16,666.67$

### 4. Outstanding Administrative Expenses:

- Annual Administrative Expenses = ₹6,00,000
- Arrear Period = 1 month
- Value of Outstanding Administrative Expenses =  $(₹6,00,000 / 12 \text{ months}) * 1 \text{ month} = ₹50,000$

### Total Current Liabilities:

- Creditors for Material: ₹2,81,250
- Outstanding Wages: ₹1,50,000
- Outstanding Manufacturing Expenses: ₹16,666.67
- Outstanding Administrative Expenses: ₹50,000
- **Total Current Liabilities = ₹2,81,250 + ₹1,50,000 + ₹16,666.67 + ₹50,000 = ₹4,97,916.67**

**Net Working Capital (without safety margin):** Net Working Capital = Total Current Assets - Total Current Liabilities  
 Net Working Capital = ₹29,58,333.33 - ₹4,97,916.67 = ₹24,60,416.66

### Add: Safety Margin

- Safety Margin = 5% of Required Working Capital
- Safety Margin =  $0.05 * ₹24,60,416.66 = ₹1,23,020.83$

**Total Working Capital Requirement:** Total Working Capital Requirement = Net Working Capital + Safety Margin  
 Total Working Capital Requirement = ₹24,60,416.66 + ₹1,23,020.83 = **₹25,83,437.49**

### Summary of Working Capital Requirement:

Particulars	Amount (₹)
<b>A. Current Assets</b>	
Stock of Raw Material (1 month)	1,87,500.00
Stock of Finished Goods (2 months)	7,08,333.33
Debtors (3 months on cash cost basis)	15,12,500.00
Cash Balance	2,50,000.00

Prepaid Sales Promotion Expenses (3 months)	3,00,000.00
<b>Total Current Assets (A)</b>	<b>29,58,333.33</b>
<b>B. Current Liabilities</b>	
Creditors for Material (1.5 months)	2,81,250.00
Outstanding Wages (1 month)	1,50,000.00
Outstanding Manufacturing Expenses (1 month)	16,666.67
Outstanding Administrative Expenses (1 month)	50,000.00
<b>Total Current Liabilities (B)</b>	<b>4,97,916.67</b>
<b>Net Working Capital (A - B)</b>	<b>24,60,416.66</b>
Add: Safety Margin (5%)	1,23,020.83
<b>Total Working Capital Requirement</b>	<b>25,83,437.49</b>
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**(b) Explain the concept of permanent and temporary working capital. (3 marks)**

Working capital can be broadly categorized into two types: permanent (or fixed) working capital and temporary (or variable) working capital.

**1. Permanent Working Capital:**

- This refers to the minimum level of current assets that a business must maintain at all times to conduct its operations smoothly and continuously.
- It represents the core amount of current assets (like minimum inventory levels, necessary cash balances, and irreducible debtors) that is always present in the business, regardless of the seasonal or cyclical fluctuations in business activity.
- This portion of working capital is essentially fixed in nature and supports the minimum level of operations. It is often financed through long-term sources of funds, such as equity or long-term debt, because its need is perpetual.

**2. Temporary Working Capital:**

- This refers to the additional working capital required to meet the fluctuating needs of the business due to seasonal changes, sudden increases in demand, or cyclical variations in sales and production.
- It is the amount of current assets that fluctuates above the permanent level. For example, a toy manufacturer might need extra inventory and cash during the holiday season.

- This portion of working capital is variable and temporary in nature, as it is needed only for specific periods or to support a higher level of activity for a limited time. It is typically financed through short-term sources of funds, such as bank overdrafts, commercial papers, or short-term loans, as the need for these funds is not continuous.

The distinction between permanent and temporary working capital is crucial for determining an appropriate working capital financing policy, helping firms to match the maturity of their financing sources with the maturity of their assets.

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