PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Attempt any **five** questions out of the remaining **six** questions.*

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

Answer the following:

(a) ARS Limited produces the component from a single raw material in economic lots (EOQ) of 2,800 units at a cost of ₹ 8.00 per unit. Average annual demand of the component is 28,000 units. The annual holding and carrying cost is ₹ 0.25 per unit and minimum stock level is set at 450 units.

You are required to calculate:

(i) Ordering cost per order.

(ii) Average stock level.

(iii) Number of orders.

(iv) If the company plans to reduce the number of orders calculated in (iii) above by 2, by this change, to what extent will the economic order quantity and the ordering cost per order be increased?

(b) The budgeted cost of an article at a capacity level of 10,000 units is given below. For a variation of 30% in capacity above or below this level, the individual item will vary as also indicated below:

Particulars	*Amount (₹)*	*Remarks*
Material Cost	*60,000*	*100% Varying*
Direct Labour	*30,000*	*100% Varying*
Power	*25,000*	*80% Varying*
Depreciation	*20,000*	*Fixed*
Repair and Maintenance	*15,000*	*60% Varying*
Inspection	*8,000*	*25% Varying*
Administrative overhead	*5,000*	*20% Varying*
Selling overheads	*6,000*	*50% Varying*
Budgeted Cost per unit	***16.90***	

You are required to prepare a statement showing budgeted costs at Production levels of 8,000 units and 12,000 units by segregating variable cost, semi-variable cost and fixed cost. Also, calculate the budgeted cost per unit of the article at both the levels.

(c) *A Ltd. intends to issue new equity shares. Its present equity shares (₹ 100 per share) are being sold in the market at ₹ 160 per share. The company's past record regarding payment of dividends is as follows:*

Year	2016	2017	2018	2019	2020	2021
Dividend per share (in ₹)	10.62	11	12	13	14	15.60

The flotation costs are estimated at 3.5% of the current market price of the shares.

You are required to calculate:

(i) *Growth rate in dividend*

(ii) *Cost of funds of existing equity shares assuming that the growth rate as calculated under (i) above will continue forever.*

(iii) *Cost of-new equity shares.*

Table for Compound sum of one rupee

Year	6%	7%	8%	9%
1	1.060	1.070	1.080	1.090
2	1.124	1.145	1.166	1.188
3	1.191	1.225	1.260	1.295
4	1.262	1.311	1.360	1.412
5	1.338	1.403	1.469	1.539
6	1.419	1.501	1.587	1.677

(d) *Using the following information, complete the Balance Sheet given below:*

(i) *Gross Profit on sales* : *15%*

(ii) *Total Assets turnover* : *1.5 times*

(iii) *Total Debt to net worth* : *1 : 3*

(iv) *Long-term Debt to Total Debt* : *1 : 3*

(v) *Inventory turnover ratio* : *12*

(Based on cost of goods sold and closing inventory)

(vi) *Quick ratio* : *0.8 : 1*

(vii) *Debtors Velocity* : *25 days*

(Assume 360 days in a year)

(viii) Proportion of credit sales to Total sales : 2:3

Balance Sheet

Liabilities	₹	*Assets*	₹
Share capital	*20,00,000*	*Fixed Assets*	-
Reserve & Surplus	*7,00,000*	*Current Assets:*	
Total Debts:		*- Inventory*	-
- Long-term Debt	-	*- Receivables*	-
- Current Liabilities	-	*- Cash*	-
Total	-	*Total*	-

(4 x 5 = 20 Marks)

Answer

(a) (i) Calculation of Ordering cost per order:

EOQ = 2,800 units

Annual demand = 28,000 units

Carrying cost per unit per annum = ₹0.25

O = Ordering cost per order =?

$$EOQ = \sqrt{\frac{2 \times A \times O}{C}}$$

$$2{,}800 \text{ units} = \sqrt{\frac{2 \times 28{,}000 \times O}{0.25}}$$

$$\sqrt{2 \times 28{,}000 \times O} = 2{,}800 \text{ units} \times \sqrt{0.25}$$

O = 35

Ordering cost per order = ₹ 35

(ii) Average Stock level

= Minimum Stock level + ½ Re-order Quantity or EOQ

= 450 units + [½ × 2,800 units]

= 450 + 1,400 = **1,850 units**

(iii) No. of orders

= Annual demand ÷ EOQ

= 28,000 units ÷ 2,800 units = **10 orders**

(iv) If the number or orders is reduced to 8,

Then the Re-order Quantity **(EOQ) will be 3,500 units**, and the Ordering cost per order would be

$\sqrt{2 \times 28,000 \times O} = 3,500 \text{ units} \times \sqrt{0.25}$

O = ₹ 54.6875

Increase in EOQ = 3,500 units – 2,800 units = **700 units**

Increase in ordering cost = ₹ 54.6875 - ₹ 35 = **₹ 19.6875**

(b) Workings:

Particulars	Total cost at 10,000 units level (₹)	Nature of cost	Variable cost per unit (₹)	Fixed Cost (₹)
Material Cost	60,000	Variable	6.00	-
Direct labour	30,000	Variable	3.00	-
Power	25,000	Semi-variable	2.00	5,000
Depreciation	20,000	Fixed	-	20,000
Repair & maintenance	15,000	Semi-variable	0.90	6,000
Inspection	8,000	Semi-variable	0.20	6,000
Administrative OH	5,000	Semi-variable	0.10	4,000
Selling OH	6,000	Semi-variable	0.30	3,000

Statement showing budgeted cost

Particulars	Cost per unit	8,000 units	12,000 units
% of variation from 10,000 units level		20%	20%
Variable cost:			
Material Cost	6.00	48,000	72,000
Direct labour	3.00	24,000	36,000
Semi-variable cost:			
Power	2.00	21,000	29,000
Repair & maintenance	0.90	13,200	16,800
Inspection	0.20	7,600	8,400
Administrative OH	0.10	4,800	5,200
Selling OH	0.30	5,400	6,600

Fixed cost:			
Depreciation		20,000	20,000
Total Cost		**1,44,000**	**1,94,000**
Cost per unit		**18**	**16.17**

(c) (i) Growth Rate in Dividend

Dividend $_{2021}$ = Dividend $_{2016}$ × Compounding factor $_{(5 \text{ years, g})}$

15.60 = 10.62 × CF (5yrs, g)

1.469 = CF (5yrs, g)

CF (5 yrs, 8%) = 1.469 … from table

So, g = 8%

(ii) Cost of existing Equity share

P_0 = 160

g = 8%,

D_0 = 15.60

D_1 = D_0 (1+g)

= 15.60(1.08)

= **16.848**

$$K_e = \frac{D_1}{P_0} + g = \frac{16.848}{160} + 0.08$$

Cost of existing Equity share

K_e = 18.53%

(iii) Cost of new equity shares

Net proceeds = 160 × (1-0.035) = **154.4**

$$\text{Cost of new equity shares} = \frac{16.848}{154.4} + 0.08$$

K_e = 18.91%

(d) Working Notes:

1. Total Debit to net worth = 1:3

$$\frac{\text{Total Debt}}{\text{Net Worth}} = \frac{1}{3}$$

$$\text{Or, } \frac{\text{Total Debt}}{20,00,000 + 7,00,000} = \frac{1}{3}$$

So, **Total Debt = 9,00,000**

2. $\frac{\text{Long term Debt}}{\text{Total Debt}} = \frac{1}{3}$

$$\frac{\text{Long term Debt}}{9,00,000} = \frac{1}{3}$$

Long Term Debt = 3,00,000

Current Liabilities = 9,00,000 – 3.00.000

Current Liabilities = 6,00,000

3. Total Assets = Total Liabilities

= Equity share Capital + Reserves + Total Debts

= 20,00,000 +7,00,000+9,00,000

Total Assets = 36,00,000

4. Total Assets Turnover = 1.5

$$\frac{\text{Sales}}{\text{Total Assets}} = 1.5$$

$$\frac{\text{Sales}}{36,00,000} = 1.5$$

Sales = 1.5 × 36,00,000

Sales = 54,00,000

Gross Profit to sales = 15%

Gross profit $= \frac{15}{100} \times 54,00,000 = 8,10,000$

Cost of Goods sold (COGS) = 54,00,000 – 8,10,000 = 45,90,000

5. Inventory Turnover = 12

$$\frac{\text{COGS}}{\text{Clsoing inventory}} = 12$$

$\frac{45,90,000}{\text{Clsoing inventory}}$ = 12

Closing inventory **= 3,82,500**

6. Credit Sales = $\frac{2}{3} \times$ Total Sales

= $\frac{2}{3} \times 54,00,000$

So, Credit Sales = 36,00,000

7. Debtors Velocity = 25 days

$\frac{\text{Debtors}}{\text{Credit sales}} \times 360$ = 25

Debtors = $\frac{25}{360} \times$ credit sales

= $\frac{25}{360} \times 36,00,000$

Debtors = 2,50,000

8. Quick Ratio = 0.8

$\frac{\text{Quick Assets}}{\text{Current liabilities}}$ = 0.8

$\frac{\text{Cash + Debtors}}{6,00,000}$ = 0.8

Cash +2,50,000 = 4,80,000

Cash **= 2,30,000**

Balance Sheet

Liabilities	**(₹)**	**Assets**	**(₹)**
Share Capital	20,00,000	Fixed Assets (Bal. Fig.)	**27,37,500**
Reserved surplus	7,00,000	Current Assets:	
Long Term Debt	3,00,000	Inventory	3,82,500
Current Liabilities	6,00,000	Receivables	2,50,000

		Cash	2,30,000
Total	**36,00,000**	**Total**	**36,00,000**

Question 2

(a) *ABC Ltd. produces a single product and has adopted a policy to recover the production overhead by adopting a single blanket rate based on machine hours. The budgeted production overheads are ₹ 8,58,000 and budgeted machine hours are 1,04,000. At the end of financial year 2020-21, actual production overheads incurred were ₹ 4,90,000. It includes ₹ 42,000 being the wages paid for the strike period under an award, ₹ 20,000 on account of written off for obsolete stores and ₹ 8,000 on account of previous year expenses booked in the current year.*

The production and sales data for the year 2020-21 is as under:

Production of Finished Goods	*18,000 units*
Work-in-Progress (WIP) (40% complete in all respect)	*5,000 units*
Sale of Finished Goods	*16,000 units*

The actual machine hours worked during the period were 40,000. It has been found that 1/3rd of the under absorption of production overhead was due to lack of proper production policy and the rest was attributable to normal increase in costs.

You are required to:

(i) Calculate the amount of under absorption of production overheads during the year 2020-21.

(ii) Show the accounting treatment of under absorption of production overheads.

(iii) Apportion the unabsorbed overhead over the items. ***(8 Marks)***

(b) *AJ Limited is a manufacturer of Integrated Chips (IC). Presently, the company follows a policy of 'all cash sales and no credit'. With the increasing competitive environment, the company's sales are declining consistently. The current sales of the company are ₹ 75,00,000 and total costs are ₹ 54,00,000.*

The Finance Manager has suggested two credit policies to boost the company's sales. Company has decided to continue the existing policy of 'all cash sales and no credit' for existing sales and only additional sales will be made on credit basis. The information in respect of two options suggested by finance manager is as follows:

	Credit Policy I	*Credit Policy II*
Increase in current Sales (in %)	*8%*	*10%*

Average collection period for additional sales (in months)	*1.5*	*2*
Bad debts losses on additional sales (in %)	*2%*	*2.5%*

Required:

Which of the two policies should the company's management prefer in case the company wants to maintain its current level of profitability? Assume that the company's required return on investment (ROI) is 12%. Ignore Taxes. ***(8 Marks)***

Answer

(a) (i) Amount of under absorption of production overheads during the year 2020-21:

	Amount (₹)	Amount (₹)
Total production overheads actually incurred during the period		4,90,000
Less: Expenses of previous year booked in the current year	8,000	
Wages paid for the strike period under an award	42,000	
Obsolete stores written off	20,000	70,000
		4,20,000
Less: Production overheads absorbed as per machine hour rate (40,000 hours × ₹8.25*)		3,30,000
Amount of under absorbed production overheads		**90,000**

*Budgeted Machine hour rate (Blanket rate) = $\frac{₹\ 8,58,000}{1,04,000\ \text{hours}}$ = ₹ 8.25 per hour

(ii) Accounting treatment of under-absorbed production overheads: As, one third of the under absorbed overheads were due to lack of proper production policies, this being abnormal, hence should be debited to Costing Profit and Loss Account.

Amount to be debited to Costing Profit and Loss Account = (90,000 * $^1/_3$) = ₹ 30,000.

Balance of under absorbed production overheads should be distributed over Works in progress, Finished goods and Cost of sales by applying supplementary rate.

Amount to be distributed = (90,000 * $^2/_3$) = ₹60,000.

Supplementary rate = $\frac{₹\ 60,000}{(18,000 + 40\%\ \text{of}\ 5,000\ \text{units})}$ = **₹ 3 per unit**

(iii) Apportionment of under absorbed production overheads over WIP, Finished goods and Cost of sales:

	Equivalent completed units	Amount (₹)
Work-in-Progress (5,000 units × 40% ×3)	2,000	**6,000**
Finished goods (2,000 units × 3)	2,000	**6,000**
Cost of sales (16,000 units × 3)	16,000	**48,000**
Total	20,000	60,000

(b) Evaluation of proposed credit policies

	Credit Policy I	Credit Policy II
(a) Incremental Sales	75,00,00 × 8% = 6,00,00	75,00,000 × 10% = 7,50,000
(b) Increment profit before Bad Debts (a × 28%)(W.N. 1)	**1,68,000**	**2,10,000**
(c) Less: Bad Debts (a × 2% & 2.5%)	(12,000)	(18,750)
(d) Less: Opportunity Cost of funds (W.N. 2)	(6,480)	(10,800)
(e) Net Benefit of Proposed Policies (b-c-d)	**1,49,520**	**1,80,450**

Conclusion: Net Benefit is higher in proposal II, Credit period to new sales should be 2 months.

Working Notes (W.N.) 1

Present Profit Percentage = $\frac{75,00,000 - 54,00,000}{75,00,000} \times 100$ = **28%**

Working Notes (W.N.) 2

Calculation of opportunity Cost of Funds

	I	II
Cost of Sales [Sales × (1-28%)]	6,00,000 × 72% = 4,32,000	7,50,000 × 72% = 5,40,000
Average Debtors (at cost)	$4,32,000 \times \frac{1.5}{12}$ = 54,000	$5,40,000 \times \frac{2}{12}$ = 90,000
Opportunity Cost of funds	54,000 × 12% = **6,480**	90,000 × 12% = **10,800**

Question 3

(a) Following information is available regarding Process A for the month of March 2021:

- *Opening work-in-process : 2,500 units at ₹ 29,000 (Material ₹ 15,000; Labour ₹ 9,000 and Overheads ₹ 5,000)*
- *Degree of completion of opening WIP : Material 100% and Labour & Overheads 60%.*
- *Material introduced in process (48,500 Units) at ₹ 1,66,170, Wages incurred ₹ 1,08,580 and Overheads ₹ 57,650.*
- *Units scrapped 3,200 and completed 100% for Material, Labour and Overheads. Scrap value is ₹ 2 per unit to be adjusted in direct material cost.*
- *Closing work-in-process 2,800 Units; stage of completion 100% for Material and 80% for Labour and Overheads.*
- *45,000 units were transferred to process B.*
- *Normal loss is 8% of total input including opening work-in-process.*

You are required to :

(i) Prepare a statement of equivalent units using Average Cost and FIFO method.

(ii) Prepare a statement showing per unit cost of each element under both methods.

(iii) Find the reason of difference in equivalent units under both methods. ***(8 Marks)***

(b) The following data are related to three companies Ax, Bx and Zx :

Particulars	*Ax*	*Bx*	*Zx*
Output in units	*2,00,000*	*3,00,000*	*5,00,000*
Unit variable cost (₹)	*10*	*6*	*3*
Unit selling price (₹)	*14*	*8*	*6*
Fixed cost (₹)	*3,50,000*	*2,50,000*	*5,00,000*
Interest expenses (₹)	*60,000*	*-*	*80,000*
Tax rate	*25%*	*25%*	*25%*
No. of Shares of ₹ 10 each	*10,000*	*15,000*	*30,000*

You are required to:

(i) Calculate the following:

- *Operating leverage*
- *Financial leverage*
- *Combined leverage*
- *Earning per share* ***(4 Marks)***

(ii) Comment on calculations done in (i) above in respect of all the three companies.

(4 Marks)

Answer

(a) (i) Statement of Equivalent Production

Average Cost Method

Input Details	Units	Output Particulars	Units	Material		Labour and overheads	
				%	Units	%	Units
Beginning WIP	2,500	Completed and Transferred	45,000	100	45,000	100	45,000
Unit Introduced	48,500	Normal Loss	4,080				
		Closing W-I-P	2,800	100	2,800	80	2,240
		Abnormal Gain	(880)	100	(880)	100	(880)
Total	**51,000**	**Total**	51,000		**46,920**		**46,360**

FIFO Method

Input Details	Units	Output Particulars	Units	Material		Labour and overheads	
				%	Units	%	Units
Beginning WIP	2,500	Completed and Transferred	2,500	-	-	40	1,000
Unit Introduced	48,500	Completed and Transferred	42,500	100	42,500	100	42,500
		Normal Loss	4,080				
		Closing W-I-P	2,800	100	2,800	80	2,240
		Abnormal Gain	(880)	100	(880)	100	(880)
Total	**51,000**	**Total**	51,000		**44,420**		**44,860**

(ii) Statement showing per unit cost for each element

Average Cost Method

Particulars	Materials	Labour	Overhead	Total
	(₹)	(₹)	(₹)	(₹)
Cost of opening work-in-process	15,000	9,000	5,000	29,000
Cost incurred during the month	1,66,170	1,08,580	57,650	3,32,400

Less: Realisable Value of normal scrap (₹ 2 × 4080 units)	(8,160)	--	--	(8,160)
Total cost: (A)	1,73,010	1,17,580	62,650	3,53,240
Equivalent units: (B)	46,920	46,360	46,360	-
Cost per equivalent unit: (C) = (A ÷ B)	**3.687**	**2.536**	**1.351**	7.575

FIFO Method

Particulars	**Materials**	**Labour**	**Overhead**	**Total**
	(₹)	**(₹)**	**(₹)**	**(₹)**
Cost incurred during the month	1,66,170	1,08,580	57,650	3,32,400
Less: Realisable Value of normal scrap (₹ 2 × 4080 units)	(8,160)	--	--	(8,160)
Total cost: (A)	1,58,010	1,08,580	57,650	3,24,240
Equivalent units: (B)	44,420	44,860	44,860	-
Cost per equivalent unit: (C) = (A ÷ B)	**3.557**	**2.420**	**1.285**	7.262

(iii) The reason for difference in equivalent units under average method and FIFO method is due to the fact that- units of opening work in progress and their cost are taken in full under average method while under FIFO method only the remaining work done is considered.

(b)

Particulars	**Ax**	**Bx**	**Zx**
(i) Sales (units)	2,00,000	3,00,000	5,00,000
(ii) Unit Selling price	₹14	₹ 8	₹ 6
(iii) Sales Amount [(i) x (ii)]	₹ 28,00,000	₹ 24,00,000	₹ 30,00,000
(iv) Unit variable cost	₹ 10	₹ 6	₹ 3
(v) Variable Cost Amount [(i) x (iv)]	₹ 20,00,000	₹ 18,00,000	₹ 15,00,000
(vi) Contribution [(iii) – (v)] [or no of unit × contribution per unit)	₹ 8,00,000	₹ 6,00,000	₹ 15,00,000
(vii) Fixed Cost	₹ 3,50,000	₹ 2,50,000	₹ 5,00,000
(viii) EBIT [(vi) – (vii)]	₹ 4,50,000	₹ 3,50,000	₹10,00,000
(ix) Interest expenses	₹ 60,000	₹ 0	₹ 80,000
(x) EBT/PBT[(viii) – (ix)]	₹3,90,000	₹ 3,50,000	₹ 9,20,000
(xi) Tax [(x) × 25%]	₹ 97,500	₹ 87,500	₹ 2,30,000

(xii) PAT	₹ 2,92,500	₹ 2,62,500	₹ 6,90,000
(xiii) No. of Shares	10,000	15,000	30,000

(i) Calculation of leverages			
Operating leverage = $\frac{\text{Contribution (vi)}}{\text{EBIT (viii)}}$	1.78	1.71	1.5
Financial leverage = $\frac{\text{EBIT (xiii)}}{\text{EBIT/PBT (x)}}$	1.15	1	1.09
Combined leverage = $\frac{\text{Contribution (vi)}}{\text{EBT/PBT (x)}}$	2.05	1.71	1.64
EPS = $\frac{\text{PAT (xii)}}{\text{No. of Shares (xiii)}}$	₹ 29.25	₹ 17.5	₹ 23

(ii) Comments:

1. EPS is the highest in case of Ax company. It shows that investor will give first priority to make investment in the shares of Ax company.
2. OL shows operating risk. It is the highest in case of Ax company and lowest case of Zx company.
3. FL shows financial risk. It is also the highest in case of Ax company but lowest Bx company due to Nil amount of interest payment.
4. CL shows overall risk. It is also highest in case of Ax company and lowest in case of Zx company. Higher risk higher return that is why EPS of Ax company is the highest.

Question 4

(a) Pharmaceutical division of JIG Ltd. is engaged in producing immunity booster dietary supplement for post-covid treatment. It uses material X and Y in production of the immunity booster. Company produces this supplement in a batch of 10 kg. The standard cost card per batch is as follows:

		(₹)
Direct Material:	*X - 8 kg @ ₹ 60 per kg.*	*480*
	Y - 4 kg @ ₹ 70 per kg.	*280*
Direct Labour:	*8 Hours @ ₹ 50 per hour*	*400*

Budget output of the month was fixed 12,000 kg. Actual data were as follows:

Direct Material:	*X - 8,000 kg @ ₹ 55 per kg.*
	Y - 4,000 kg @ ₹ 72 per kg.

The company worked 7,500 direct Labour hours during the month. For 2,500 of these hours, the company paid at ₹ 48 per hour while for the remaining hours, wages were paid at standard rate. Actual output was 9,000 kg.

You are required to calculate the following variances by clearly indicating their nature i.e. Favorable (F) or Adverse (A).

(i) Material cost variance

(ii) Material price variance

(iii) Material usage variance

(iv) Material mix variance

(v) Material yield variance

(vi) Labour cost variance

(vii) Labour rate variance

(viii) Labour efficiency variance ***(8 Marks)***

(b) A company has to make a choice between two projects namely A and B. The company provides following information:

	Project A	*Project B*
Annual cash inflows (₹)	*2,50,000*	*2,40,000*
Useful life	*4 years*	*5 years*
Salvage value (₹)	*Nil*	*Nil*
Internal Rate of Return (IRR)	*15%*	*14%*
Profitability Index (PI)	*1.064*	*1.076*

Table of discount factors

Years		***Discount factor***			
	15%	*14%*	*13%*	*12%*	*11%*
1	*0.870*	*0.877*	*0.885*	*0.893*	*0.901*
2	*0.756*	*0.769*	*0.783*	*0.797*	*0.812*
3	*0.658*	*0.675*	*0.693*	*0.712*	*0.730*
4	*0.572*	*0.592*	*0.613*	*0.636*	*0.658*
Cumulative up to 4 years	*2.856*	*2.913*	*2.974*	*3.038*	*3.101*
5	*0.497*	*0.519*	*0.543*	*0.567*	*0.593*
Cumulative up to 5 years	*3.353*	*3.432*	*3.517*	*3.605*	*3.694*

You are required to calculate following for the Project A and Project B:

(i) Cost of the projects.

(ii) Payback period of the projects.

(iii) Net present value of cash flow of the projects.

(iv) Cost of capital of the projects.

(v) On the basis of cost of capital and Net Present Value (NPV), advise the management of company as to which project they should take-up. ***(8 Marks)***

Answer

(a) For Material Variances

	Standard for 9,000 kgs			Actual for 9,000 kgs		
Material	**Qty. Units**	**Rate (₹)**	**Amount (₹)**	**Qty. units**	**Rate (₹)**	**Amount (₹)**
X	7,200	60	4,32,000	8,000	55	4,40,000
Y	3,600	70	2,52,000	4,000	72	2,88,000
Total	10,800		6,84,000	12,000		7,28,000

(i) Material Cost Variance = Standard cost – Actual cost

= ₹ 6,84,000 – ₹ 7,28,000

MCV = ₹ 44,000(A)

(ii) MaterialPriceVariance = (Std. Price – Actual Price) ×Actual Qty.

Material X = (60 – 55) × 8000 **= ₹ 40,000(F)**

Material Y = (70 –72) × 4000 **= ₹ 8,000(A)**

MPV = ₹ 32,000(F)

(iii) Material Usage Variance = (Std. Qty.– Actual Qty.) × Std. Price

Material X = (7,200 – 8,000) × 60 = **₹ 48,000 (A)**

Material Y = (3,600 – 4,000) × 70 = ₹ **28,000 (A)**

MUV **= ₹ 76,000 (A)**

(iv) Material Mix Variance = (Revised standard quantity* – Actual quantity) × Std. price

Material X = (8,000 – 8,000) × 60 = **₹ 0**

Material Y = (4,000 – 4,000) × 70 = **₹ 0**

MMV **₹ 0**

*Revised standard quantity =

$$\frac{\text{Standard quantity of one material}}{\text{Total of standard quantitiets of all materials}} \times \text{Total of actual quantities of all materials}$$

(v) Material Yield Variance = (Standard quantity – Revised standard quantity) × Std. price

Material X = (7,200–8,000) × 60 = ₹ 48,000 (A)

Material Y = (3,600 – 4,000) × 70 = ₹ 28,000 (A)

MYV **₹ 76,000 (A)**

For Labour Variances

	Standard for 9000 kgs			Actual for 9000 kgs		
	Hrs.	Rate (₹)	Amount (₹)	Hrs.	Rate (₹)	Amount (₹)
Labour	7,200	50	3,60,000	2500	48	1,20,000
				5,000	50	2,50,000
						3,70,000

(vi) **Labour Cost Variance** = Standard cost–Actual cost

= ₹ 360000 – ₹ 370000

= ₹ 10,000(A)

(vii) **Labour Rate Variance** = (Std. Rate–Actual Rate) × Actual Hrs.

=₹ (50 – 48) x 2500

= ₹ 5,000(F)

Or

= (Standard rate x Actual hours) – (Actual rate x Actual hours)

= (₹ 50 x 7,500) – ₹ 3,70,000 = ₹ 5,000 (F)

(viii) **Labour Efficiency Variance = (Std. Hrs–Actual Hrs) × Std. Rate**

= ₹ (7200 – 7500) x 50

= ₹15,000(A)

(b)

Particulars	Project A	Project B
(a) Annual Cash Inflows	₹ 2,50,000	₹ 2,40,000
As we know, at IRR,		
PV of inflow = PV of outflow		
So, Cost of project = PV of inflows		
(b) IRR	15%	14%
(c) Useful life	4 years	5 years
(d) PVAF at IRR	2.856	3.432
(i) Cost of Project (Annual Cash inflows × Present Value)	**₹ 7,14,000**	**₹ 8,23,680**
(ii) Payback Period $\left(\frac{\text{Cost of the project}}{\text{Annual Cash inflows}}\right)$	**2.856 years**	**3.432 years**
(iii) PV of Cash inflows	₹ 7,59,696	₹ 8,86,280
Cost of the project × Profitability Index		
NPV (PV of Cash inflows – Cost of the project)	**₹ 45,696**	**₹ 62,600**
(iv) PVAF used for NPV calculations $\frac{\text{PV of cash inflows}}{\text{Annual Cash inflows}}$	3.038	3.694
So, Cost of Capital (using table)	**12%**	**11%**

Recommendation:

As, NPV is higher for Project B, therefore, Project B should be taken up.

Project A seems to be risky as its discounting rate is higher.

Question 5

(a) Pass journal entries of following transactions under Non-integrated Accounting system:

(i) Direct material issued to production.

(ii) Wages charged (for Indirect Labour) to the production

(iii) When production overheads recovered (absorbed)

(iv) Material purchased in cash.

(b) Discuss the apportionment of Joint Costs between Joint Products based on Net Realizable Value (NRV) method. Also, mention any two situations where Net Realizable Value (NRV) method will be suitable for apportionment of Joint Costs between Joint Products.

(c) Explain the assumptions and propositions of Modigliani and Miller (MM) approach (without tax) on cost of capital.

(d) List the factors to be taken into consideration while determining the requirement of Working Capital. ***(4 X 4 = 16 Marks)***

Answer

(a) (i) Material (Direct) issued to production

Work-in-Progress Control A/c Dr.

To Store Ledger Control A/c

(ii) Wages charged (for Indirect Labour) to the production

Production Overhead Control A/c Dr.

To Wages Control A/c

(iii) Production overhead recovered

Work-in-Progress Ledger Control A/c Dr.

To Production Overhead Control A/c

(iv) Material purchased in cash

(I) Material Control A/c Dr.

To Cost Ledger Control A/c

(II) Stores Ledger Control A/c Dr.

To Material Control A/c

(b) Net Realisable Value (NRV) method: From the sales value of the joint products (at finished stage) the followings are deducted:

(i) estimated profit margins,

(ii) selling and distribution expenses, if any, and

(iii) post-split off costs.

The resultant figure so obtained is known as net realisable value of joint products. Joint costs are apportioned in the ratio of net realisable value.

NRV method will be suitable for apportionment of Joint Costs between Joint products-

- where further processing costs after the point of separation are disproportionate.

- when all the joint products are not subjected to further processing.

- when market value of all the joint products at separation point are not available.

(c) Modigliani-Miller (MM) Approach- without tax: This approach describes, in a perfect capital market where there is no transaction cost and no taxes, the value and cost of capital of a company remain unchanged irrespective of change in the capital structure.

The approach is based on further additional **assumptions** like:

- Capital markets are perfect. All information is freely available and there are no transaction costs.
- All investors are rational.
- Firms can be grouped into 'Equivalent risk classes' on the basis of their business risk.
- Non-existence of corporate taxes.

Based on the above assumptions, Modigliani-Miller derived the following three **propositions**:

(i) Total market value of a firm is equal to its expected net operating income divided by the discount rate appropriate to its risk class decided by the market.

Value of levered firm (V_g) = Value of unlevered firm (V_u)

$$\textbf{Value of a firm} = \frac{\text{Net Operating Income (NOI)}}{K_0}$$

(ii) A firm having debt in capital structure has higher cost of equity than an unlevered firm. The cost equity will be include risk premium for the financial risk. The cost of equity in a levered firm is determined as under:

$$Ke = Ko + (Ko - Kd)\frac{\text{Debt}}{\text{Equity}}$$

(iii) The structure of the capital (financial leverage) does not effect the overall cost of capital. The cost of capital is only affected by the business risk.

(d) Factors to be taken into consideration while determining the requirement of working capital:

(i) Production Policies (ii) Nature of the business

(iii) Credit policy
(iv) Inventory policy
(v) Abnormal factors
(vi) Market conditions
(vii) Conditions of supply
(viii) Business cycle
(ix) Growth and expansion
(x) Level of taxes
(xi) Dividend policy
(xii) Price level changes
(xiii) Operating efficiency.

Question 6

(a) A company which manufactures and sells three products furnishes the following details for a month:

Products	*A*	*B*	*C*
Number of units sold	*50,000*	*19,000*	*23,000*
Selling Price per unit (₹)	*25*	*40*	*30*
Variable cost per unit (₹)	*17*	*26*	*12*

The fixed costs of the company amount to ₹ 6,15,000 per month.

Required:

(i) Calculate the current monthly Profit volume ratio and Break-even sales (in ₹) of the company.

(ii) Company plans to reduce selling price of product C to increase the sales volume. By implementing the plan, it is expected that the profit volume ratio of the product C will be reduced to 50%. Determine the sales price per unit and sales units of product C required to maintain the existing amount of the contribution of the company. Also compute the effect on the company's profit volume ratio and BEP (in ₹).

(iii) It has been proposed to undertake an intensive advertisement campaign involving an expenditure of ₹ 60,000 per month and to reduce selling price of product C to ₹ 24. Calculate the additional sales units required per month of product C to justify the expenditure on advertisement while maintaining existing contribution. ***(8 Marks)***

(b) JC Limited has provided the following information for the preparation of cash flow statement for the financial year 2020-21:

	Particulars	*(₹)*
(i)	*Surplus balance in the statement of Profit and loss account*	*1,20,000*
(ii)	*Transfer to General reserve during the year*	*25,000*

(iii)	*Provision for taxation balance shown in balance sheet as at 31st March, 2020 and 31st March, 2021 are ₹ 70,000 and ₹ 1,05,000 respectively. Provision for taxation made during the year was ₹ 90,000.*	
(iv)	*Proposed dividend as at 31st March, 2020 and 2021 are ₹ 1,30,000 and ₹ 1,40,000 respectively.*	
(v)	*During current year, depreciation provided on Land and building.*	*50,000*
(vi)	*Goodwill written off during the year*	*20,000*
(vii)	*10% Preference Share capital issued, 1,000 shares @ ₹ 125 (premium ₹ 25)*	*1,25,000*
(viii)	*During the year an old machine costing ₹ 75,000 was sold for ₹ 31,000. It written down value was ₹ 41,000.*	
(ix)	*Depreciation charged on Plant and Machinery during the year*	*88,000*
(x)	*New Plant and Machinery purchased on 31st March, 2021*	*2,20,000*
(xi)	*Non-current Investment costing ₹ 30,000 were sold during the year at a profit of ₹ 8,000.*	
(xii)	*Changes in Current assets and Current liabilities*	
	• *Inventories decreased by*	*15,000*
	• *Trade receivable increased*	*1,40,000*
	• *Increase in trade payable*	*25,000*
(xiii)	*Cash and cash equivalent at the beginning of the year*	*26,000*

You are required to Prepare Cash Flow Statement as per AS-3 and compute the Cash and cash equivalent at the end of the year. ***(8 Marks)***

Answer

(a) (i) Calculation of P.V Ratio & Break-even Sales

	Particulars	A	B	C	Total
A.	Units sold	50,000	19,000	23,000	92,000
B.	Selling price per unit (₹)	25	40	30	
	Sales Value (A x B)	12,50,000	7,60,000	6,90,000	27,00,000
C.	Variable cost per unit	17	26	12	
D	Contribution (B-C)	8	14	18	
E	Total Contribution (A×D)	4,00,000	2,66,000	4,14,000	10,80,000
F	Fixed Cost (₹)				6,15,000

G	**P.V Ratio {(D÷B) × 100}**	32%	35%	60%	**40%***
H	**Break-even sales (₹) (F÷G)**				**15,37,500**

*10,80,000/27,00,000 = 40%

(ii) Let the reduced selling price per unit of product C = "SP", then the

$$\text{PV Ratio} = \frac{\text{Contribution}}{\text{Selling Price}} \times 100$$

$$50\% = \frac{SP-12}{SP} \times 100$$

SP = 24

Reduced Selling price per unit of Product C = ₹ 24

Sales unit of Product C to maintain the existing amount of contribution

$$= \frac{\text{Existing Contribution of Product C}}{\text{Reduced Contribution per unit of Product C}}$$

$$= \frac{₹\ 4,14,000}{₹\ 12} = 34,500 \text{ units}$$

Increased sales quantity of Product C after reduction in selling price is 34,500 units

Computation of the effect of the plan on P.V Ratio & Break-even Sales

	Particulars	A	B	C	Total
A.	Units sold	50,000	19,000	34,500	1,03,500
B.	Selling price per unit (₹)	25	40	24	
	Sales Value (A x B)	12,50,000	7,60,000	8,28,000	**28,38,000**
C.	Variable cost per unit	17	26	12	
D	Contribution (B-C)	8	14	12	
E	Total Contribution (A×D)	4,00,000	2,66,000	4,14,000	10,80,000
F	Fixed Cost (₹)				6,15,000
G	**P.V Ratio {(D÷B)×100}**	32%	35%	50%	38.055%*
H	**Break-even sales (₹) (F÷G)**				16,16,082

*10,80,000/28,38,000 = 38.055%

Effect on P/V Ratio – Reduced by 1.945%

Effect on BEP – Increased by Rs 78,502

(iii) Calculation of additional units of Product C to cover campaign cost:

$$= \frac{\text{Additional Campaign cost}}{\text{Reduced Contribution per unit of Product C}}$$

$$= \frac{₹\ 60,000}{₹\ 12} = 5,000 \text{ units}$$

(b) Statement of Cash Flow for the year ending 31st March, 2021

	(₹)
Cash flow from Operating Activities	
Surplus during the year	1,20,000
Adjustments:	
Add: Transfer to General Reserve	25,000
Provision for Tax	90,000
Proposed Dividend	1,40,000
Profit before Tax	**3,75,000**
Depreciation:	
Land and Building	50,000
Plant and Machinery	88,000
Loss on sale of Plant and Machinery (₹41,000 – ₹31,000)	10,000
Goodwill written off	20,000
Less: Profit on sale of Investments	(8,000)
Operating profit before working capital changes	**5,35,000**
Decrease in Inventories	15,000
Increase in Trade receivables	(1,40,000)
Increase in Trade payables	25,000
Cash generated from operations	4,35,000
Less: Income tax paid	(55,000)
Net Cash from Operating activities(A)	**3,80,000**
Cash flow from Investing Activities	
Sale of investment (₹ 30,000 + ₹ 8,000)	**38,000**
Sale of Plant and Machinery	31,000
Purchase of Plant and Machinery	(2,20,000)
Net cash from Investing activities (B)	**(1,51,000)**

Cash Flow from Financing Activities	
Issue of 10% Preference shares	1,00,000
Premium received in issue of shares	25,000
Dividend paid	(1,30,000)
Net cash from Financing activities (C)	**(5,000)**
Net Increase/(Decrease) in cash and cash equivalents (A+B+C)	2,24,000
Cash and cash equivalent at the beginning of the year	26,000
Cash and cash equivalent at the end of the year	**2,50,000**

Working Notes:

Provision for the Tax Account

	(₹)		(₹)
To Bank (paid)	**55,000**	By Balance b/d	70,000
To Balance c/d	1,05,000	By Statement of P&L	90,000
	1,60,000		1,60,000

Question 7

*Answer any **four** of the following:*

(a) Discuss the risk return considerations in financing of current assets through short or long-term sources of finance and the various approaches involved in it.

(b) "Occasional overtime is a healthy sign." Discuss the statement with reasons. Also mention any two effects of overtime payment on productivity.

(c) What do you mean by spoiled and defective work with reference to Job Costing? How it is to be treated in the circumstance (i) where defect is due to bad workmanship? (ii) Where defect is due to the Inspection Department wrongly accepting incoming material of poor quality?

(d) What do you mean by Debt Securitization? Discuss its benefits to the originator of Debt Securitization.

(e) (i) "Cost of product or service required to be expressed in suitable cost unit." State the method of costing and the suggestive unit of cost for the Hotel industry and Transport industry.

(ii) Discuss any two important decisions that a firm has to undertake for achieving Wealth Maximization. ***(4 x 4 = 16 Marks)***

Answer

(a) **Risk-Return Considerations in Financing of Current Assets:** The financing of current assets involves a trade off between risk and return. A firm can choose from short or long term sources of finance. **Short term financing is less expensive than long term financing but at the same time, short term financing involves greater risk than long term financing.**

Depending on the mix of short term and long term financing, the approach followed by a company may be referred as **matching approach, conservative approach and aggressive approach**.

In matching approach, long-term finance is used to finance fixed assets and permanent current assets and short term financing to finance temporary or variable current assets.

Under the conservative plan, the firm finances its permanent assets and also a part of temporary current assets with long term financing and hence less risk of facing the problem of shortage of funds.

An aggressive policy is said to be followed by the firm when it uses more short term financing than warranted by the matching plan and finances a part of its permanent current assets with short term financing.

(b) Occasional overtime is a healthy sign since it indicates that the firm has the optimum capacity and that the capacity is being fully utilized. But persistent overtime is rather a bad sign because it may indicate either (*a*) that the firm needs larger capacity in men and machines, or (*b*) that men have got into the habit of postponing their ordinary work towards the evening so that they can earn extra money in the form of overtime wages.

Effect of overtime payment on productivity: Overtime work should be resorted to only when it is extremely essential because it involves extra cost. The overtime payment increases the cost of production in the following ways:

1. The overtime premium paid is an extra payment in addition to the normal rate.
2. The efficiency of operators during overtime work may fall and thus output may be less than normal output.
3. In order to earn more the workers may not concentrate on work during normal time and thus the output during normal hours may also fall.
4. Reduced output and increased premium of overtime will bring about an increase in costs of production.
5. Gives rise to associated costs. (wear and tear of machinery, power etc.)

(c) **Spoiled work** is the quantity of production that has been totally rejected and cannot be rectified.

Defective work refers to production that is not as perfect as the saleable product but is capable of being rectified and brought to the required degree of perfection provided some additional expenditure is incurred.

Treatment in different circumstances:

Circumstances	Treatment
(1) Where defect is due to bad workmanship.	In this case cost of rectification will be abnormal cost, *i.e.,* not a legitimate element of the cost. Therefore, the cost of rectification shall be written off as a loss, unless by an arrangement, it is to be recovered as a penalty from the workman concerned. It is possible, however that the management did provide for a certain proportion of defectives on account of bad workmanship as an unavoidable feature of production. If that be the case, the cost of rectifying to the extent provided for by the management will be treated as a normal cost and charged to the batch.
(2) Where defect is due to the Inspection Department wrongly accepting incoming material of poor quality.	In this case the cost of rectification will be charged to the department and will not be considered as cost of manufacture of the batch. Being an abnormal cost, it will be written off to the Costing Profit and Loss Account.

(d) **Debt Securitisation:** It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. Assets generating steady cash flows are packaged together and against this asset pool, market securities can be issued, e.g. housing finance, auto loans, and credit card receivables.

The benefits to the originator of debt securitization are as follows:

(i) The assets are shifted off the balance sheet, thus giving the originator recourse to off balance sheet funding.

(ii) It converts illiquid assets to liquid portfolio.

(iii) It facilitates better balance sheet management as assets are transferred off balance sheet facilitating satisfaction of capital adequacy norms.

(iv) The originator's credit rating enhances.

(e) (i)

	Industry	Method of Costing	Suggestive Unit of Cost
(a)	Hotel	Operating Costing	Room day
(b)	Transport	Operating Costing	Passenger k.m. or tonne k.m.

(ii) Important Decisions for Achievement of Wealth Maximization:

- **Investment Decisions**: Investment decisions relate to the selection of assets in which funds will be invested by a firm.
- **Financing Decisions**: Financing decisions relate to acquiring the optimum finance to meet financial objectives and seeing that fixed and working capitals are effectively managed.
- **Dividend Decisions**: Dividend decisions relate to the determination as to how much and how frequently cash can be paid out of the profits of an organisation as income for its owners/shareholders.