

Gurukripa's Guideline Answers to Nov 2011 IPCC Exam Questions

Question No.1 is compulsory (**4 X 5 = 20 Marks**).

Answer **any five** questions from the **remaining six** questions (**16 X 5 = 80 Marks**).

Question 1(a): Marginal Costing

N 11 (5 Marks)

The PV Ratio of Delta Ltd is 50% and Margin of Safety is 40%. The Company sold 500 units for ₹ 5,00,000. Calculate – (a) BEP, and (b) Sales in units to earn a Profit of 10% on Sales.

Solution:

1. Computation of BEP

- Sale Price per unit = $\frac{₹ 5,00,000}{500 \text{ units}} = ₹ 1,000 \text{ per unit.}$
- Given MOS = 40%, So, **BES** = 100% – 40% = 60% of Sales ₹ 5,00,000 = **₹ 3,00,000. BEQ** = $\frac{₹ 3,00,000}{₹ 1,000 \text{ p.u.}} = 300 \text{ units.}$
- So, Fixed Cost = Contribution out of BES = BES × PVR = ₹ 3,00,000 × 50% = ₹ 1,50,000

2. Required Sales Quantity to earn Profit of 10 % of Sales

- Let Sale Quantity to earn Profit of 10% of Sales be "Q" units. So, Total Sales Value = Qty × Price = Q × 1000 = 1000 Q.
- Contribution at 50% PVR = 1000 Q × 50% = 500 Q. Profit = 10% on Sales = 1000 Q × 10% = 100 Q
- The equation is Contribution – Fixed Cost = Profit.
- So, we have $500 Q - 1,50,000 = 100 Q.$ On substitution, we get $Q = \frac{1,50,000}{400} = 375 \text{ units.}$

Question 1(b): Labour Cost – Similar to Page 3.26, Illustration 16

N 11 (5 Marks)

X executes a piece of work in 120 hours as against 150 hours allowed to him. His Hourly Rate is ₹ 10, and he gets a Dearness Allowance of ₹ 30 per day of 8 hours worked in addition to his wages. You are required to calculate Total Wages received by X under the following incentive schemes – (a) Rowan Premium Plan, and (b) Emerson Efficiency Plan.

Solution:

Note: Number of Days worked = 120 hours ÷ 8 hours per day = **15 days.**

1. **Efficiency** = $\frac{\text{Standard Hours}}{\text{Actual Hours}} = \frac{150 \text{ hours}}{120 \text{ hours}} = 125 \%. \quad 2. \text{ Dearness Allowance} = 15 \text{ days} \times ₹ 30 = ₹ 450$

2. Since Efficiency > 100%, Total Wages under **Emerson Plan** is calculated using the formula –

$$\begin{aligned} \text{Total Wages} &= [120\% \text{ of Time Rate} + 1\% \text{ Bonus for every } 1\% \text{ increase in Efficiency beyond } 100\%] + \text{D.A} \\ &= [(120 \text{ hours} \times ₹ 10 \text{ per hour}) \times 120\%] + [25\% \text{ Bonus on } ₹ 10 \text{ per hour for } 120 \text{ hours}] + ₹ 450 \\ &= ₹ 1,440 + ₹ 300 + ₹ 450 = ₹ 2,190 \end{aligned}$$

3. Rowan Scheme Wages = (Hours worked × Rate p.h.) + $\left(\frac{\text{Actual Hours}}{\text{Std Hours}} \times \text{Time Saved} \times \text{Rate p.h.} \right) + \text{D.A}$

$$= (120 \text{ hours} \times ₹ 10) + \left(\frac{120}{150} \times 30 \times ₹ 10 \right) + ₹ 450 = ₹ 1,200 + ₹ 240 + ₹ 450 = ₹ 1,890$$

Question 1(c): WC Management – Debtors Decision – Similar to Page 16.55, Illustration 40

N 11 (5 Marks)

A new customer with a 10% risk of non-payment desires to establish business connections with you. He would require 1.5 months credit, and is likely to increase your sales by ₹ 1,20,000 p.a. Cost of Sales amounts to 85% of Sales. Tax Rate is 30%. Should you accept the offer, if the required rate of return is 40% (after-tax)?

Solution: 1. Since Post-Tax ROCE is 40% and Tax Rate is 30%, required **Pre-Tax ROCE** = $\frac{40\%}{100\% - 30\%} = 57.14 \%$

Note: Since rotation of funds using Working Capital generates Operating Profit (i.e. EBIT), it is preferable to take Working Capital related decisions on Pre-Tax ROCE. Alternative assumptions / approaches exist in decision-making.

2. Profitability of Sale to New Customer

Particulars		₹
Sales Value		1,20,000
Less: Cost of Sales at 85%	1,02,000	
Less: Interest Cost for ₹ 1,02,000 at 57.14% for 1.5 months = ₹ 1,02,000 × 57.14% × $\frac{1.5}{12}$	7,285	1,09,285
Net Benefit /Profit from Sale to New Customer		10,715

3. Evaluation of Risk of Non-Payment

	Possibility	Chance	Benefit	Expected Benefit
Options	I – Make Credit Sale	Payment received	90 % ₹ 10,715	₹ 9,644
		No Payment received	10 % (₹ 1,09,285)	(₹ 10,929)
	II – Do not sell	No Cost–No Benefit		₹ Nil

Decision: As there is a Net Expected Loss of ₹ 1,285, the offer from New Customer is **not acceptable**.

Question 1(d): Computation of K_d , K_e and WACC – Similar to M 08 Qn, Page 18.22, Illustration 23

N 11 (5 Marks)

Beeta Ltd has furnished the following information –

Earnings per Share	₹ 4	Rate of Tax	30%
Dividend Payout Ratio	25%	Growth Rate of Dividend	8%
Market Price per Share	₹ 40		

The Company wants to raise additional capital of ₹ 10 Lakhs including Debt of ₹ 4 Lakhs. The Cost of Debt (before Tax) is 10% upto ₹ 2 Lakhs, and 15% beyond that. Compute the after-tax cost of Equity & Debt, and the Weighted Average Cost of Capital.

Solution:

Particulars	Result
1. Interest on Loan = (₹ 2,00,000 × 10%) + (₹ 2,00,000 × 15%) = ₹ 20,000 + ₹ 30,000 =	₹ 50,000
2. $K_d = \frac{\text{Interest} \times (100\% - \text{Tax Rate})}{\text{Net Proceeds of Issue}} = \frac{₹ 50,000 \times (100\% - 30\%)}{₹ 4,00,000} =$	8.75 %
3. $K_e = \frac{DPS_1}{MPS_0} + g = \frac{₹ 4 \times 25\% \times 108\%}{₹ 40} + 8\% = 2.7\% + 8\% =$	10.70 %
4. $K_o = (K_d \times W_d) + (K_e \times W_e) = (8.75\% \times 40\%) + (10.70\% \times 60\%) =$	9.92 %

Note: DPS_1 has been considered in computation of K_e . Alternatively, Earnings–Growth model may also be applied.

Question 2(a): Treatment of Under–Absorption – Similar to N 95 Qn, Page 4.45, Illustration 40

N 11 (8 Marks)

X Ltd recovers Overhead at a pre-determined rate of ₹ 50 per man-day. The total Factory OH incurred and the man-days actually worked were ₹ 79 Lakhs and 1.5 Lakh days respectively. During this period 30,000 units were sold. At the end of the period 5,000 units were held in stock but there was no Opening Stock of Finished Goods. Similarly, though there was no stock of uncompleted units at the beginning of the period, at the end of the period there were 10,000 uncompleted units, which may be reckoned at 50% complete.

On analysing the reasons, it was found that 60% of the Unabsorbed OH were due to defective planning and rest were attributable to increase in OH costs. How would Unabsorbed OH be treated in cost accounts?

Solution:

1. Difference in Absorption = Absorbed OH Less Actual OH

$$= (1,50,000 \text{ man-days} \times ₹ 50 \text{ per man-day}) \text{ Less } ₹ 79,00,000 = ₹ 4,00,000 \text{ (Underabsorption)}$$

Normal Increase in OH Costs = 40 % = ₹ 1,60,000

Abnormal (Defective Planning) = 60% = ₹ 2,40,000

Treated as **COST** and apportioned to

Units Sold 30,000 units	Closing Stock of Fin. Goods 5,000 units	Closing Stock of WIP (10000×50%)=5,000 units
₹ 1,20,000	₹ 20,000	₹ 20,000

So, **Supplementary OH Recovery Rate = ₹ 4 per unit.**

Treated as **LOSS** and debited to Costing P & L

Notes:

- In respect of Closing Stock of WIP, only 50% is complete. Hence, Deemed 100% complete units, i.e. Equivalent Production is taken for apportionment of Normal OH Underabsorption.
- Supplementary OH Recovery Rate = $\frac{\text{Total OH}}{\text{Total Output Qty}} = \frac{\text{₹ 1,60,000}}{40,000 \text{ units}} = \text{₹ 4 per unit.}$

This calculation can be based on either Units Sold, (or) Closing Stock of FG, (or) Closing Stock of WIP, (or) Total of all these.

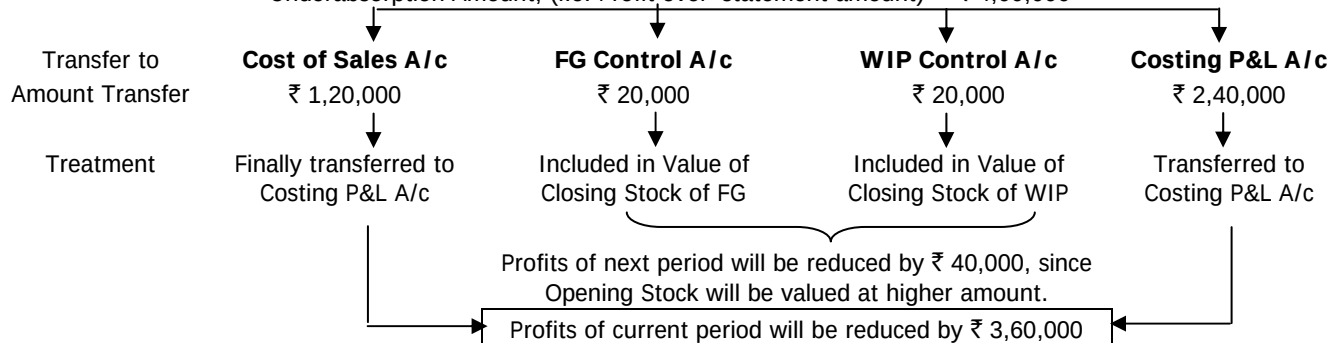
2. Journal Entries

Transaction / Narration	Particulars	Dr. (₹)	Cr. (₹)
1. Production OH incurred	Production OH Control A/c Dr. To General Ledger Adjustment A/c	79,00,000	79,00,000
2. Production OH absorbed	WIP Control A/c Dr. To Production OH Control A/c	75,00,000	75,00,000
3. Treatment of Underabsorption	Cost of Sales A/c Dr. Finished Goods Control A/c Dr. WIP Control A/c Dr. Costing P&L A/c Dr. To Production OH Control A/c	1,20,000 20,000 20,000 2,40,000	4,00,000

3. Impact on Profit

- OH absorbed into production is only ₹ 75,00,000 whereas OH actually incurred is ₹ 79,00,000. Hence, **before** passing the Journal Entry for underabsorption, profits are wrongly over-stated (due to under-absorption / under-statement of costs) by ₹ 4,00,000. This is **rectified** by the Underabsorption entry, in the following manner –

Underabsorption Amount, (i.e. Profit over-statement amount) = ₹ 4,00,000

**Question 2(b): Computation of Ratios**

N 11 (8 Marks)

The Financial Statements of a Company contain the following information for the year ending 31st March –

Particulars	₹
Cash	1,60,000
Sundry Debtors	4,00,000
Short-Term Investments	3,20,000
Stock	21,60,000
Prepaid Expenses	10,000
Total Current Assets	30,50,000
Current Liabilities	10,00,000
10% Debentures	16,00,000
Equity Share Capital	20,00,000
Retained Earnings	8,00,000

Statement of Profit for the year ended 31st March

Particulars	₹
Sales (20% Cash Sales)	40,00,000
Less: Cost of Goods Sold	28,00,000
Profit before Interest and Tax	12,00,000
Less: Interest	1,60,000
Profit Before Tax	10,40,000
Less: Tax at 30%	3,12,000
Profit after Tax	7,28,000

Calculate – (a) Quick Ratio, (b) Debt – Equity Ratio, (c) ROCE, and (d) Average Collection Period (assuming 360 day year).

Solution:

1. **Quick Ratio** = $\frac{\text{Current Assets} - \text{Stock} - \text{Prepaid Exps}}{\text{Current Liabilities}} = \frac{30,50,000 - 21,60,000 - 10,000}{10,00,000} = \text{0.88 times.}$

$$2. \text{ Debt-Equity Ratio} = \frac{\text{Debt (i.e. 10\% Debentures)}}{\text{Equity (i.e. ESC + Retained Earnings)}} = \frac{16,00,000}{(20,00,000 + 8,00,000)} = \mathbf{0.57 : 1}$$

$$3. \text{ ROCE} = \frac{\text{EBIT}}{\text{Equity + Debt}} = \frac{12,00,000}{[(20,00,000 + 8,00,000) + 16,00,000]} = \mathbf{27.27\%}$$

$$4. \text{ Debtors T/O Ratio} = \frac{\text{Credit Sales}}{\text{Average Debtors}} = \frac{80\% \text{ of } 40,00,000}{[\text{assumed as given Debtors} = 4,00,000]} = \mathbf{8 \text{ times.}}$$

$$\text{So, Average Collection Period} = \frac{360}{8} = \mathbf{45 \text{ days.}}$$

Question 3(a): Process Costing – Equivalent Production – WAC – First Process, Similar to Page 8.40, Illustration 30 N 11 (8 Marks)

The following details are available of Process X for August –

1. Opening Work in Process	8,000 units	6. Units Scrapped	14,000 units
Degree of Completion & Cost		Degree of Completion	
Materials (100%)	₹ 63,900	Materials	100%
Labour (60%)	₹ 10,800	Labour and Overhead	80%
Overheads (60%)	₹ 5,400		
2. Input 1,82,000 units at	₹ 7,56,900	7. Closing Work in Process	18,000 units
3. Labour Paid	₹ 3,28,000	Degree of Completion	
4. Overheads Incurred	₹ 1,64,000	Materials	100%
5. Units Completed and transferred to next Process	1,58,000 units	Labour and Overhead	70%
		8. Scrap Value to be adjusted in Direct Material Cost	₹ 8 per unit

Normal Loss is 8% of Total Input including Opening Work in Process.

Assuming Average Method of Inventory is used, you are required to compute Equivalent Production, and Cost per unit.

Solution:

1. Statement of Equivalent Production

Particulars	Input	Particulars	Output	Materials		Labour & OH	
				%	E.U	%	E.U
Opening WIP	8,000	Transfer to next Process	1,58,000	100%	1,58,000	100%	1,58,000
Fresh Units	1,82,000	Normal Loss 1,90,000 × 8%	15,200	–	–	–	–
		Abnormal Gain (bal.fig)	(1,200)	100%	(1,200)	100%	(1,200)
		Closing WIP (given)	18,000	100%	18,000	70%	12,600
Total	1,90,000	Total	1,90,000		1,74,800		1,69,400

2. Statement of Cost per Equivalent Unit (₹)

Cost Element	Opening WIP Cost	Current Cost	Total Costs	Equi. Units	Cost per E.U.
(a) Materials	63,900	7,56,900			
(–) NL Scrap Value	–	15200 × 8 = 1,21,600			
Net Material Cost	63,900	6,35,300	6,99,200	1,74,800 e.u.	4.00
(b) Labour	10,800	3,28,000	3,38,800	1,69,400 e.u.	2.00
(c) Overheads	5,400	1,64,000	1,69,400	1,69,400 e.u.	1.00
Total	80,100	11,27,300	12,07,400		

Question 3(b): Computation of Ratios

N 11 (8 Marks)

Alpha Ltd has furnished the following Balance Sheet as on 31st March –

Liabilities	₹	Assets	₹
Equity Share Capital (1,00,000 Equity Shares of 10 each)	10,00,000	Fixed Assets	30,00,000
General Reserve	2,00,000	Current Assets	18,00,000
15% Debentures	28,00,000		
Current Liabilities	8,00,000		
Total	48,00,000	Total	48,00,000

Additional Information:

Annual Fixed Cost other than Interest	₹ 28,00,000	Tax Rate	30%
Variable Cost Ratio	60%	Total Assets Turnover Ratio	2.5

You are required to calculate – (a) EPS, and (b) Combined Leverage.

Solution:

$$1. \text{ Total Assets T/O} = \frac{\text{Sales}}{\text{Fixed Assets} + \text{Current Assets}} = 2.5 \text{ times.} \quad \text{So, } \frac{\text{Sales}}{30,00,000 + 18,00,000} = 2.5$$

$$\text{Hence, Sales} = 2.5 \times 48,00,000 = \text{₹ } 1,20,00,000$$

2. Profitability Statement (to compute EPS and DCL)

Particulars	Computation	₹
Sales	WN 1	1,20,00,000
Less: Variable Costs	Given 60%	(72,00,000)
Contribution	Sales less Variable Costs	48,00,000
Less: Fixed Costs	Given	(28,00,000)
EBIT	Contribution less Fixed Costs	20,00,000
Less: Interest	15% on Debt ₹ 28,00,000	(4,20,000)
EBT	EBIT less Interest	15,80,000
Less: Tax at 30%	30% on EBT	(4,74,000)
EAT = Residual Earnings (since there is no PSC)	EBT less Tax	11,06,000
EPS = $\frac{\text{Residual Earnings}}{1,00,000 \text{ Equity Shares}}$	$\frac{11,06,000}{1,00,000}$	11.06
Combined Leverage (DCL) = $\frac{\text{Contribution}}{\text{EBT}}$	$\frac{48,00,000}{15,80,000}$	3.04 times

Question 4(a): WC Estimation using Operating Cycle Method

N 11 (8 Marks)

The Trading and Profit & Loss A/c of Beta Ltd for the year ended 31st March 2011 is given below –

Particulars	₹	Particulars	₹
To Opening Stock:		By Sales (Credit)	20,00,000
Raw Materials 1,80,000		By Closing Stock:	
Work in Progress 60,000		Raw Materials 2,00,000	
Finished Goods <u>2,60,000</u>	5,00,000	Work in Progress 1,00,000	
To Purchases (Credit)	11,00,000	Finished Goods <u>3,00,000</u>	6,00,000
To Wages	3,00,000		
To Production Expenses	2,00,000		
To Gross Profit c/d	5,00,000		
Total	26,00,000	Total	26,00,000
To Administration Expenses	1,75,000	By Gross Profit b/d	5,00,000
To Selling Expenses	75,000		
To Net Profit	2,50,000		
Total	5,00,000	Total	5,00,000

The Opening and Closing Balances of Debtors were ₹ 1,50,000 and ₹ 2,00,000 respectively, whereas Opening and Closing Creditors were ₹ 2,00,000 and ₹ 2,40,000 respectively. Compute Working Capital Requirement by Operating Cycle Method.

Solution:**Computation of Operating Cycle in days and WC Requirement**

Component	Numerator	Denominator	T/O Ratio	No. of Days
Column	(1)	(2)	(3) = (1) ÷ (2)	(4) = 365 ÷ (3)
1. RM Stock	Raw Material Consumed = 1,80,000 + 11,00,000 – 2,00,000 = 10,80,000	$\frac{1,80,000 + 2,00,000}{2} = 1,90,000$	5.68 times	64 days
2. WIP Stock	Factory Cost = RM Consumed + Wages + POH + Opg WIP – Clg WIP = 10,80,000 + 3,00,000 + 2,00,000 + 60,000 – 1,00,000 = 15,40,000	$\frac{60,000 + 1,00,000}{2} = 80,000$	19.25 times	19 days

Component	Numerator	Denominator	T/O Ratio	No. of Days
Column	(1)	(2)	(3) = (1) ÷ (2)	(4) = 365 ÷ (3)
3. FG Stock	Cost of Production = Sales – GP = 20,00,000 – 5,00,000 = 15,00,000	$\frac{2,60,000 + 3,00,000}{2} = 2,80,000$	5.36 times	68 days
4. Debtors	Credit Sales given = 20,00,000	$\frac{1,50,000 + 2,00,000}{2} = 1,75,000$	11.43 times	32 days
5. Creditors	Credit Purchases given = 11,00,000	$\frac{2,00,000 + 2,40,000}{2} = 2,20,000$	5.00 times	73 days

So, **Net Operating Cycle** = 64 + 19 + 68 + 32 – 73 = **110 days**.

Hence, **Required Net Working Capital** = Projected Sales × $\frac{\text{Operating Cycle}}{365} = ₹ 20,00,000 \times \frac{110}{365} = ₹ 6,02,740$

Question 4(b): Non-Integrated Accounting– with Sales and GP Margin – Similar to M 08 Qn, Page 5.20, Illustration 8 N 11 (8 Marks)

The following figures have been extracted from the cost records of a Manufacturing Company:

Stores:	₹	Work-In-Progress:	₹
Opening Balance	9,000	Opening Balance	18,000
Purchase of Material	48,000	Direct Wages Applied	18,000
Transfer from Work-In-Progress	24,000	Overheads Applied	72,000
Issues to Work-In-Progress	48,000	Closing balance of WIP	12,000
Issues to Repairs and Maintenance	6,000		
Deficiencies found in stock taking	1,800		

Finished Products: Entire Output is sold at a Profit of 10% on actual cost from Work-In-Progress.

Others: Wages incurred ₹ 21,000, Overhead Incurred ₹ 75,000.

Draw– (1) Stores Ledger Control A/c, (2) Work-In-Progress Control A/c, (3) Overheads Control A/c, and (4) Costing Profit & Loss A/c.

Solution: **1. Stores Ledger Control Account**

Particulars	₹	Particulars	₹
To balance b/d – Opening Balance	9,000	By WIP Control – Materials Issued	48,000
To General Ledger Adjustment – Purchases	48,000	By POH Control – Materials for R & M	6,000
To WIP Control – Transfer from WIP	24,000	By Stock Deficiency A/c – transfer	1,800
		By balance c/d – (balancing figure)	25,200
Total	81,000	Total	81,000

2. Stock Deficiency Account

Particulars	₹	Particulars	₹
To Stores Ledger Control – Material Shortage	1,800	By POH Control A/c – transfer	1,800
Total	1,800	Total	1,800

Note: Here, the deficiency is assumed as Normal, and transferred to POH Control A/c. Alternatively, the Deficiency can be assumed as Abnormal, and transferred to Costing P&L A/c also.

3. Wages Control Account

Particulars	₹	Particulars	₹
To General Ledger Adjustment – Wages paid	21,000	By WIP Control – Direct Wages applied	18,000
		By POH Control – Indirect Wages transfer	3,000
Total	21,000	Total	21,000

4. Production OH Control Account

Particulars	₹	Particulars	₹
To Stores Ledger Control – Repairs & Maint.	6,000	By WIP Control–OH applied/absorbed	72,000
To General Ledger Adjustment – POH incurred	75,000	By Costing P & L A/c – absorption	
To Wages Control – Indirect Wages	3,000	difference transferred	13,800
To Stock Deficiency A/c – Normal Loss	1,800		
Total	85,800	Total	85,800

5. WIP Control Account

Particulars	₹	Particulars	₹
To balance b/d – Opening Balance	18,000	By Stores Control – Material return/transfer	24,000
To Stores Ledger Control – Materials issued	48,000	By Finished Goods Control – prodn at	
To Wages Control – Direct Wages	18,000	Factory Cost – (bal. figure)	1,20,000
To POH Control – POH absorbed	72,000	By balance c/d – Closing Balance (given)	12,000
Total	1,56,000	Total	1,56,000

Note: Sales Value = at 10% Profit on Factory Cost = 1,20,000 + 10% thereon = ₹ 1,32,000
 Stock Deficiency A/c and Wages Control A/c are given for information value.

6. Costing P & L Account

Particulars	₹	Particulars	₹
To Finished Goods Control – Factory Cost tfr	1,20,000	By Sales	1,32,000
To Costing Profit c/d	12,000		
Total	1,32,000	Total	1,32,000
To POH Control – Absorption Diff. w/off	13,800	By Costing Profit b/d	12,000
		By Loss transferred to General Ledger Adj.	1,800
Total	13,800	Total	13,800

Question 5: Various Chapters – Distinction between Questions

N 11 (4 × 4 = 16 Marks)

	Distinguish between	Reference
(a)	Cost Control and Cost Reduction	Page No 1.2, Q.No 4
(b)	Fixed Budget and Flexible Budget	Page No 12.4, Q.No 10
(c)	Operating Lease and Financial Lease	Page No 21.5, Q.No 13
(d)	Net Present Value Method and Internal Rate of Return Method	Page No 20.10, Q.No 21

Question 6(a): Capital Budgeting – Mutually Exclusive – ARR and NPV Index

N 11 (8 Marks)

A Ltd is considering the purchase of a machine which will perform some operations which are at present performed by workers. Machines X and Y are the alternative models. The following details are available – (amounts in ₹)

Particulars	Machine X	Machine Y
Cost of Machine	1,50,000	2,40,000
Estimated Life of Machine	5 years	6 years
Estimated Cost of Maintenance p.a.	7,000	11,000
Estimated Cost of Indirect Material p.a.	6,000	8,000
Estimated Savings in Scrap p.a.	10,000	15,000
Estimated Cost of Supervision p.a.	12,000	16,000
Estimated Savings in Wages p.a.	90,000	1,20,000

Depreciation will be charged on Straight Line Basis. The Tax Rate is 30%. Evaluate the alternatives according to –

(a) Average Rate of Return Method, and (b) Present Value Index Method assuming Cost of Capital being 10%

Note: Present Value of ₹ 1.00 at 10% p.a. for 5 years is 3.79 and for 6 years is 4.354.

Solution:

Particulars	Machine X	Machine Y
1. Benefits p.a. = Savings in Wages + Scrap	90,000 + 10,000 = 1,00,000	1,20,000 + 15,000 = 1,35,000
2. Cash Costs p.a. = Maintenance + Indirect Material + Supervision	7,000 + 6,000 + 12,000 = 25,000	11,000 + 8,000 + 16,000 = 35,000
3. Non-Cash Costs = Depreciation p.a. = Cost ÷ Life in years	$\frac{1,50,000}{5 \text{ years}} = 30,000$	$\frac{2,40,000}{6 \text{ years}} = 40,000$
4. PBT p.a. = (1 – 2 – 3)	45,000	60,000
5. Tax p.a. = 30% of (4)	13,500	18,000
6. PAT p.a. = (4 – 5)	31,500	42,000
7. Initial Investment = Cost of Machine = Given	1,50,000	2,40,000

Particulars	Machine X	Machine Y
8. Average Rate of Return = $\frac{\text{Average PAT p.a.}}{\text{Net Initial Investment}} = \frac{6}{7}$	21.00 %	17.50 %
9. CFAT p.a. = PAT p.a. + Depreciation p.a. = (6 + 3)	61,500	82,000
10. Annuity Factor at 10% for 5 years and 6 years (given)	3.790	4.354
11. PV of Inflows = (9 × 10)	2,33,085	3,57,028
12. Net Present Value = PV of Inflows – Initial Investment = (11–7)	83,085	1,17,028
13. NPV Index = Profitability Index = $\frac{11}{7}$	1.5539	1.4876
14. Equivalent NPV p.a. = $\frac{\text{NPV}}{\text{Cum. PVF for Project Life}} = \frac{12}{10}$ (Note)	21,922	26,878

Conclusion:

- Based on the Average Rate of Return, Machine X may be purchased due to higher ARR.
- Based on the Present Value Index, Machine X may be purchased. The PI is > 1 for both the machines, but Machine X has the maximum PI compared with Machine Y.
- Generally, NPV Index represents Profitability Index as computed in Line 13 above. However, in case of unequal project lives, it is more appropriate to evaluate using Equivalent Benefit / Cost Method, hence Line 14 has been computed. When Equivalent NPV is used for evaluation, Machine Y may be purchased due to a higher Equivalent NPV.

Question 6(b): Standard Costing – All Cost Variances Computation

N 11 (8 Marks)

Gama Ltd has furnished the following data –

Standard Cost Data per unit of Production

Materials:	10 kgs at ₹ 10 per kg
Labour:	6 hours at ₹ 5.50 per hour
Variable OH:	6 hours at ₹ 10 per hour
Fixed OH:	₹ 4,50,000 per month
(based on Normal Volume of 30,000 Labour Hours)	

Actual Cost Data for August month

Materials Used:	50,000 kg at a cost of ₹ 5,25,000
Labour paid:	₹ 1,55,000 for 31,000 hours worked
Variable OH:	₹ 2,93,000
Fixed OH:	₹ 4,70,000
Actual Production	4,800 units

Calculate – (1) Material Cost Variance, (2) Labour Cost Variance, (3) Fixed OH Cost Variance, (4) Variable OH Cost Variance.

Solution: Since break-up of Variances are not required, the computation of Cost Variance is as follows –

Cost Item	Std Cost for Actual Output of 4,800 units	Actual Cost (given)	Variance = Std – Actual
Materials	(4,800 units × 10 kgs) × ₹ 10/kg = ₹ 4,80,000	₹ 5,25,000	₹ 45,000 Adverse
Labour	(4,800 units × 6 hrs) × ₹ 5.50/hr = ₹ 1,58,400	₹ 1,55,000	₹ 3,400 Favourable
Fixed OH	(4,800 units × 6 hrs) × ₹ 15/hr = ₹ 4,32,000	₹ 4,70,000	₹ 38,000 Adverse
Variable OH	(4,800 units × 6 hrs) × ₹ 10/hr = ₹ 2,88,000	₹ 2,93,000	₹ 5,000 Adverse

Note: Fixed OH Rate per hour = $\frac{₹ 4,50,000}{30,000 \text{ hours}} = ₹ 15 \text{ per hour.}$

Question 7: Various Chapters – Theory Questions – any four out of five

N 11 (4 × 4 = 16 Marks)

	Item	Reference
(a)	Elucidate the responsibilities of Chief Financial Officer.	Page No 13.4, Q.No 9
(b)	Explain the relevance of Time Value of Money.	Page No 19.1, Q.No 2
(c)	Discuss ABC Analysis as a system of Inventory Control.	Page No 2.4, Q.No 11
(d)	Explain the terms Notional Profit and Retention Money in Contract Costing.	Page No 6.17, Q.No 14 & Page No 6.15, Q.No 9.
(e)	Explain the terms – (i) Bridge Finance, (ii) Essentials of Budget.	Page No 21.7, Q.No 19 & Page No 12.2, Q.No 3