Gurukripa's Guideline Answers to Nov 2012 Exam Questions
CA IPCC Cost Accounting and Financial Management

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

Answer any **five** questions from the remaining **six** questions **(16 × 5 = 80 Marks)** (Answer any 4 out of 5 in **Q.7**)

Question 1(a): Leverage Basics — N 12 (5 Marks)

X Limited has estimated that for a new product its break–even point is 20,000 units if the item is sold for ₹ 14 per unit and Variable Cost ₹ 9 per unit. Calculate the Degree of Operating Leverage for Sales volume 25,000 units and 30,000 units.

Solution: **Similar to Page 17.8, Illustration 2, RTP**

$BEP = \frac{\text{Fixed Cost}}{\text{Contribution p.u.}} = \frac{\text{Fixed Cost}}{(14-9)}$ = 20,000 units. Hence, Fixed Cost = 20,000 × ₹ 5 = ₹ 1,00,000

Particulars	Sales = 25,000 units	Sales = 30,000 units
Total Contribution	25,000 units × ₹ 5 = 1,25,000	30,000 units × ₹ 5 = 1,50,000
Less: Fixed Costs (as above)	1,00,000	1,00,000
EBIT	25,000	50,000
Degree of Operating Leverage = Total Contribution / EBIT	$\frac{1,25,000}{25,000}$ = **5 times**	$\frac{1,50,000}{50,000}$ = **3 times**

Question 1(b): Labour Turnover Rate – Reverse Working — N 12 (5 Marks)

Accountant of your Company had computed Labour Turnover Rates for the quarter ended 30th September 2012 as 14%, 8% and 6% under Flux Method, Replacement Method and Separation Method respectively. If the number of workers replaced during 2nd quarter of the financial year 2012–13 is 36, find the following – (a) Number of Workers recruited and joined, and (b) Number of Workers left and discharged.

Solution:

1. Replacement Method = $\frac{R}{L} = \frac{36}{L}$ = 8%. So, $L = \frac{36}{8\%}$ = 450
2. No. of workers left and discharged = S. Separation Method = $\frac{S}{L} = \frac{S}{450}$ = 6%. So, S = 450 × 6% = **27 workers.**
3. No. of workers recruited and joined = A. Flux Method Rate = $\frac{A+S}{450}$ = 14%. So, A + 27 = 63, **A = 36 workers**

Question 1(c): Time Value of Money – Compounding — N 12 (5 Marks)

X invested ₹ 2,40,000 at annual rate of interest 10%. What is the amount after 3 years if the compounding is done – (i) Annually, (ii) Semi–annually.

Solution: **Similar to Page 19.3, Illustration 6, Part (a) & (b)**

	P = Principal	N = No. of Years	K = No. of periods	R = Interest per period	Amount = $P(1+R)^{NK}$
(i)	₹ 2,40,000	3 years	1 p.a.	0.10	₹ 2,40,000 $(1+0.10)^3$ = ₹ 3,19,440
(ii)	₹ 2,40,000	3 years	2 p.a.	0.05	₹ 2,40,000 $(1+0.05)^6$ = ₹ 3,21,623

Question 1(d): EOQ – Discount Analysis — N 12 (5 Marks)

KL Limited produces Product 'M' which has a quarterly demand of 8,000 units. The product requires 3 kgs quantity of Material 'X' for every finished unit of product. The other information are follows –

Cost of Material 'X' – ₹ 20 per kg, Cost of placing an order – ₹ 1,000 per order, Carrying Cost – 15%p.a. of Average Inventory.

You are required:

(i) Calculate the Economic Order Quantity for Material 'X'.

(ii) Should the Company accept an offer of 2% discount by the Supplier, if he wants to supply the Annual Requirement of Material 'X' in 4 equal Quarterly Instalments?

Solution: **Similar to Page 2.30, Illustration 14, RTP (adapted)**

1. EOQ = $\sqrt{\frac{2AB}{C}}$, where A = Annual Requirement of Raw Materials = 8,000 units × 3 kg × 4 quarters = 96,000 kg.
B = Buying Cost per order = ₹ 1,000 per order
C = Carrying Cost per unit per annum = ₹ 20 × 15% = ₹ 3
On substitution, **EOQ = 8,000 kg**

2. Computation of EOQ with 2% Discount Purchase Policy

Particulars	EOQ	2% Discount
(a) Quantity Ordered every time = Q	8,000 kg	24,000 kg
(b) Number of Orders p.a. = A/Q	12	4
(c) Buying Costs per at ₹ 1,000	₹ 12,000	₹ 4,000
(d) Average Inventory = ½ of (a)	4,000 kg	12,000 kg
(e) Carrying Costs p.a at ₹ 3 per kg	₹ 12,000	(12,000 kg × 3 **Less** 2%) = ₹ 35,280
(f) Purchase Cost = (A × Price)	₹ 19,20,000	(96,000 kg × 20 **Less** 2%) = ₹ 18,81,600
(g) Total Costs p.a. = (c) + (e) + (f)	₹ 19,44,000	₹ 19,16,880

Conclusion: Discount Offer may be accepted due to savings in cost.

Question 2(a): OH Reapportionment – Simultaneous Equations N 12 (8 Marks)

The following account balances and distribution of Indirect Charges are taken from the accounts of a Manufacturing Concern for the year ending on 31st March, 2012: (in ₹)

Item	Total Amount	Production Departments			Service Departments	
		X	Y	Z	A	B
Indirect Material	1,25,000	20,000	30,000	45,000	25,000	5,000
Indirect Labour	2,60,000	45,000	50,000	70,000	60,000	35,000
Superintendent's Salary	96,000	–	–	96,000	–	–
Fuel & Heat	15,000					
Power	1,80,000					
Rent & Rates	1,50,000					
Insurance	18,000					
Meal Charges	60,000					
Depreciation	2,70,000					

The following department data are also available:

Item	Production Departments			Service Departments	
	X	Y	Z	A	B
Area (Sq. ft)	4,400	4,000	3,000	2,400	1,200
Capital Value of Assets (₹)	4,00,000	6,00,000	5,00,000	1,00,000	2,00,000
Kilowatt Hours	3,500	4,000	3,000	1,500	–
Radiator Sections	20	40	60	50	30
No. of Employees	60	70	120	30	20

Expenses charged to the Service Departments are to be distributed to other Departments by the following percentages:

	X	Y	Z	A	B
Department A	30	30	20	–	20
Department B	25	40	25	10	–

Prepare an Overhead distribution Statement to show the Total Overheads of Production Departments after re–apportioning Service Department's' Overhead by using Simultaneous Equation Method. Show all the calculations to the nearest rupee.

Solution: **Similar to Page 4.24, Illustration 13, RTP**

Particulars and Basis	X	Y	Z	A	B	Total
Indirect Material (given)	20,000	30,000	45,000	25,000	5,000	1,25,000
Indirect Labour (given)	45,000	50,000	70,000	60,000	35,000	2,60,000
Superintendent's Salary (given)	–	–	96,000	–	–	96,000
Fuel and Heat (Radiator Sections) [2: 4: 6: 5: 3]	1,500	3,000	4,500	3,750	2,250	15,000
Power (Kilowatt Hrs) [35 : 40 : 30 : 15 : –]	52,500	60,000	45,000	22,500	–	1,80,000

Particulars and Basis	X	Y	Z	A	B	Total
Rent and Rates (Area Sq. Ft.) [44: 40: 30: 24:12]	44,000	40,000	30,000	24,000	12,000	1,50,000
Insurance (Capital Value of Assets) [4: 6: 5: 1: 2]	4,000	6,000	5,000	1,000	2,000	18,000
Meal Charges (No. of Employees) [6: 7: 12: 3: 2]	12,000	14,000	24,000	6,000	4,000	60,000
Depreciation (Capital Value of Assets) [4: 6: 5: 1: 2]	60,000	90,000	75,000	15,000	30,000	2,70,000
Total OH before re–apportionment	**2,39,000**	**2,93,000**	**3,94,500**	**1,57,250**	**90,250**	**11,74,000**
Re–apportionment of Serv. Dept. Exps **(WN 2 below)**						
A [3 : 3 : 2 : – : 2]	50,900	50,900	33,934	(1,69,668)	33,934	–
B [25 : 40 : 25 : 10 : –]	31,046	49,674	31,046	12,418	(1,24,184)	–
Total OH (after re–apportionment)	**3,20,946**	**3,93,574**	**4,59,480**	**Nil**	**Nil**	**11,74,000**

2. Simultaneous Equations are framed and solved as under –

A = 1,57,250 + 10% B. So, $A = 1,57,250 + \frac{1}{10}B$..... **Equation 1**

B = 90,250 + 20% A. So, $B = 90,250 + \frac{1}{5}A$..... **Equation 2**

Substituting the value of A in Equation 2, we have, $B = 90,250 + \frac{1}{5}(1,57,250 + \frac{1}{10}B)$.

$B = 1,21,700 + \frac{1}{50}B$. $B - \frac{1}{50}B = 1,21,700$. i.e. $\frac{49}{50}B = 1,21,700$. So, $B = 1,21,700 \times \frac{50}{49}$ = **1,24,184**

Substituting the value of B in Equation 1, we have $A = 1,57,250 + (\frac{1}{10} \times 1,24,184)$ **= 1,69,668**

Question 2(b): Ratios – Basics N 12 (8 Marks)

The following accounting information and financial ratios of M Limited relate to the year ended 31st March, 2012:

Inventory Ratio	6 Times	Debtors Turnover Ratio	8 Times
Creditors Turnover Ratio	10 Times	Current Ratio	2.4
Gross Profit Ratio	25%		

Total Sales ₹ 30,00,000, Cash Sales 25% of Credit Sales, Cash purchases ₹ 2,30,000, Working Capital ₹ 2,80,000, Closing Inventory is ₹ 80,000 more than Opening Inventory.

You are required to calculate:

(i) Average Inventory (ii) Purchases
(iii) Average Debtors (iv) Average Creditors
(v) Average Payment Period (vi) Average Collection Period
(vii) Current Assets (viii) Current Liabilities

Solution: **Similar to Page 14.12, Illustration 8**

Working Notes:

1. Cost of Goods Sold = Sales – Gross Profit = 30,00,000 – 25% of 30,00,000 = 30,00,000 – 7,50,000 = **22,50,000**

2. Inventory Turnover Ratio = 6 times = $\frac{\text{Cost of Goods Sold}}{\text{Average Stock}} = \frac{22,50,000}{\text{Average Stock}}$

Average Stock = $\frac{22,50,000}{6}$ = **3,75,000**

3. Let Opening Inventory = x Closing Inventory = x + 80,000

Average Inventory = $\frac{x + x\ 80,000}{2}$ = 3,75,000 So, 2x = 6,70,000x = 3,35,000

So, Opening Inventory = 3,35,000 Closing Inventory = 3,35,000 + 80,000 = **4,15,000**

4. Cost of Goods Sold = Opening Stock + Purchases – Closing Stock

22,50,000 = 3,35,000 + Purchases – 4,15,000

So, Purchases = **23,30,000**

Cash Purchases (given) = 2,30,000 Credit Purchases **(bal. fig.)** = **21,00,000**

5. Creditors Turnover Ratio = $\frac{\text{Credit Purchases}}{\text{Average Stock}} = \frac{21,00,000}{\text{Average Stock}} = 10$

Average Creditors = $\frac{21,00,000}{10}$ = **2,10,000**

6. Credit Sales = Total Sales – Cash Sales = 30,00,000 – 25% of Credit Sales.

Let Credit Sales be x. So, on substitution, x = 30,00,000 – 25%x

1.25x = 30,00,000 So, x = $\frac{30,00,000}{1.25}$ = 24,00,000. Hence, Credit Sales = **24,00,000**

7. Debtors Turnover Ratio = $\frac{\text{Credit Sales}}{\text{Average Receivables}} = 8.$ So, Average Receivables = $\frac{24,00,000}{8}$ = **3,00,000**

8. $\frac{\text{Current Assets}}{\text{Current Liabilities}} = 2.4$ Current Assets = 2.4 Current Liabilities

Net Working Capital = Current Assets – Current Liabilities = 2,80,000

2.4 Current Liabilities – Current Liabilities = 2,80,000

1.4 Current Liabilities = 2,80,000 Hence, Current Liabilities = **2,00,000**

So, Current Assets = 2.4 Current Liabilities = 2.4 × 2,00,000 = **4,80,000**

Answer:

1. Average Inventory **(WN 2)** = 3,75,000	5. Average Payment Period = $\frac{365}{\text{Creditors T/O Ratio}} = \frac{365}{10}$ = 36.5 days.
2. Purchases **(WN 4)** = 2,33,000	6. Average Collection Period = $\frac{365}{\text{Debtors T/O Ratio}} = \frac{365}{8}$ = 45.6 days
3. Average Debtors **(WN 6)** = 3,00,000	7. Current Assets **(WN 7)** = 4,80,000
4. Average Creditors **(WN 5)** = 2,10,000	8. Current Liabilities **(WN 7)** = 2,00,000

Question 3(a): Funds Flow Statement N 12 (12 Marks)

Following are the summarizes Balance Sheets of JKM Limited as on 31st March 2011 and 2012 – (₹ in Lakhs)

Liabilities	2011	2012	Assets	2011	2012
Equity Share Capital	50.00	55.00	Goodwill	5.00	4.20
Capital Reserve	–	2.50	Land & Building	20.00	18.00
General Reserve	4.00	6.00	Plant & Machinery	22.00	31.00
Profit & Loss Account	5.30	6.70	Investments	2.00	3.50
Proposed Dividend	8.00	11.00	Stock	8.60	12.70
Bills Payable	2.00	1.80	Sundry Debtors	10.20	13.00
Sundry Creditors	3.50	4.60	Bills Receivable	1.00	0.70
Provision for Tax	4.00	5.00	Cash in Hand & Bank	7.20	8.90
			Share Issue Expenses	0.80	0.60
Total	76.80	92.60	Total	76.80	92.60

Additional Information:

(i) A Machine (Original Cost ₹ 2,80,000, Book Value ₹ 1,70,000) was sold during the year for ₹ 1,50,000.

(ii) Depreciation for 2011–12 was amounted to ₹ 3,00,000 on Plant and Machinery and ₹ 50,000 on Land and Building.

(iii) A piece of Land had been sold out on 01.11.2011 and the Profit on the Sale has been credited in Capital Reserve.

(iv) ₹ 40,000 is received as Dividend including ₹ 15,000 Pre–acquisition Profit, which is credited to Investment Account.

(v) An Interim Dividend of ₹ 2,50,000 has been paid during the year 2011–12.

(vi) Income Tax paid during the year 2011–12, amounted to ₹ 3,80,000.

Required:

1. Prepare a Schedule of Changes in the Working Capital.
2. Prepare Funds Flow Statement as on 31st March 2012.

Solution: **Similar to Page 15.5, Illustration 2, N 10, N 08 (Modified)**

1. Schedule of Changes in Working Capital

Particulars	31.3.2011	31.03.2012	Increase	Decrease
A. Current Assets:				
Stock	8,60,000	12,70,000	4,10,000	–
Sundry Debtors	10,20,000	13,00,000	2,80,000	–
Cash and Bank Balances	7,20,000	8,90,000	1,70,000	–
Bills Receivable	1,00,000	70,000	–	30,000
Sub–Total Current Assets	**27,00,000**	**35,30,000**	**8,60,000**	**30,000**
B. Current Liabilities:				
Sundry Creditors	3,50,000	4,60,000	1,10,000	–
Bills Payable	2,00,000	1,80,000	–	20,000
	5,50,000	6,40,000	1,10,000	20,000
C. Net Working Capital	21,50,000	28,90,000	7,50,000	10,000
Adjustment: **Increase** in Working Capital	7,40,000			7,40,000
Total	**28,90,000**	**28,90,000**	**7,50,000**	**7,50,000**

2. Land and Building A/c

Particulars	₹	Particulars	₹
To balance b/d (given)	20,00,000	By Depreciation	50,000
To Capital Reserve	2,50,000	By Bank **(bal. fig)**	**4,00,000**
		By balance c/d (given)	18,00,000
Total	**22,50,000**	**Total**	**22,50,000**

3. Plant & Machinery A/c

Particulars	₹	Particulars	₹
To balance b/d (given)	22,00,000	By M/c Disposal A/c–Cost tfr	1,70,000
To Bank–Asset Addns during the year (b/f)	**13,70,000**	By Depreciation	3,00,000
		By balance c/d (given)	31,00,000
Total	**35,70,000**	**Total**	**35,70,000**

4. Machinery Disposal A/c

Particulars	₹	Particulars	₹
To Plant and Machinery A/c – Cost transfer	1,70,000	By Bank A/c (Sale Proceeds) (given)	1,50,000
		By P&L A/c – loss on sale w/off – (bal. fig)	**20,000**
Total	**1,70,000**	**Total**	**1,70,000**

5. Investments A/c

Particulars	₹	Particulars	₹
To balance b/d (given)	2,00,000	By Bank – Pre Acquisition Dividend (given)	15,000
To bank – purchase of Investments (bal. fig.)	**1,65,000**	By balance c/d	3,50,000
Total	**3,65,000**	**Total**	**3,65,000**

6. Provision for Taxation A/c

Particulars	₹	Particulars	₹
To Bank (given)	3,80,000	By balance b/d	4,00,000
To balance c/d	5,00,000	By P&L A/c – Current Year Provision	**4,80,000**
Total	**8,80,000**	**Total**	**8,80,000**

7. Adjusted P & L A/c (to compute Funds from Operations)

Particulars	₹	Particulars	₹
To Depreciation – Plant & Machinery	3,00,000	By Dividend Received (40,000 –15,000)	25,000
– Land and Building	50,000	By Funds from Operations **(bal. fig.)**	**26,15,000**
To Goodwill written off (5,00,000 – 4,20,000)	80,000		
To Share Issue Expenses written off	20,000		
To Loss on Sale of Machinery	20,000		
To Provision for Taxation	4,80,000		
To Interim Dividend	2,50,000		
To Proposed Dividend	11,00,000		
To General Reserve (6,00,000 – 4,00,000)	2,00,000		
To Profit for the year after all Adjustments and Transfers (6,70,000 – 5,30,000)	1,40,000		
Total	**26,40,000**	**Total**	**26,40,000**

8. Statement of Sources and Application of Funds (Funds Flow Statement)

Sources of Funds	₹	Application of Funds	₹
Funds from Operations **(WN 7)**	26,15,000	Proposed Dividend of FY 2010–11 paid	8,00,000
Sale of Machinery (given)	1,50,000	Interim Dividend of FY 2011–12 paid	2,50,000
Sale of Land and Building **(WN 2)**	4,00,000	Income Tax paid (given)	3,80,000
Issue of Shares (55,00,000 – 50,00,000)	5,00,000	Purchase of Plant and Machinery **(WN 3)**	13,70,000
Dividend Received (given)	40,000	Increase in Net Working Capital **(WN 1)**	7,40,000
		Purchase of Investments **(WN 5)**	1,65,000
Total	**37,05,000**	**Total**	**37,05,000**

Question 3(b): Profit Recognition – Conservatism N 12 (4 Marks)

From the following particulars compute a conservative estimate of profit by 4 methods on a contract which has 80% complete:

Particulars	₹	Particulars	₹
Total Expenditure to date	8,50,000	Work Certified	10,00,000
Estimate further expenditure to complete the Contract	1,70,000	Work not certified	85,000
Contract Price	15,30,000	Cash received	8,16,000

Solution: **Similar to Page 6.31, Illustration 11, M 98 (Adapted)**

Profit Recognition with given data

1. Percentage of Completion	$= \frac{\text{Work Certified}}{\text{Contract Price}} = \frac{₹\ 10,00,000}{₹\ 15,30,000}$	**65.36%**
2. Current Year Profit	= Income till date (i.e. WC + WUC) **less** Expenditure till date = (₹ 10,00,000 + ₹ 85,000) – ₹ 8,50,000	**₹ 2,35,000**
3. Estimated Total Profit (ETP)	= Contract Price **less** Estimated Total Costs = ₹ 15,30,000 – (₹ 8,50,000 + ₹ 1,70,000)	**= ₹ 5,10,000**
4. Profit to be transferred to P&L	= **Least** of the following (a) to (f)	**₹ 1,27,840**

(a) Estimated Total Profit $\times \frac{\text{Work Certified}}{\text{Contract Price}}$ $= ₹\ 5,10,000 \times \frac{₹\ 10,00,000}{₹\ 15,30,000}$ = **₹ 3,33,333**

(b) Estimated Total Profit $\times \frac{\text{Work Certified}}{\text{Contract Price}} \times \frac{\text{Cash Received}}{\text{Work Certified}} = ₹\ 5,10,000 \times \frac{₹\ 10,00,000}{₹\ 15,30,000} \times \frac{₹\ 8,16,000}{₹\ 10,00,000}$ = **₹ 2,72,000**

(c) Estimated Total Profit $\times \frac{\text{Cost till date}}{\text{Estimated Total Costs}}$ $= ₹\ 5,10,000 \times \frac{₹\ 8,50,000}{₹\ 10,20,000}$ = **₹ 4,25,000**

(d) Estimated Total Profit $\times \frac{\text{Cost till date}}{\text{Estimated Total Costs}} \times \frac{\text{Cash Received}}{\text{Work Certified}} = ₹5,10,000 \times \frac{₹\ 8,50,000}{₹\ 10,20,000} \times \frac{₹\ 8,16,000}{₹\ 10,00,000}$ = **₹ 3,46,800**

(e) Notional Profit $\times \frac{\text{Work Certified}}{\text{Contract Price}}$ $= ₹\ 2,35,000 \times \frac{₹\ 10,00,000}{₹\ 15,30,000}$ = **₹ 1,53,595**

(f) $\frac{2}{3} \times$ Notional Profit $\times \frac{\text{Cash Received}}{\text{Work Certified}}$ $= \frac{2}{3} \times ₹\ 2,35,000 \times \frac{₹\ 8,16,000}{₹\ 10,00,000}$ = **₹ 1,27,840**

Question 4(a): Standard Costing – Labour Cost Variance & Idle Time N 12 (6 Marks)

The standard labour employment and the actual labour engaged in a 40–hours week for a job are as under:

	Standard		Actual	
	No. of workers	Wage Rate per hour (₹)	No. of workers	Wage Rate per hour (₹)
Skilled	65	45	50	50
Semi–skilled	20	30	30	35
Unskilled	15	15	20	10

Standard Output – 2,000 units, Actual Output – 1,800 units, Abnormal Idle time 2 hours in the week.

Calculate the Labour Cost Variance, Labour Efficiency Variance, and Labour Idle Time Variance.

Solution: **Similar to Page 10.21, Illustration 7, N 80**

1. Computation of Standard Hours (SH)

Total DLH allowed for 2,000 units = (65 + 20 + 15) × 40 = 4,000 Direct Labour Hours

So, Standard Hours for 1,800 units of Actual Output = $4{,}000 \times \frac{1{,}800}{2{,}000}$ = **3,600 Hours**, distributed in Std mix 65:20:15

Total Standard Hours = 3,600 hours

Grade	Skilled	Semi–skilled	Unskilled
Standard Mix	65	20	15
Standard Hours	2,340 hours	720 hours	540 hours

2. Variance Computation Chart (based on Idle Time Concept, without considering Mix Effect)

Particulars	Col. (1): SH× SR	Col. (2): Net AH × SR	Col. (3): AH × SR	Col. (4): AH × AR
Skilled	2,340 × ₹ 45 = 1,05,300	(40 – 2) × 50 × ₹ 45 = 85,500	(50×40) × ₹ 45 = 90,000	(50 × 40) × ₹ 50 = 1,00,000
Semi–skilled	720 × ₹ 30 = 21,600	(40 – 2) × 30 × ₹ 30 = 34,200	(30×40) × ₹ 30 = 36,000	(30 × 40) × ₹ 35 = 42,000
Unskilled	540 × ₹ 15 = 8,100	(40 – 2) × 20 × ₹ 15 = 11,400	(20×40) × ₹ 15 = 12,000	(20 × 40) × ₹ 10 = 8,000
Total	**₹ 1,35,000**	**₹ 1,31,100**	**₹ 1,38,000**	**₹ 1,50,000**

Labour **Net Efficiency** Variance = ₹ 1,35,000 – ₹ 1,31,100 = ₹ 3,900 F

\+ Labour **Idle Time** Variance = ₹ 1,31,100 – ₹ 1,38,000 = ₹ 6,900 A

\+ Labour **Rate** Variance = ₹ 1,38,000 – ₹ 1,50,000 = ₹ 12,000 A

Labour (**Gross) Efficiency** Variance = ₹ 1,35,000 – ₹ 1,38,000 = ₹ 3,000 A

+ Labour **Rate** Variance b/fd as above = ₹ 12,000 A

Total Labour Cost Variance = ₹ 3,000 – ₹ 12,000 = ₹ 15,000 A

Labour–wise Breakup of Variances

Particulars	Skilled	Semi–skilled	Unskilled	Total
(a) **Net Efficiency** Variance = Col.(1) – Col. (2)	₹ 19,800 F	₹ 12,600 A	₹ 3,300 A	₹ 3,900 A
(b) **Idle Time** Variance = Col. (2) – Col. (3)	₹ 4,500 A	₹ 1,800 A	₹ 600 A	₹ 6,900 A
(c) **Gross Efficiency** Variance (a+b) = Col. (1) – Col. (3)	₹ 15,300 F	₹ 14,400 A	₹ 3,900 A	₹ 3,000 A
(d) **Rate** Variance = Col. (3) – Col. (4)	₹ 10,000 A	₹ 6,000 A	₹ 4,000 F	₹ 12,000 A
(e) Total Labour **Cost** Variance (c+d) = Col. (1) – Col. (4)	₹ 5,300 F	₹ 20,400 A	₹ 100 F	₹ 15,000 A

Question 4(b): Capital Budgeting – Multiple Projects – Different Evaluation Criteria N 12 (10 Marks)

SS Limited is considering the purchase of a new automatic machine which will carry out some operations which are at present performed by manual labour. NM–A_1 and NM–A_2, two alternative models are available in the market, whose details are –

Particulars	Machine NM–A_1	Machine NM–A_2
Cost of Machine	₹ 20,00,000	₹ 25,00,000
Estimated Working Life	5 Years	5 Years
Estimated Saving in Direct Wages per annum	₹ 7,00,000	₹ 9,00,000
Estimated Saving in Scrap per annum	₹ 60,000	₹ 1,00,000

Particulars	Machine NM–A_1	Machine NM–A_2
Estimated Additional Cost of Indirect Material per annum	₹ 30,000	₹ 90,000
Estimated Additional Cost of Indirect Labour per annum	₹ 40,000	₹ 50,000
Estimated Additional Cost of Repairs and Maintenance per annum	₹ 45,000	₹ 85,000

Depreciation is charged on a Straight Line Method. Corporate Tax Rate is 30% and Expected Rate of Returns may be 12%. PV Factor for ₹ 1 at 12 % 0.893, 0.797, 0.712, 0.636, 0.567, 0.505.

You are required to evaluate the alternatives by calculating the –
1. Payback Period, 2. Accounting (Average) Rate of Return, 3. Profitability Index or PV Index

Solution: Similar to Page 20.22, Illustration 16, M 10 & Page 20.23, Illustration 17, N 02

1. Computation of CFAT

Particulars	**Machine NM–A_1**	**Machine NM–A_2**
(a) Initial Investment	₹ 20,00,000	₹ 25,00,000
(b) Life	5 years	5 years
(c) Depreciation (a) ÷ (b)	₹ 4,00,000	₹ 5,00,000
(d) Savings in Direct Wages	₹ 7,00,000	₹ 9,00,000
(e) Savings in Scrap	₹ 60,000	₹ 1,00,000
(f) Total Savings (d) + (e)	₹ 7,60,000	₹ 10,00,000
(g) Additional Cost of Indirect Material, Labour and Repairs & Maintenance	30,000 + 40,000 + 45,000 = ₹ 1,15,000	90,000 + 50,000 + 85,000 = ₹ 2,25,000
(h) Total Additional Cost (c) + (g)	₹ 5,15,000	₹ 7,25,000
(i) Additional Profit before Tax p.a . (f) – (h)	₹ 2,45,000	₹ 2,75,000
(j) Tax at 30%	₹ 73,500	₹ 82,500
(k) Additional Profit after Tax p.a. (i) – (j)	₹ 1,71,500	₹ 1,92,500
(l) Additional CFAT p.a. (c) + (k)	₹ 5,71,500	₹ 6,92,500
(m) ARR = $\frac{\text{Average PAT p.a.}}{\text{Average Investment}}$	$\frac{₹\ 1,71,500}{₹\ 20,00,000}$ = **8.575%**	$\frac{₹\ 1,92,500}{₹\ 25,00,000}$ = **7.70%**
(n) Simple Payback Period = (a) ÷ (l)	$\frac{₹\ 20,00,000}{₹\ 5,71,500}$ = **3.5 years**	$\frac{₹\ 25,00,000}{₹\ 6,92,500}$ = **3.61 years**

2. Computation of NPV and PI

Year	**PVF at 12%**	**Machine NM–A_1**			**Machine NM–A_2**		
		CFAT	**DCFAT**	**Cum DCFAT**	**CFAT**	**DCFAT**	**Cum DCFAT**
1	0.893	5,71,500	5,10,350	5,10,350	6,92,500	6,18,403	6,18,403
2	0.797	5,71,500	4,55,486	9,65,836	6,92,500	5,51,923	11,70,326
3	0.712	5,71,500	4,06,908	13,72,744	6,92,500	4,93,060	16,63,386
4	0.636	5,71,500	3,63,474	17,36,218	6,92,500	4,40,430	21,03,816
5	0.567	5,71,500	3,24,041	20,60,259	6,92,500	3,92,648	24,96,464
Total DCFAT			**20,60,259**			**24,96,464**	
Initial Investment			20,00,000			25,00,000	
Profitability Index			**1.030**			**0.999**	

3. Discounted Payback Period (a) NM–A_1

From Cumulative DCFAT Column, it is observed that Initial Investment is exceeded between Year 3 & Year 4. Hence, the Discounted Payback period is as under –

Year 4 ₹ 5,71,500 for 12 months Year 5

₹ 17,36,218 ₹ 20,00,000 ₹ 20,60,259
(Initial Investment)

Proportionate Time for earning (20,00,000–17,36,218) = ₹ 2,63,782 = $\frac{₹\ 2,63,782}{₹\ 5,71,500}$ × 12 = **5.539 months** (appx.).

So, Disc. Payback Period **= 4 years, 5.539 months.**

Alternatively, Discounted Payback Period can also be expressed as 4 + $\frac{₹\ 2,63,782}{₹\ 5,71,500}$ = **4.462 years.**

(b) NM–A_2: Initial Investment is not fully recovered during Project Life. Hence, no Discounted Payback Period.

Note: NM–A_1 is preferable due to **higher PI,** and **shorter payback period**. NM–A_2 is not acceptable since PI < 1.

Question 5: Theory – Various Topics N 12 (16 Marks)

(a) Briefly explain the essential factors of a good Cost Accounting System.	**Pg 1.16, Q.No.39, M 09**
(b) What is Inter–Process Profit? State its advantages and disadvantages.	**Pg 8.6, Q.No.10**
(c) What do you understand by Operating Costing? How are composite units computed?	**Pg 9.1, Q.No.1 & 2, N 09**
(d) List the fundamental principles governing Capital Structure.	**Pg 18.6, Q.No.18 & 19, N 07**

Question 6(a): Marginal Costing – Basics N 12 (8 Marks)

The following figures are related to LM Limited for the year ending 31st March –

Sales – 24,000 units at ₹ 200 per unit, PV Ratio 25%, and Break Even Point 50% of Sales.

You are required to calculate –

1. Fixed Cost for the year
2. Profit earned for the year
3. Units to be sold to earn a target Net Profit of ₹ 11,00,000 for a year.
4. Number of units to be sold to earn a Net Income of 25% on Cost.
5. Selling Price per unit if Break–even Point is to be brought down by 4,000 units.

Solution: **Similar to Page 11.13, Illustration 6, N 07**

1. Number of units sold = 24,000 units at ₹ 200 p.u.

Contribution per unit = Sales Price per unit × PV Ratio = 200 × 25% = ₹ 50 p.u

So, Present Variable Cost = 200 – 50 = ₹ 150 p.u

Break Even Quantity = 50% of Sales = 50% × 24,000 = 12,000 units

Break Even Quantity = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}} = \frac{\text{Fixed Cost}}{50}$ = 12,000. Hence, Fixed Cost = **₹ 6,00,000**

2. Margin of Safety (units) = Total Sales – Break Even Sales = 24,000 – 12,000 = 12,000 units

Profit for the year = MOS Quantity × Contribution per unit = 12,000 × ₹ 50 = **₹ 6,00,000**

3. Target Profit = ₹ 11,00,000.

Required Contribution = Fixed Cost + Required Profit = 6,00,000 + 11,00,000 = ₹ 17,00,000

So, Required Sale Quantity = $\frac{\text{Total Contribution}}{\text{Contribution per unit}} = \frac{₹\ 17,00,000}{₹\ 50\ \text{p.u.}}$ = **34,000 units**

4. Let the number of units sold to earn a Net Income of 25% on Cost (i.e. 20% on Sales) = 'Q' units.

So, Sales Value = ₹ 200 × Q = 200Q, Variable Cost = ₹ 150 × Q = 150Q

Profit =20% on Sales = 20% on 200Q= 40Q

The equation is Contribution – Fixed Cost = Profit. So, (200Q – 150Q) – 6,00,000 = 40Q

On simplification, we have, 50Q – 6,00,000 = 40Q. So, 10Q = 6,00,000, or Q = **60,000 units**

5. Let required Sale Price per unit to bring BEP by 4,000 units = ₹ P. So, Contribution = S – V = P – 150

Break Even Quantity = $\frac{\text{Fixed Cost}}{\text{Contribution per unit}} = \frac{₹\ 6,00,000}{P - 150}$ = 8,000 units (12,000 – 4,000)

On cross multiplication & simplification, we have, (P – 150) = $\frac{₹\ 6,00,000}{8,000}$ = 75. Hence, P = 75 + 150 = **225.**

Required Sale Price = **₹ 225 per unit.**

Question 6(b): Reconciliation – with Losses N 12 (8 Marks)

R Limited showed a Net Loss of ₹ 35,400 as per their Cost Accounts for the year ended 31st March 2012. However, the Financial Accounts disclosed a Net Profit of ₹ 67,800 for the same period. The following information were revealed as a result of scrutiny of the figures of Cost Accounts and Financial Accounts:

Particulars	₹
(i) Administrative Overhead under recovered	25,500
(ii) Factory Overhead over recovered	1,35,000
(iii) Depreciation under charged in Cost Accounts	26,000
(iv) Dividend received	20,000
(v) Loss due to obsolescence charged in Financial Accounts	16,800
(vi) Income Tax provided	43,600
(vii) Bank Interest credited in Financial Accounts	13,600
(viii) Value of Opening Stock – in Cost Accounts	1,65,000
– in Financial Accounts	1,45,000
(ix) Value of Closing Stock – in Cost Accounts	1,25,500
– in Financial Accounts	1,32,000
(x) Goodwill written–off in Financial Accounts	25,000
(xi) Notional Rent of Own Premises charged in Cost Accounts	60,000
(xii) Provision for Doubtful Debts in Financial Accounts	15,000

Prepare a reconciliation statement by taking Costing Net Loss as base.

Solution: **Similar to Page 5.46, Illustration 24, RTP**

Memorandum Reconciliation Statement

Particulars	₹	Particulars	₹
To FOH over–recovered in Cost Books	1,35,000	By Net Loss as per Cost Records (given)	35,400
To Items not considered in Cost Books		By AOH under–recovered in Cost Books	25,500
– Dividend Received	20,000	By Depreciation under charged in Cost records	26,000
– Bank Interest	13,600	By Items not considered in Cost Books	
To Over Valuation of Opening Stock in Cost Accounts (1,65,000 – 1,45,000)	20,000	– Loss due to obsolescence	16,800
		– Income tax provided	43,600
To Notional Rent of Own premises – not considered in Financial Books	60,000	– Goodwill written off	25,000
		– Provision for Doubtful Debts	15,000
To Undervaluation of Closing Stock in Cost Accounts (1,32,000 – 1,25,500)	6,500	To Net Profit as per Financial Records (given)	**67,800**
Total	**2,55,100**	**Total**	**2,55,100**

Note: The above statement can also be presented in Add / Less format, starting with Loss as per Cost Records.

Question 7: Theory – Various Questions – Any 4 out of 5 N 12 (16 Marks)

(a) Discuss the conflicts in Profit verses Wealth Maximization principle of the Firm.	**Pg 13.4, Q.No.8, N 10**
(b) State the considerations on which Capital Expenditure Budget is prepared.	**Pg 12.9, Q.No.26, Pt 2**
(c) Distinguish between Business Risk and Financial Risk.	**Pg 17.1, Q.No.1, Pt 2, N 09**
(d) What are the forms of Bank Credit?	**Pg 21.4, Q.No.10**
(e) "Financing a Business through Borrowing is cheaper than using Equity". Explain.	**Pg 18.3, Q.No.7**

STUDENTS' NOTES

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