Gurukripa's Guideline Answers to May 2013 IPCC Exam Questions
Cost Accounting and Financial Management

Question No.1 is compulsory **(4 X 5 = 20 Marks).**
Answer **any 5** questions from the **remaining 6** questions **(16 X 5 = 80 Marks).** Any 4 out of 5 in Q.7.

Question 1(a): Standard Costing – Materials – Reverse Working **M 13 (5 Marks)**

Following are the details of the product Phomex for the month of April 2013:

Standard Quantity of Material required per unit	**5 kg**
Actual Output	**1000 units**
Actual Cost of Materials used	**₹ 7,14,000**
Material Price Variance	**₹ 51,000 (Fav)**

Actual Price per kg of Material is found to be less than Standard Price per kg of Material by ₹ 10.

You are required to calculate:

(i) Actual Quantity and Actual Price of Materials used.

(ii) Material Usage Variance.

(iii) Material Cost Variance.

Solution:

1. Material Price Variance = AQ × (SP – AP) = AQ × ₹ 10 (Price Difference) = ₹ 51,000 Favourable (given).

$$\text{Hence, AQ of Materials} = \frac{51,000}{10} = \textbf{5100 kg}.$$

2. $\text{Actual Price per Kg of Materials} = \frac{\text{Actual Cost}}{\text{Actual Quantity}} = \frac{7,14,000}{5,100\text{ kg}} = \textbf{₹ 140}.$

3. So, Standard Price of Materials = ₹ 140 + Price Difference ₹ 10 = ₹ 150.

4. Materials Usage Variance = (SQ – AQ) × SP
= [(1000 units × 5 kg) – 5,100 kg] × ₹ 150 = **₹ 15,000 A**.

5. Material Cost Variance = Material Usage Variance + Material Price Variance
= ₹ 15,000 A + ₹ 51,000 F = **₹ 36,000 F**.

Question 1(b): Marginal Costing – BEP and Profit at 75% Capacity **M 13 (5 Marks)**

MFN Limited started its operation in 2011 with the total production capacity of 2,00,000 units. The following data for two years is made available to you:

Particulars	2011	2012
Sales Units	**80,000**	**1,20,000**
Total Cost (₹)	**34,40,000**	**45,60,000**

There has been no change in the cost structure and Selling Price, and it is expected to continue in 2013 as well. Selling Price is ₹ 40 per unit. You are required to calculate:

(i) Break–Even Point (in units)

(ii) Profit at 75% of the total capacity in 2013.

Solution:

1. $\text{Variable Cost per unit} = \frac{\text{Difference in cost}}{\text{Difference in Production Qty}} = \frac{45,60,000 - 34,40,000}{1,20,000 - 80,000} = \frac{1,120}{40} = \textbf{₹ 28}.$

2. Fixed Cost = Total Cost (at 80,000 units) – Variable Cost
= 34,40,000 – (28 × 80,000) = 34,40,000 – 22,40,000 = **₹ 12,00,000**.

3. $\text{Break Even Qty} = \frac{\text{Fixed Costs}}{\text{Contribution per unit}} = \frac{12,00,000}{SP\,40 - VC\,28} = \textbf{1,00,000 units}.$

4. **Profit at 75% of Total Capacity in 2013:** 2,00,000 × 75% = 1,50,000 units.
   Profit = Sales – Total Costs (VC + FC)
   = (1,50,000 × ₹ 40 p.u.) – [(28 × 1,50,000) + 12,00,000]
   = 60,00,000 – (42,00,000 + 12,00,000)
   = 60,00,000 – (54,00,000) **So, Profit = ₹ 6,00,000 @ 75% of Total Capacity**.

Question 1(c): Cost of Preference Capital **M 13 (5 Marks)**

A Company issued 40,000, 12% Redeemable Preference Shares of ₹ 100 each at a Premium of ₹ 5 each, redeemable after 10 years at a premium of ₹ 10 each. The Floatation Cost of each Share is ₹ 2.
You are required to calculate Cost of Preference Share Capital ignoring Dividend Tax.

Solution: **Similar to Illus. 6 / Page 18.16 (II Volume)**

Particulars	Issue at Premium
1. Gross Proceeds [40,000 Shares × (₹ 100 + 5%)]	42,00,000
2. Cost of Issue (40,000 Shares × ₹ 2 Floatation Cost)	(80,000)
3. Net Proceeds (1 – 2) (NP)	41,20,000
4. Redemption Value (RV) = Face Value + 10% Premium	44,00,000
5. Average Liability = $\frac{RV + NP}{2} = \frac{(3)+(4)}{2}$	42,60,000
6. Average Premium on Redemption = $\frac{RV - NP}{10\text{ years}} = \frac{(4)-(3)}{10}$	28,000
7. Preference Dividend at 12% of Face Value of ₹ 40,00,000	4,80,000
8. $K_p = \frac{(7)+(6)}{(5)}$	11.93%

Question 1(d): Ratio Analysis –Basic Computations **M 13 (5 Marks)**

The following information related to Beta Ltd. for the year ended 31st March 2013:

Net Working Capital	**₹ 12,00,000**
Fixed Assets to Proprietors' Fund Ratio	**0.75**
Working Capital Turnover Ratio	**5 Times**
Return on Equity (ROE)	**15 %**

There is no Debt Capital. You are required to calculate:

(i) Proprietors' Fund

(ii) Fixed Assets

(iii) Net Profit Ratio

Solution: **Similar to Illus. 1 / Page. 14.9 (II Volume)**

1. Since there is no debt, Fixed Assets + Net Working Capital = Equity (i.e. Proprietors Funds only)
   Since Fixed Assets to Proprietor's Funds is 0.75, Net Working Capital to Proprietor's Fund = 1 – 0.75 = 0.25
   So, $\frac{NWC}{Proprietors' Funds} = \frac{12,00,000}{Proprietors' Funds} = 0.25$. So Proprietors' Funds = ₹ 48,00,000

   Fixed Assets (b/f) **₹ 36,00,000** | Net Working Capital ₹12,00,000 (given)

2. Working Capital Turnover Ratio = $\frac{Sales}{NWC} = \frac{Sales}{12,00,000}$ = 5 times. So Sales = 12,00,000 × 5 = **₹ 60,00,000**.

3. Net Profit = 15% on Proprietor's Funds (Equity) (Since ROE = 15%)
   = 15% on ₹ 48,00,000 = **₹ 7,20,000**.

4. Net Profit Ratio = $\frac{NP}{Sales} = \frac{7,20,000}{60,00,000}$ = **12%**.

Question 2(a): Cash Flow Statement **M 13 (10 Marks)**

The summarized Balance Sheets of MPS Limited as on 31.03.2012 and 31.03.2013 are as under: **(₹ in Lakhs)**

Liabilities	31.03.2012	31.03.2013	Assets	31.03.2012	31.03.2013
Equity Share Capital	40.00	50.00	Land & Building	27.00	25.00
Securities Premium Account	–	1.00	Plant & Machinery	25.00	34.00
General Reserve	8.00	11.00	Investments (Long Term)	3.00	8.00
Profit & Loss Account	10.30	12.70	Stock	7.50	9.80
10% Debentures	5.00	3.00	Debtors	9.25	11.15
Sundry Creditors	4.90	6.20	Bills Receivable	1.77	1.65
Provision for Tax	5.00	7.00	Cash & Bank Balance	4.50	7.70
Proposed Dividend	4.80	6.00	Preliminary Expenses	0.80	0.62
Corporate Dividend Tax	0.82	1.02			
Total	78.82	97.92	Total	78.82	97.92

Additional Information:

(i) On 01.04.2012, the Company redeemed Debentures of ₹ 2,00,000 at par.

(ii) During 2012–13 the Company has issued Equity Shares for cash at a Premium of 10%.

(iii) Provision for Tax made during the year 2012–13 for ₹ 6,80,000.

(iv) Dividend received on Investment ₹ 50,000 in July 2012.

(v) A Machine costing ₹ 8,00,000 (WDV ₹ 1,20,000) was sold for ₹ 50,000 during the year 2012–13.

(vi) Depreciation for 2012–13 charged on Plant & Machinery ₹ 3,30,000 and ₹ 2,00,000 on Land & Building.

(vii) Proposed Dividend and Corporate Dividend Tax of 2011–12 paid during the year 2012–13.

Prepare a Cash Flow Statement as per Accounting Standard (AS) – 3.

Solution:

1. Provision for Taxation Account

Particulars	₹ lakhs	Particulars	₹ lakhs
To Cash / Bank (**balancing fig.**)	**4.80**	By balance b/d	5.00
To balance c/d	7.00	By Profit and Loss a/c (given)	6.80
Total	**11.80**	**Total**	**11.80**

2. Fixed Assets Account (₹ Lakhs)

Particulars	Land & Building	Plant & Machinery	Particulars	Land & Building	Plant & Machinery
To balance b/d	27.00	25.00	By Depreciation	2.00	3.30
To Bank a/c **(bal. fig)**	**–**	**13.50**	By Machinery Disposal a/c		1.20
– assets acquired during the year			By balance c/d	25.00	34.00
Total	**27.00**	**38.50**	**Total**	**27.00**	**38.50**

3. Cash Flow Statement for the year ending 31st March 2013

Particulars		₹ Lakhs	₹ Lakhs
A. CASH FLOW FROM OPERATING ACTIVITIES:			
	Net Profit after all adjustments & transfers (12.70 – 10.30)		2.40
Add back:	Transfer to General Reserve out of current profits (11.00 – 8.00)		3.00
	Proposed Dividend of 2012–13 (incl. Corp. Dividend Tax thereon) (6.00 + 1.02)		7.02
	Provision for Taxation		6.80

Particulars		₹ Lakhs	₹ Lakhs
	Profit before Tax for the current year	**19.22**	
Add back:	Depreciation (2.00 + 3.30)	5.30	
	Interest on Debt (10% on 3.00) [₹ 2 Lakhs redeemed on 1st April, Hence outstanding during the year = ₹ 3 Lakhs]	0.30	
	Loss on Sale of Machinery (1.20 – 0.50)	0.70	
	Preliminary Expenses written off during the year (0.80 – 0.62)	0.18	
Less:	Dividend Income (taken in Investing Activities)	(0.50)	
	Operating Profit before Working Capital changes	25.20	
Adjustments for:	Increase in Stock (9.80 – 7.50)	(2.30)	
	Increase in Debtors (11.15 – 9.25)	(1.90)	
	Increase in Creditors (4.90 – 6.20)	1.30	
	Decrease in Bills Receivable (1.77 – 1.65)	0.12	
	Cash Generated from Operations	22.42	
Less:	Income Tax Paid **(WN 1)**	(4.80)	
	Net Cash Flow from / (used in) Operating Activities		**17.62**
B. CASH FLOW FROM INVESTING ACTIVITIES:			
	Purchase of Plant & Machinery **(WN 2)**	(13.50)	
	Purchase of Long Term Investments (8.00 – 3.00)	(5.00)	
	Sale Proceeds of Machinery	0.50	
	Dividend Income Received	0.50	
	Net Cash Flow from / (used in) Investing Activities		**(17.50)**
C. CASH FLOW FROM FINANCING ACTIVITIES:			
	Proceeds from issue of Equity Shares (at 10% Premium)	11.00	
	Redemption of Debentures at par	(2.00)	
	Interest paid on Debentures	(0.30)	
	Dividend paid incl. Corporate Dividend tax thereon (4.80 + 0.82)	(5.62)	
	Net Cash Flow from / (used in) Financing Activities		**3.08**
D. Net Increase / (Decrease) in Cash and Cash Equivalents (A+B+C)			3.20
E. Cash and Cash Equivalents at the beginning of the year (given)			4.50
F. Cash and Cash Equivalents at the end of the year (given)			**7.70**

Question 2(b): Labour Cost – Halsey & Rowan **M 13 (6 Marks)**

A Skilled Worker is paid a guaranteed wage rate of ₹ 120 per hour. The standard time allotted for a job is 6 hours. He took 5 hours to complete the job. He is paid waged under Rowan Incentive Plan.

(i) Calculate his effective hourly rate of earnings under Rowan Incentive Plan.

(ii) If the worker is placed under Halsey Incentive Scheme (50%) and he wants to maintain the same effective hourly rate of earnings, calculate the time in which he should complete the job.

Solution:

1. **Rowan Wages** = (Hours worked × Rate p.h) + ($\frac{\text{Actual Hours}}{\text{Standard Hours}}$ × Time Saved × Rate p.h.)

= (5 hrs × ₹ 120) + ($\frac{5 \text{ hrs}}{6 \text{ hrs}}$ × [6 – 5] hrs × ₹ 120) = ₹ 600 + ₹ 100 **= ₹ 700**

So, Effective Hourly Rate under Rowan Scheme = $\frac{₹\,700}{5 \text{ Hours}}$ = ₹ 140 p.h.

2. Let Reqd. Hrs under Halsey Scheme be H hrs.

Total Wages (Halsey) = ₹ 140 (same effective rate p.h.) × H hrs = 140H

So, 140 H = (Hours worked × Rate p.h) + (50% × Time Saved × Rate p.h.)

140 H = (H × ₹ 120) + (50% × (6 – H) × ₹ 120)

140 H = 120H + (6 – H) x 60

140 H = 120H + 360 – 60H Solving, 80H = 360, So H = $\frac{360}{80}$ = **4.5 hours**.

Question 3(a): Equivalent Production – Subsequent Process – no opening WIP **M 13 (10 Marks)**

ABX Company Ltd. provides the following information relating to Process–B:

(i) Opening Work–in–progress	**Nil**
(ii) Units Introduced	**45,000 units @ ₹ 10 per unit**
(iii) Expenses debited to the Process:	
Direct Material	**₹ 65,500**
Labour	**₹ 90,800**
Overhead	**₹ 1,80,700**
(iv) Normal Loss in the process	**2% of Input**
(v) Work in Progress (Degree of Completion: Materials 100%, Labour 50%, OH 40%)	**1,800 units**
(vi) Finished Output	**42,000 units**
(vii) Degree of Completion of Abnormal Loss: Materials 100%, Labour 80%, OH 60%	
(viii) Units scrapped as Normal Loss were sold at ₹ 5 per unit.	
(ix) All the units of Abnormal Loss were sold at ₹ 2 per unit.	

You are required to prepare:

(a) Statement of Equivalent Production.

(b) Statement showing the Cost of Finished Goods, Abnormal Loss and Closing Balance of Work–in–Progress.

(c) Process–B Account and Abnormal Loss Account.

Solution: **Similar to Illus. 25 / Page 8.35 (I Volume)**

1. Statement of Equivalent Production

Item	Input	Item	Output	Material A		Material B		Labour		Overhead	
				%	E.U.	%	E.U.	%	E.U.	%	E.U.
Opg WIP	Nil	FG Prodn	42,000	100%	42,000	100%	42,000	100%	42,000	100%	42,000
Transfer	45,000	Normal Loss	900	—	—	—	—	—	—	—	—
From P–B		Abn.Loss	300	100%	300	100%	300	80%	240	60%	180
		Closing WIP	1,800	100%	1,800	100%	1,800	50%	900	40%	720
Total	**45,000**	**Total**	**45,000**		**44,100**		**44,100**		**43,140**		**42,900**

Note: Normal Loss = 2% of Input = 2% of 45,000 = 900 units. Abnormal Loss is the balancing figure of Output Column.

2. Statement of Cost per Equivalent Unit

Cost Element		Total Cost	Equivalent Units	Cost per E.U
	Material A	(45,000 units× ₹ 10 p.u) 4,50,000		
(–)	NRV of Normal Loss	(900 units× ₹ 5 p.u) 4,500		
	Net Cost	4,45,500	44,100	₹ 10.10
	Material B	65,500	44,100	₹ 1.48
	Labour	90,800	43,140	₹ 2.10
	Overheads	1,80,700	42,900	₹ 4.21
Total		**7,82,500**		

Note: Cost per Equivalent Unit is rounded off upto two places after decimal point only.

3. Statement of Cost Apportionment (**Note:** Rounding Off amounts are adjusted against Abnormal Loss)

Item	Material A at ₹ 12.15/eu	Material B at ₹ 1.49/eu	Labour at ₹ 2.19/eu	Overhead at ₹ 4.38/eu	Total
FG Produced	42,000 × 10.10 = 4,24,200	42,000 × 1.48 = 62,160	42,000 × 2.10 = 88,200	42,000 × 4.21 = 1,76,820	7,51,380
Abnormal Loss	300 × 10.10 = 3,120	300 × 1.48 = 676	240 × 2.10 = 710	180 × 4.21 = 849	5,355
Closing WIP	18,000 × 10.10 = 18,180	1,800 × 1.48 = 2,664	900 × 2.10 = 1,890	720 × 4.21 = 3,031	25,765
Total	**4,45,500**	**65,500**	**90,800**	**1,80,700**	**7,82,500**

4. Process B Account

Particulars	Qtty	₹	Particulars	Qtty	₹
To Process 1 – transfer in	45,000	4,50,000	By Fin.Goods Control **(Note 3)**	42,000	7,51,380
To Direct Materials		65,500	By Normal Loss (at ₹ 2 pu)	900	4,500
To Direct Labour		90,800	By Abnormal Loss **(Note 3)**	300	5,355
To Production Overhead		1,80,700	By balance c/d **(Note 3)**	1800	25,765
Total	**45,000**	**7,87,000**	**Total**	**45,000**	**7,87,000**

5. Abnormal Loss Account

Particulars	Qtty	₹	Particulars	Qtty	₹
To Process B	300	5,355	By Bank (Scrap Realised at ₹ 2 pu)	300	600
			By Costing P&L – transfer	–	**4755**
Total	**300**	**5,355**	**Total**	**300**	**5,355**

Question 3(b): Leverage – Basic Computations **M 13 (6 Marks)**

The following information related to XL Company Ltd for the year ended 31st March 2013 are available to you:

Equity Share Capital of ₹ 10 each	**₹ 25 Lakhs**	**Financial Leverage**	**1.39**
11% Bonds of ₹ 1,000 each	**₹ 18.5 Lakhs**	**Profit–Volume Ratio**	**25.55%**
Sales	**₹ 42 Lakhs**	**Income Tax Rate Applicable**	**35%**
Fixed Cost (excluding Interest)	**₹ 3.48 Lakhs**		

You are required to calculate – (1) Operating Leverage, (2) Combined Leverage, and (3) Earning Per Share.

Solution: **Similar to Illus. 27 / Page 17.18 (II Volume)**

	Particulars	₹
	Contribution at 25.55% on Sales of ₹ 42,00,000	10,73,100
Less:	Fixed Cost	3,48,000
	EBIT	7,25,100
Less:	Interest on Debt (11% of ₹ 18,50,000)	2,03,500
	EBT	5,21,600
Less:	Tax @ 35%	1,82,560
	EAT	3,39,040

1. Operating Leverage = $\frac{\text{Contribution}}{\text{EBIT}} = \frac{10,73,100}{7,25,100} = 1.48$ times.

2. Combined Leverage = $\frac{\text{Contribution}}{\text{EBT}} = \frac{10,73,100}{5,21,600} = 2.06$ times (or) = DOL × DFL = 1.48 × 1.39(given) = 2.06 times

3. EPS = $\frac{\text{EAT}}{\text{No. of Equity Shares}} = \frac{3,39,040}{2,50,000} = ₹ 1.36$ per Share

Question 4(a): By Product Income Accounting **M 13 (8 Marks)**

A Company manufactures one main product (M1) and two by–products B1 and B2. For the month of January, the following details are available: Total Cost upto Separation Point ₹ 2,12,400

Particulars	M1	B1	B1
Cost after separation	–	₹ 35,000	₹ 24,000
No. of units produced	4,000	1,800	3,000
Selling Price per unit	₹ 100	₹ 40	₹ 30
Estimated Net Profit as percentage to Sales Value	–	20%	30%
Estimated Selling Expenses as percentage to Sales Value	20%	15%	15%

There are no beginning or closing Inventories. Prepare statement showing:

(i) Allocation of Joint Cost, and

(ii) Product Wise and Overall Profitability of the Company for January.

Solution: **Similar to Illus. 23 / Page 7.25 (I Volume)**

1. Computation of Estimated NRV of By–Product

Particulars		B_1	B_2
	Final Sales Value	1,800 × 40 = 72,000	3,000 × 30 = 90,000
Less:	Estimated Profit	20 % = (14,400)	30% = (27,000)
	Estimated SOH	15% = (10,800)	15% = (13,500)
	Post Separation Costs	(35,000)	(24,000)
	Estimated NRV	**11,800**	**25,500**

2. **Joint Cost allocable to M_1** = Total Joint Cost – Estimated NRV of By–Products B_1 & B_2
= 2,12,400 – (11,800 + 25,500) = **₹ 1,75,100**.

3.Profit Statement

Particulars	M_1	B_1	B_2	Total
(a) Sales Value	4000 × 100 = 4,00,000	1800× 40 = 72,000	3000 × 30 = 90,000	5,62,000
(b) Costs :				
Joint Cost **(WN 1 & WN 2)**	1,75,100	11,800	25,500	2,12,400
Post Separation Costs	Nil	35,000	24,000	59,000
SOH	20% = 80,000	10,800	13,500	1,04,300
Total Costs	**2,55,100**	**57,600**	**63,000**	**3,75,700**
(c) Profit	1,44,900	14,400	27,000	1,86,300

Question 4(b): Operating Cycle – Basics **M 13 (8 Marks)**

The following information is provided by the DPS Limited for the year ending 31st March, 2013.

Raw Material Storage period	55 days
Work–in–Progress Conversion period	18 days
Finished Goods Storage period	22 days
Debt Collection period	45 days
Creditors Payment period	60 days
Annual Operating Cost (including Depreciation of ₹ 2,10,000)	₹ 21,00,000

You are required to calculate: **[1 year = 360 days]**

(i) Operating Cycle period.

(ii) Number of Operating Cycles in a year.

(iii) Amount of Working Capital required for the Company on a Cash Cost basis.

(iv) The Company is a market leader in its product, there is virtually no competitor in the market. Based on a market research, it is planning to discontinue sales on credit and deliver products based on pre–payments. Thereby, it can reduce its Working capital requirement substantially. What would be the reduction in Working Capital Requirement due to such decision?

Solution: **Similar to Q.5 / Page 16.24 (II Volume)**

1. Operating Cycle (days) = (Raw Material + WIP + Finished Goods + Debtors **Less:** Creditors) (all in days)
   = (55 + 18 + 22 + 45– 60) = **80 days**
2. No of Operating Cycles in a year = $\frac{360}{80}$ = 4.5
3. Cash Exps p.a. = 21,00,000 – 2,10,000 = 18,90,000. So, Working Capital reqd = 18,90,000 × $\frac{80}{360}$ = **₹ 4,20,000**
4. If Debtors Collection Period is Nil, the Operating Cycle will be = 80 – 45 = **35 days**.

   Hence, revised Working Capital requirement = 18,90,000 × $\frac{35}{360}$ = ₹ 1,83,750.

   So, reduction in Working Capital requirement = ₹ 4,20,000 – ₹ 1,83,750 = **₹ 2,36,250**.

Question 5: Theory – Various Topics **M 13 (16 Marks)**

Question	Answer Reference
(a) Cost of a Product or Service is required to be expressed in suitable Cost Unit. State the Cost Units for the following industries – (i) Steel, (ii) Automobile, (iii) Transport, (iv) Power	(i) Steel: Tonnes, (ii) Automobile: Units, (iii) Transport: Tonne–Km or Passenger–Km, (iv) Power: Kilowatt hours (Kwh)
(b) Distinguish between Cost Allocation and Cost Absorption.	Page 4.5, Q.No.17 (I Volume)
(c) What is Debt Securitization? And also state its advantages.	Page 21.7, Q.No.20,22 (II Volume)
(d) Distinguish between Factoring and Bill–Discounting.	Page 16.21, Q.No.54 (II Volume)

Question 6(a): Flexible Budget **M 13 (7 Marks)**

Pentax Limited has prepared its Expense Budget for 20,000 units in its factory for the year 2013 as detailed below –

Particulars	₹ per unit
Direct Materials	50
Direct Labour	20
Variable Overhead	15
Direct Expenses	6
Selling Expenses (20% Fixed)	15
Factory Expenses (100% Fixed)	7
Administration Expenses (100% Fixed)	4
Distribution Expenses (85% Variable)	12
Total	129

Prepare an Expense Budget for the production of 15,000 units and 18,000 units.

Solution: **Similar to Illus. 8 / Page 12.20 (I Volume)**

Budget for the period 2013

Particulars	Situation I	Situation II	Situation III
Production Level	20,000	15,000	18,000
Direct Material at ₹ 50 p.u.	20,000 × 50 = 10,00,000	15,000 × 50 = 7,50,000	18,000 × 50 = 9,00,000
Direct Labour at ₹ 20 p.u.	20,000 × 20 = 4,00,000	15,000 × 20 = 3,00,000	18,000 × 20 = 3,60,000
Variable OH ₹ at 15 p.u.	20,000 × 15 = 3,00,000	15,000 × 15 = 2,25,000	18,000 × 15 = 2,70,000
Direct Expenses at ₹ 6 p.u.	20,000 × 6 = 1,20,000	15,000 × 6 = 90,000	18,000 × 6 = 1,08,000
Selling Expenses:			
Fixed: [20,000 × (20% of 15)]	60,000	(same) 60,000	(same) 60,000
Variable: (80% of 15%) = ₹ 12 p.u.	20,000 × 12 = 2,40,000	15,000 × 12 = 1,80,000	18,000 × 12 = 2,16,000
Factory Expenses (100% Fixed)	20,000 × 7 = 1,40,000	(same) 1,40,000	(same) 1,40,000

Particulars	Situation I	Situation II	Situation III
Administration Expenses (100% Fixed)	20,000× 4 = 80,000	(same) 80,000	(same) 80,000
Distribution Expenses:			
Fixed	20,000×12×15%=36,000	(same) 36,000	(same) 36,000
Variable (85% of 12) = ₹ 10.20 p.u.	20,000×10.20= 2,04,000	15,000×10.20= 1,53,000	18,000×10.20= 1,83,600
Total Expenses	**25,80,000**	**20,14,000**	**23,53,600**

Question 6(b): Capital Budgeting – Discounted Payback, NPV, PI **M 13 (8 Marks)**

The PQR Company Ltd, is considering to select a machine out of two mutually exclusive machines. The Company's Cost of Capital is 12% and Corporate Tax Rate is 30%. Other information relating to both machines is as follows –

Particulars	Machine – I	Machine –II
Cost of Machine	₹ 15,00,000	₹ 20,00,000
Expected Life	5 Yrs.	5 Yrs.
Annual Income (Before Tax and Depreciation)	₹ 6,25,000	₹ 8,75,000

Depreciation is to be charged on straight line basis:
You are required to calculate:
(i) Discounted Pay Back Period
(ii) Net Present Value
(iii) Profitability Index.

The Present Value Factors of ₹ 1 @ 12% are as follows

Year	01	02	03	04	05
PV Factor @ 12%	0.893	0.797	0.712	0.636	0.567

Solution: **Similar to Illus. 18 / Page 20.23 (II Volume)**

1. Computation of CFAT from the Projects

Particulars	Machine–I	Machine–II
(a) Annual Income before Tax and Depreciation	₹ 6,25,000	₹ 8,75,000
(b) Depreciation = $\frac{\text{Cost of Machine} - \text{Salvage Value}}{\text{Number of years}}$	$\frac{₹\ 15,00,000}{5\text{ years}}$ = ₹ 3,00,000	$\frac{₹\ 20,00,000}{5\text{ years}}$ = ₹ 4,00,000
(c) PBT (a – b)	₹ 3,25,000	₹ 4,75,000
(d) Tax at 30% on (c)	₹ 97,500	₹ 1,42,500
(e) PAT (c – d)	₹ 2,27,500	₹ 3,32,500
(f) **CFAT** = PAT + Depreciation = (e + b)	**₹ 5,27,500**	**₹ 7,32,500**

2. Computation of NPV (at 12% Cost of Capital) and Cumulative DCFAT

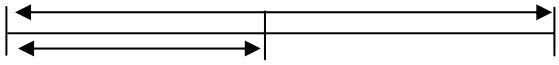
Year	PVF at 12%	Machine–I			Machine–II		
		CFAT	DCFAT	Cum DCFAT	CFAT	DCFAT	Cum DCFAT
1	0.893	5,27,500	4,71,058	4,71,058	7,32,500	6,54,123	6,54,123
2	0.797	5,27,500	4,20,418	8,91,476	7,32,500	5,83,803	12,37,926
3	0.712	5,27,500	3,75,580	12,67,056	7,32,500	5,21,540	17,59,466
4	0.636	5,27,500	3,35,490	16,02,546	7,32,500	4,65,870	22,25,336
5	0.567	5,27,500	2,99,093	19,01,639	7,32,500	4,15,328	26,40,664
	Total DCFAT		**19,01,639**			**26,40,664**	
Less:	Initial Investment		(15,00,000)			(20,00,000)	
	Net Present Value		**4,01,639**			**6,40,664**	
	PI = $\frac{\text{Total DCFAT}}{\text{Initial Investment}}$		**1.267**			**1.32**	

Note: Since Discounted Payback Period is to be calculated, cumulative DCFAT should be computed at the end of every year.

3. Discounted Payback Period (a) Machine I

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 3 ₹ 3,35,490 for 12 months Year 4



₹ 12,67,056 ₹ 15,00,000 ₹ 16,02,546

(Initial Investment)

Proportionate Time for earning (15,00,000 – 12,67,056)

= ₹ 2,32,944 = $\frac{2,32,944}{3,35,490} \times 12$ = **8.33 mths** (approx.).

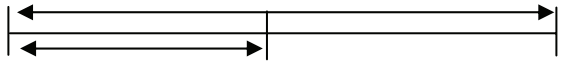
So, **Discounted Payback Period = 3 years, 8.33 mths.**

Alternatively, Discounted Payback Period can also be expressed as $3 + \frac{2,32,944}{3,35,490}$ = **3.69 years.**

(b) Machine II

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 3 ₹ 4,65,870 for 12 months Year 4



₹ 17,59,466 ₹ 20,00,000 ₹ 22,25,335

(Initial Investment)

Proportionate Time for earning (20,00,000 – 17,59,466)

= ₹ 2,40,534 = $\frac{2,40,534}{4,65,870} \times 12$ = **6.19 mths** (approx.).

So, **Discounted Payback Period = 3 years, 6.19 mths.**

Alternatively, Discounted Payback Period can also be expressed as $3 + \frac{2,40,534}{4,65,870}$ = **3.52 years.**

Question 7: Theory – Various Topics **M 13 (16 Marks)**

Question	Answer Reference
(a) "Perpetual Inventory system comprises Bin Card and Stores Ledger, but the efficacy of the system depends on continuous stock staking." Comment.	**Page 2.11, Q.No.33 & 34 (I Volume)**
(b) "Is reconciliation of cost accounts and financial accounts necessary in case of integrated accounting system?"	**Page 5.3, Q.No.6, 7, 9 (I Volume)**
(c) "Operating risk is associated with cost structure, whereas financial risk is associated with capital structure of a business concern." Critically examine this statement.	**Page 17.1, Q.No.1 (II Volume)**
(d) What is venture capital financing? State the factors which are to be considered in financing any risky project.	**Page 21.6, Q.No.17, 18 (II Volume)**
(e) State the advantages of Electronic Cash Management System.	**Page 16.13, Q.No. 31, Pt.1**