

## 7. WORKING CAPITAL MANAGEMENT

## ASSIGNMENT SOLUTIONS

## PROBLEM NO:1

Estimation of incremental working capital:

Particulars	Present (100%)	Proposed (125%)
<b>A. Current Assets:</b>		
1. Stock of Raw material	8,00,000	10,00,000
2. Debtors	3,00,000	3,75,000
3. Cash & Bank	2,00,000	2,00,000
<b>Total (A)</b>	<b>13,00,000</b>	<b>15,75,000</b>
<b>B. Current Liabilities:</b>		
1. Trade creditors	3,40,000	4,25,000
2. Taxation	80,000	80,000
3. Bank OD	1,40,000	1,60,000
4. O/S Liabilities	1,60,000	2,00,000
<b>Total (B)</b>	<b>7,20,000</b>	<b>8,65,000</b>
<b>Net Working Capital (A-B)</b>	<b>5,80,000</b>	<b>7,10,000</b>

Incremental Working Capital = 7,10,000 - 5,80,000 = 1,30,000

## PROBLEM NO:2

Given Information /Inventory Norms:

Raw material holding period (RMHP) = 2months  
 Production Period (P.P) = 1month  
 Finished goods holding period (FGHP) = ½ month  
 Debtors Collection period (DCP) = 3month

Working Note-1:

Cost Structure of Hi-Tech Ltd.

Particulars	Per Unit
Raw materials	100
Add: Manufacturing Exp.	30
Cost of production	130
Add: Selling, administrative & financial Exp.	20
Cost of Goods Sold	150
Add: Profit	50
<b>Selling Price</b>	<b>200</b>

$$\begin{aligned} \text{Step-1: Raw Material inventory} &= \frac{\text{Raw Material consumed during year}}{12\text{m}} \times \text{RMHP} \\ &= \frac{30,000 \times 100}{12\text{m}} \times 2\text{m} = \text{Rs. } 5,00,000 \end{aligned}$$

Step-2: Work in Progress Valuation

$$\text{a) Raw material} = \frac{\text{Raw Material consumed during year}}{12\text{m}} \times \text{WIPHP} \times 100\% = \frac{30\text{K} \times 100\text{P.U.}}{12\text{m}} \times 1\text{m} = \text{Rs. } 2,50,000$$

$$\begin{aligned} \text{b) Manufacturing Exp.} &= \frac{\text{Manu. Exp. incurred during the year}}{12\text{m}} \times \text{WIPHP} \times 25\% = \frac{30,000 \times 30}{12\text{m}} \times 1\text{m} \times 25\% \\ &= \text{Rs. } 18,750 \end{aligned}$$

∴ Value of Work in Progress = (a) + (b) = Rs. 2,68,750

$$\text{Step-3: Finished Goods} = \frac{\text{Cost of Production during the year}}{12\text{m}} \times \text{FGHP} = \frac{30,000 \times 130}{12\text{m}} \times \frac{1}{2}\text{m} = \text{Rs. } 1,62,500$$

$$\text{Step-4: Investment in debtors} = \frac{\text{Cost of sales during the year}}{12\text{m}} \times \text{DCP} = \frac{30,000 \times 150}{12\text{m}} \times 1\text{m} = \text{Rs. } 3,75,000$$

### Estimation of Gross Working Capital

Particulars	Amount
Raw material Inventory (Step-1)	5,00,000
Work in Progress Inventory (Step-2) (Note c)	2,68,750
Finished Goods Inventory (Step-3)	1,62,500
Debtors (Step-4) (Note d)	3,75,000
Other Assets (95)	13,06,250
Add: Cash Balance (5) $\left(\frac{13,06,250}{95} \times 5\right)$ (Note e)	68,750
<b>Gross Working Capital required</b>	<b>13,75,000</b>

#### Note:

- Ignore Administration Expenses because they can't be separated.
- Generally, Administration Expenses are included in the valuation of finished goods inventory. Since information relating to Administration expenses is not given in the problem finished goods are valued similar to that of Work in Progress.
- While valuing Work in Progress, Raw Materials are assumed to be finished to the extent of 100% and the manufacturing expenses are given to be completed to the extent of 25%.
- Debtors have been valued on cash cost basis alternatively they can be valued on full value basis in such a case gross working capital will be more than Rs. 13,75,000.
- Desired cash balance is 5% of the gross working capital.

### PROBLEM NO: 3

#### Statement showing estimation of working capital requirement

Particulars	Calculation	Amount (Rs.)
<b>A. Current Assets:</b>		
<b>i) Inventories</b>		
<b>i) Raw materials</b>	$\frac{26000 \times 3.00}{52} \times 3$	4,500
<b>ii) Work-in-process</b>		
<b>a) Raw Material</b>	$\frac{26000 \times 3.00}{52} \times 3 = 4,500$	
<b>b) Labour</b>	$\frac{26000 \times 4}{52} \times 3 \times \frac{1}{2} = 300$	
<b>c) O.H Exp</b>	$\frac{26000 \times 2}{52} \times 3 \times \frac{1}{2} = 1,500$	9,000
<b>iii) Finished Goods</b>	$\frac{26000 \times 9}{52} \times 2$	9,000
<b>iv) Debtors</b>	$\frac{26000 \times 9}{52} \times 8$	36,000
<b>Total (A)</b>		<b>58,500</b>
<b>B. Current Liabilities:</b>		
<b>i) Creditors for R.M.S</b>	$\frac{26000 \times 3}{52} \times 5$	7,500
<b>Total (B)</b>		<b>7,500</b>
<b>Net working Capital (A-B)</b>		<b>51,000</b>

#### Assumptions:

- Level of activity will remain unchanged.

- ii) Cost structure will remain unchanged.
- iii) Various components of operating cycle will remain unchanged
- iv) Assume 1 year = 52 weeks
- v) 100% Sales in on credit basis.
- vi) 100% purchases is on credit basis
- vii) While valuing WIP raw material is assumed to be completed to the extent of 100% whereas wages & overheads are assumed to be incurred to the extent of 50%.

**PROBLEM NO:4**

Statement showing working capital requirement of XYZ Co. Ltd.

Particulars	Calculation	Amount (Rs.)
<b>A. Current Assets</b>		
<b>I. Inventories</b>		
a) Raw materials	$\frac{1200000 \times 60}{12} \times 1$	60,00,000
b) Work-in-process		
i) Raw Material	$\frac{1200000 \times 60}{12} \times 1 = 60,00,000$	
ii) Wages	$\frac{1200000 \times 10}{12} \times 1 \times \frac{1}{2} = 5,00,000$	
iii) O.H Exp	$\frac{1200000 \times 20}{12} \times 1 \times \frac{1}{2} = 10,00,000$	75,00,000
c) Finished Goods	$\frac{1200000 \times 90}{12} \times 2$	1,80,00,000
<b>II. Debtors</b>	$\frac{1200000 \times 90}{12} \times 2$	1,80,00,000
<b>Total (A)</b>		<b>4,95,00,000</b>
<b>B. Current Liabilities</b>		
a) Creditors for RMS	$72000000 \times \frac{1}{12}$	60,00,000
b) Creditors for Wages	$\frac{1200000 \times 10}{12} \times 1$	10,00,000
<b>Total (B)</b>		<b>70,00,000</b>
<b>Net working Capital (A - B)</b>		<b>4,25,00,000</b>

**PROBLEM NO:5**

Statement showing working capital requirement of X &amp; Y Ltd.

Particulars	Calculation	Amount (Rs.)
<b>A. Current Assets:</b>		
<b>I. Inventories</b>		
a) Raw materials		8,000
b) Work-in-process		0
c) Finished Goods		5,000
<b>d) Debtors</b>		
i) Inland sales	$\frac{3,12,000}{52} \times 6$	36,000
ii) Export sales	$\frac{78,000}{52} \times 1.5$	2,250
<b>II. Prepaid Exp</b>	$\frac{8,000}{4}$	2,000
<b>Total</b>		<b>53,250</b>

<b>B. Current Liabilities:</b>		
a) Stores & Materials	$\frac{48000}{12} \times 1.5$	6000
b) Wages	$\frac{260000}{15} \times 1.5$	7500
c) Rent & Royalties	$\frac{10000}{12} \times 6$	5000
d) Clerical Staff	$\frac{62400}{12} \times 0.5$	2600
e) Manager	$\frac{4800}{12} \times 0.5$	200
f) Miscellaneous Exp.	$\frac{48000}{12} \times 1.5$	6000
<b>Total</b>		<b>27,300</b>
<b>C. Net Working Capital (A-B)</b>		25,950
<b>D. Add: Safety margin @ 10% (25,950 x 10%)</b>		2,595
<b>E. Total working capital</b>		<b>28,545</b>

**PROBLEM NO: 6****PART - A**

Given Information, Inventory Norms,

Raw material holding period (RMHP) = 2 months

Production Period (P.P) = 1 month

Finished goods holding period (FGHP) = 3 months

Debtors Collection period (DCP) = 3 months

Creditors payment period (CPP) = 2 months

**WORKING NOTE-1:****Cost structure of Dowell Co. Ltd**

Particulars	Per Unit
Raw materials (5×60%)	3.0
Wages (5×10%)	0.5
Overhead (5×20%)	1.0
Cost of Production per Unit	4.5
Add: Profit	0.5
<b>Selling price per unit</b>	<b>5.0</b>

$$\text{Step-1: Raw material inventory} = \frac{\text{Raw Material Consumption during Year}}{12\text{m}} \times \text{R..M.H.P}$$

$$= \frac{60,000 \times \text{Rs.3}}{12\text{m}} \times 2\text{m} = 30,000$$

**Step-2: W.I.P inventory**

$$\text{a) Raw material} = \frac{\text{Raw Material Consumption during Year}}{12\text{m}} \times \text{W.I..P.H.P} = \frac{60,000 \times \text{Rs.3}}{12\text{m}} \times 1\text{m} = \text{Rs.15,000}$$

$$\text{b) Wages} = \frac{60,000 \times 0.50}{12\text{m}} \times 1\text{m} \times 50\% = \text{Rs. 1,250}$$

$$\text{c) Overheads} = \frac{60,000 \times 1}{12\text{m}} \times 1\text{m} \times 50\% = \text{Rs. 2,500}$$

$$\therefore \text{W.I.P} = \text{Rs.18,750}$$

$$\text{Step-3: Finished goods Inventory} = \frac{60,000 \times 4.50}{12\text{m}} \times 3\text{m} = \text{Rs.67,500}$$

**Step-4:** Investment in debtors  $= \frac{60,000 \times 4.5}{12m} \times 3m = \text{Rs. } 67,500$

**Step-5:** Creditors for RM  $= \frac{60,000 \times 3}{12m} \times 2m = \text{Rs. } 30,000$

**Working Capital Statement**

Particulars	Amount (Rs.)
<b>A. Current assets:</b>	
a) Raw Material inventory (Step-1)	30,000
b) W.I.P inventory (Step-2)	18,750
c) F.G inventory (Step-3)	67,500
d) Debtors (Step-4)	67,500
<b>Total (A)</b>	<b>1,83,750</b>
<b>B. Current liabilities:</b>	
Creditors (Step-5)	30,000
<b>Total (B)</b>	<b>30,000</b>
<b>Net working capital (A - B)</b>	<b>1,53,750</b>

**PART - B****Estimated profit for the year ended 31.12.00**

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Raw material a/c (60,000 × 3)	1,80,000	By sales a/c (60,000 × 5)	3,00,000
To Wages a/c (60,000 × 0.5)	30,000		
To Overhead a/c (60,000 × 1)	60,000		
To Interest on debentures a/c (50,000 × 5%)	2,500		
<b>To Net profit</b>	<b>27,500</b>		
	<b>3,00,000</b>		<b>3,00,000</b>

**Balance Sheet as on 31<sup>st</sup> Dec.2000**

Liabilities	Rs.	Assets	Rs.
Equity Share Capital	2,00,000	Fixed Assets	1,25,000
5% Debentures	50,000	Raw material Inventory	30,000
Creditors for raw material	30,000	W.I.P Inventory	18,750
Net profit	27,500	F.G. Inventory	67,500
Reserve & Surplus (B/F)	1,250	Debtors	67,500
	<b>3,08,750</b>		<b>3,08,750</b>

**PROBLEM NO: 7****WORKING NOTES:**

**1. Stock of RM**  $= \frac{\text{Annual production} \times \text{RM Cost}}{12m} \times \text{RMHP}$

$= \frac{54,000 \times 50}{12} \times 1 = 2,25,000/-$

**2. Stock of WIP:**

a) RM  $= \frac{\text{RM Consumption during the year}}{12m} \times \text{WIP HP} \times \text{DOC}$

$= \frac{54,000 \times 50}{12} \times \frac{1}{2} \times 100\% = 1,12,500/-$

b) Wages  $= \frac{\text{Wages incurred during the year}}{12m} \times \text{WIPHP} \times \text{DOC}$

$= \frac{54,000 \times 20}{12} \times \frac{1}{2} \times 50\% = 22,500/-$

$$\text{c) Overheads} = \frac{\text{Overheads incurred during the year}}{52 \text{ w}} \times 3 \times 50\% = 1500/-$$

$$= \frac{54,000 \times 30}{12} \times \frac{1}{2} \times 50\% = 33,750/-$$

Total Stock of WIP = Rs. 1,68,750.

$$3. \text{ Stock of FG} = \frac{\text{Annual production (uts)} \times \text{COP}}{12 \text{ m}} \times \text{FGHP}$$

$$= \frac{54,000 \times 100}{12} \times 1 = 4,50,000/-$$

$$4. \text{ Inventory in Debtors} = \frac{\text{Annual production} \times \text{Cost}}{12 \text{ m}} \times \text{DCP}$$

$$= 75\% \times \frac{54,000 \times 100}{12} \times 1 = \text{Rs. } 3,37,500/-$$

$$5. \text{ Creditors for OH} = \frac{54,000 \times 30}{360} \times 30 = 1,35,000$$

#### Statement Showing Calculation of Working Capital [Cash Cost App]

Particulars	Amount (Rs.)	Amount (Rs.)
<b>A. Current Assets:</b>		
Stock of RM	2,25,000	
Stock of WIP	1,68,750	
Stock of FG	3,37,500	
Debtors	4,50,000	
Cash	1,00,000	
<b>Total (A)</b>		<b>12,81,250</b>
<b>B. Current Liabilities:</b>		
Creditors for RM	2,25,000	
Creditors for DL	30,000	
Creditors for OH	1,35,000	
<b>Total (B)</b>		<b>3,90,000</b>
<b>Net working Capital (A-B)</b>		<b>8,91,250</b>

#### Assumptions:

- Level of activity will remain unchanged.
- Cost structure will remain unchanged.
- Various components of operating cycle will be constant.
- Assume 1 year = 360 days
- 100% purchases are on credit basis
- While valuing WIP raw material is assumed to be completed to the extent of 100% whereas wages & overheads are expected to be incurred to the extent of 50%.

#### **PROBLEM NO: 8**

#### INVENTORY NORMS:

Particulars	Period
RMHP	1m
FGHP	1m
WIP HP	-
DCP	2m
CCP	2m
<b>Time lag:</b>	
Wages	1m
Manufacturing Expenses	1m

Administration Expenses	1m
Sales Promotion	1 Quarter

**COST SHEET**

Particulars	Amount (Rs.)
a) Raw Material (Total)	6,75,000
b) Wages	5,40,000
c) Manufacturing Expenses	7,20,000
6,00,000 → 1m ? → ½ m	
d) Administrative Expenses	1,80,000
e) Total Cost of Production	21,15,000
f) Sales Promotion	90,000
g) Cash Cost of Sales	22,05,000

**Calculation of Individual Current Assets:**

- i) RMCP =  $\frac{\text{RMCDY}}{12\text{m}} \times \text{RMHP} = \frac{6,75,000}{12} \times 1\text{m} = 56,250$
- ii) WIP = Nil (In Cash Basis, We Should not consider)
- iii) Stock of FG =  $\frac{\text{Cash Cost of Production}}{12} \times \text{FGHP} = \frac{21,15,000}{12} \times 1\text{m} = 1,76,250$
- iv) DCP =  $\frac{22,05,000}{12} \times 2\text{m} = 3,67,500$
- v) Cash = Total Current Liability  $\times 50\% = 2,32,500 \times 50\% = 1,16,250$
- vi) Advances = Sales Promotion Expenses / 4 =  $90,000 / 4 = 22,500$

**Calculation of Current Liabilities:**

Creditors =  $\frac{\text{Credit Purchases}}{12} \times \text{CCP} = \frac{6,75,000}{12\text{m}} \times 2\text{m} = 1,12,500$

**Time Lag:**

Wages =  $\frac{\text{Wages incurred}}{12\text{m}} \times 1\text{m} = 45,000$

Manufacturing exp. = 60,000(given)

Admin expenses =  $\frac{\text{Admin incurred}}{12\text{m}} \times 1\text{m} = \frac{1,80,000}{12} \times 1\text{m} = 15,000$

**Statement showing working capital requirement:**

Particulars	Amount Rs
<b>A. Current assets:</b>	
a) Cash	1,16,250
b) Inventories	
i) Raw Materials	56,250
ii) W.I.P	-
iii) Finished Goods	1,76,250
c) Debtors	3,67,500
d) Advances	22,500
<b>TOTAL (A)</b>	<b>7,38,750</b>
<b>B. Current Liabilities</b>	
a) Creditors	1,12,500
b) Wages	45,000
c) Manufacturing expenses	60,000
d) Administrative expenses	15,000
<b>TOTAL (B)</b>	<b>2,32,500</b>

Net working capital(A-B)	5,06,250
Add: Safety Margin @ 15% (5,06,250 x 15%)	75,938
<b>Total Working capital</b>	<b>5,82,188</b>

**ASSUMPTIONS:**

1. Credit purchases are assumed to be raw material consumed.
2. Debtors are valued on the basis of cash cost of production.
3. Finished goods are valued on the basis of cash cost of production.
4. In a year represents 12 months period.

**PROBLEM NO: 9**

Statement showing working capital requirement:

Particulars	Calculation	Amount (Rs.)
<b>A. Current Assets</b>		
a) Inventories		
i) Raw Material	$\frac{(1,40,000 + 7,05,000 - 1,25,000)}{12} \times 2$	12,000
ii) Work-in-process		
i) Raw materials	$\frac{7,20,000}{12} \times 0.5 = 30,000$	
ii) Wages & Exp	$\frac{3,60,000}{12} \times 0.5 \times 0.5 = 7,500$	37,500
iii) Finished goods	$\frac{(1,20,000 - 1,20,000)}{12} \times 1$	90,000
b) Debtors	$\frac{10,80,000}{12} \times 1$	90,000
c) Cash balance		35,000
<b>Total (A)</b>		<b>3,72,500</b>
<b>B. Current Liabilities</b>		
a) Raw Materials	$\frac{7,05,000}{12} \times 1$	29,375
b) Advance from Customers		15,000
<b>Total (B)</b>		<b>44,375</b>
<b>C. Net working Capital (A-B)</b>		<b>3,28,125</b>

**PROBLEM NO. 10**

Statement showing the requirements of working capital (on cash cost basis)

Particulars	Calculation	Amount (Rs.)
<b>A. Current assets:</b>		
a) Stock of raw material	$10,33,620 \times 2/12$	1,72,270
b) Stock of work in progress	As per working note	1,74,945
c) Stock of finished goods	$15,67,550 \times 10/100$	1,56,750
d) Debtors	$13,59,756 \times 2/12$	2,26,626
<b>Total (A)</b>		<b>7,30,596</b>
<b>B. Current liabilities</b>		
a) Creditors for raw materials	$12,05,890 \times 1.5/12$	1,50,736
b) Creditors for wages	$7,08,875 \times 1/12$	59,073
c) Creditors for office & administrative expenses	$1,49,800 \times 1/12$	12,483
d) Creditors for selling & distribution expenses	$1,39,100 \times 1/12$	11,592
e) Provision for taxation	$1,07,000 \times 30/100$	32,100
<b>Total (B)</b>		<b>2,65,984</b>
<b>Net working capital(a-b)</b>		<b>4,64,612</b>
Add: Safety Margin	$4,64,612 \times 10/100$	46,461
<b>Total working capital</b>		<b>5,11,073</b>



**Working notes:**

<b>1. Calculation of stock of work in progress</b>	<b>(Rs.)</b>
Raw material (Rs. 8,98,800 x 15%)	1,34,820
Wages & Manufacturing expenses (Rs. 6,68,750 x 15% x 40%)	40,125
<b>Total</b>	<b>1,74,945</b>
<b>2. Calculation of stock of finished goods and cost of sales</b>	<b>(Rs.)</b>
Direct material cost (8,98,800 + 1,34,820)	10,33,620
Wages & Manufacturing expenses (668750+40125)	7,08,875
Gross factory cost	17,42,495
<b>Less: Closing W.I.P (as per working note (1))</b>	<b>(1,74,945)</b>
Cost of goods produced	15,67,550
<b>Less: Closing stock (10% of Rs.1,54,67,550)</b>	<b>(1,56,755)</b>
Cost of goods sold	14,10,795
<b>Add: Office &amp; administrative expenses</b>	<b>1,49,800</b>
<b>Add: Selling &amp; distribution expenses</b>	<b>1,39,100</b>
<b>Total cash cost of sales</b>	<b>16,99,695</b>
<b>Total cash cost of credit sales (80% of Rs 16,99,695)</b>	<b>13,59,756</b>
<b>3. Calculation of credit purchases:</b>	
a) Raw material consumed (Rs 8,98,800 x 115%)	10,33,620
b) <b>Add: Closing stock (10,33,620 x 2/12)</b>	<b>1,72,270</b>
c) <b>Less: Opening stock</b>	<b>Nil</b>
<b>Purchases: (a + b - c)</b>	<b>12,05,890</b>

**PROBLEM NO. 11****PART A****Net Profitability in the existing situation**

Particulars	Amount (Rs.)
Earnings on current assets (10,000 x 1%)	100
Earnings on fixed assets (30,000 x 13%)	3,900
	<b>4,000</b>
<b>Less: Cost of current liabilities (5000 x 3%)</b>	<b>150</b>
<b>Less: Interest on long term funds (35,000 x 10%)</b>	<b>3,500</b>
<b>Net Profit</b>	<b>350</b>

**PART B****Balance Sheet Positions in both situations**

Particulars	b(i)	b(ii)
<b>Assets:</b>		
Fixed Assets	31,500	30,000
Current Assets	8,500	10,000
	<b>40,000</b>	<b>40,000</b>
<b>Liabilities:</b>		
Long term liabilities	35,000	33,500
Current liabilities	5,000	6,500
	<b>40,000</b>	<b>40,000</b>

**Calculation of Net Profit in both the situations:**

Particulars	b(i)	b(ii)
Earnings on fixed assets @ 13%	4,095	3,900
Earnings on current assets @ 1%	85	100
	4,180	4,000
<b>Less: Cost of current liabilities @ 3%</b>	150	195
<b>Less: Interest on Long term loans @ 10%</b>	3,500	3,350
Net Profit	530	455
<b>Incremental net profit</b>	<b>180</b>	<b>105</b>

**Conclusion:** Since the net profit is maximum it is beneficial for the company to decrease the net working capital by Rs.1,500 by shifting current assets to fixed assets.

Both the given alternatives can be implemented simultaneously, in such a case current assets will decrease by Rs.1,500 and current liabilities will increase to the extent of Rs.1,500.

Net working capital = Rs.2,000

Net profit = 350+180+105 = 635

**Verification:****Balance Sheet**

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Current Liabilities	6,500	Current Assets	8,500
Long term liabilities	33,500	Fixed Assets	31,500
	<b>40,000</b>		<b>40,000</b>

Earnings on current assets (8,500 x 1%)	=	85
Earnings on fixed assets (31,500 x 13%)	=	4,095
<b>Less: Cost of current liabilities (6,500 x 3%)</b>	=	195
<b>Less: Cost of long term liabilities (33,500 x 10%)</b>	=	3,350
Net Profit	=	<b>635</b>

**PROBLEM NO: 12****a) Calculation of Ratio of Current assets to total assets:**

$$\text{Ratio of Current Assets to Total Assets} = \frac{\text{Total Current Assets}}{\text{Total Assets}} = \frac{8,000}{24,000} = \frac{1}{3} = 1:3$$

**b) Calculation of Ratio of Current Liabilities to total Liabilities:**

$$\text{Ratio of Current Liabilities to Total Liabilities} = \frac{\text{Total Current Liabilities}}{\text{Total Liabilities}} = \frac{2,000}{24,000} = \frac{1}{12} = 1:12$$

**c) Calculation of net Profitability**

Particulars	Calculation	Amount (Rs.)
<b>A. Return on Assets:</b>		
i) On Current Assets	8,000 x 2%	160
ii) On Fixed Assets	16,000 x 14%	2240
<b>Total (A)</b>		<b>2400</b>
<b>B. Cost of Liabilities:</b>		
i) Of Current Liabilities	2,000 x 4%	800
ii) Of Long Term Liabilities	22,000 x 10%	2200
<b>Total (B)</b>		<b>2280</b>
<b>Net profitability (A - B)</b>		<b>120</b>

**PROBLEM NO: 13****1. Estimation of Individual Holding Period:**

Given, Period covered = 365days

- a) RMHP  $= \frac{\text{Avg. stock of R.M}}{\text{RMCDY}} \times 365 = \frac{320}{4,400} \times 365 = 27 \text{ days}$
- b) WIPHP  $= \frac{\text{Avg stock of W.I.P}}{\text{Cash cost of production}} \times 365 = \frac{350}{10,000} \times 365 = 13 \text{ days}$
- c) FGHP  $= \frac{\text{Avg finished goods}}{\text{cost of goods sold}} \times 365 = \frac{260}{10,500} \times 365 = 9 \text{ days}$
- d) Receivable conversion period  $= \frac{\text{Debtors}}{\text{Credit sales}} \times 365 = \frac{480}{16000} \times 365 = 11 \text{ days}$

**2. Estimation Of Net Operating Cycle Period:**

- a) Debtors collection period = 16 days
- b) N.O.C.P. = ICP + RCP - DP  
 $= \text{RMHP} + \text{WIPHP} + \text{FGHP} + \text{RCP} - \text{DP}$   
 $= 27 + 13 + 9 + 11 - 16$   
 $= 44 \text{ days}$

**3. Calculation of Cash Cycle.**

$$\text{Cash cycle} = \frac{365}{\text{NOCP}} = \frac{365}{44} = 8.29(\text{or}) 8 \text{ days}$$

**PROBLEM NO: 14**

Calculation of Net operating cycle period for year 1 &amp; year 2

Particulars	Year 1 Calculation	No of days	Year 2 Calculation	No of days
i) RMCP	$\frac{20000}{96000} \times 360$	75	$\frac{27000}{135000} \times 360$	72
ii) WIPCP	$\frac{14000}{140000} \times 360$	36	$\frac{18000}{180000} \times 360$	36
iii) FGCP	$\frac{21000}{140000} \times 360$	54	$\frac{24000}{180000} \times 360$	48s
iv) DCP	$\frac{32000}{160000} \times 360$	72	$\frac{50000}{200000} \times 360$	90
Gross Op Cp		237		246
Less: CPP	$\frac{16000}{96000} \times 360$	(60)	$\frac{18000}{135000} \times 360$	(48)
Net operating C.P		177		198

Comment: In year 2 NOCP increased by 22 days because of increase in DCP and reduction in CPP.

**PROBLEM NO: 15****Computation of Operating Cycle:****1) Raw Material Storage Period (R):**

$$\begin{aligned} \text{Raw material storage period} &= \frac{\text{Avg stock of raw material}}{\text{Daily avg consumption of R.M.}} \\ &= \frac{(180000 + 200000) / 2}{1080000 / 360} = 63.33 \text{ DAYS} \end{aligned}$$

$$\begin{aligned}\text{Raw Material Consumed} &= \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} \\ &= \text{Rs } 1,80,000 + \text{Rs } 11,00,000 - \text{Rs } 2,00,000 = \text{Rs } 10,80,000\end{aligned}$$

**2) Conversion/Work-in-Process Period (W)**

$$\begin{aligned}\text{Conversion/processing period} &= \frac{\text{Avg stock of WIP}}{\text{Daily avg production cost}} \\ &= \frac{(60000 + 100000)/2}{1540000/360} = 18.7 \text{ days}\end{aligned}$$

<u>Production Cost:</u>	<u>Rs</u>
Opening Stock of WIP	= 60,000
Add: Raw Material Consumed	= 10,80,000
Add: Wages	= 3,00,000
Add: Production Expenses	= <u>2,00,000</u>
	16,40,000
Less: Closing Stock of WIP	= <u>1,00,000</u>
<b>Production Cost</b>	<b><u>15,40,000</u></b>

**3) Finished Goods Storage Period (F)**

$$\begin{aligned}\text{Finished goods storage period} &= \frac{\text{Avg stock of F.G.}}{\text{Daily avg C.O.G.S}} \\ &= \frac{(260000 + 300000)/2}{1500000/360} = 67.2 \text{ Days}\end{aligned}$$

<u>Cost of Goods Sold</u>	<u>Rs</u>
Opening Stock of Finished Goods	2,60,000
Add: Production Cost	<u>15,40,000</u>
	18,00,000
Less: Closing Stock of Finished Goods	<u>3,00,000</u>
	<u>15,00,000</u>

**4) Debtors Collection Period (D)**

$$\text{Debtors collection period} = \frac{\text{avg debtors}}{\text{Daily avg sales}} = \frac{(150000 + 200000)/2}{2000000/360} = 31.5 \text{ days}$$

**5) Creditors Payment Period (C)**

$$\begin{aligned}\text{Creditors payment period} &= \frac{\text{Avg creditors}}{\text{Daily avg purchase}} \\ &= \frac{(200000 + 240000)/2}{1100000/360} = 72 \text{ Days}\end{aligned}$$

**6) Duration of Operating Cycle (O)**

$$\begin{aligned}O &= R + W + F + D - C \\ &= 63.33 + 18.7 + 67.2 + 31.5 - 72 \\ &= 108.73 \text{ days}\end{aligned}$$

**Computation of Working Capital****i) Number of Operating Cycles per Year**

$$= 360/\text{Duration Operating Cycle} = 360/108.73 = 3.311$$

ii) <b>Total Operating Expenses</b>	<b>Rs.</b>
Total Cost of Production	15,00,000
Add: Administration Expenses	1,75,000
Selling Expenses	<u>75,000</u>
	<u>17,50,000</u>

## iii) Working Capital Required

$$\text{Working capital required} = \frac{\text{Total operating expenses}}{\text{Number of operating cycles per year}} = \frac{1750000}{3.311}$$

$$= \text{Rs.} 5,28,541$$

[Note: For computational purposes, the above solution is based on 360 days a year. The solution can also be solved on the basis of 365 days a year. Work-in-process (W) can be computed alternatively taking Administration Expenses as part of Cost of Production. This would lead to further changes in figures of Finished Goods Storage Period, Duration of operating cycle, Number of operating cycles per year and amount of capital required.]

**PROBLEM NO: 16**

Given information

Cash Turnover rate = 4.5

Annual Cash outflow = 175000

i) No. of cycles in a year =  $\frac{365}{4.5} = 6$  cycles

ii) Cash outflow per day =  $\frac{175000}{365}$

iii) Cash outflow per cycle =  $\frac{175000}{6} = 29167$

iv) Amount saved of accounts payable can be stretched by 20 days =  $\frac{175000}{365} \times 20$   
= 9589

v) Savings in cost = 9589 × 8%  
= 767

**PROBLEM NO. 17**

## Calculation of Net Operating Cycle Period

Particulars	Calculations	No. of days
RMCP = $\frac{\text{Avg RM inv.}}{\text{RM cons.}} \times 360$	$\frac{80}{600} \times 360$	48
W.I.PCP = $\frac{\text{Avg. WIP inv.}}{\text{COP}} \times 360$	$\frac{85}{2,100} \times 360$	15
FGCP = $\frac{\text{Avg. FG inv.}}{\text{COGS}} \times 360$	$\frac{180}{2,100} \times 360$	31
RCP = $\frac{\text{Avg. debtors.}}{\text{Cr. Sales}} \times 360$	$\frac{350}{3,000} \times 360$	42
<b>Total Operating Cycle Period</b>		<b>136</b>
Less: DP = $\frac{\text{Avg. creditors}}{\text{cr. purchases}} \times 360$	$\frac{90}{600} \times 360$	54
<b>Net Operating Cycle Period</b>		<b>82</b>

No. of Operating Cycles in a year =  $\frac{365}{82} = 4$  cycles (approx.)

**Assumptions:**

1. Raw Material Purchased = Raw Material Consumption
2. 1 year = 360 days
3. 100% Sales is on credit basis.

The operating cycle period of XYZ Ltd. is less than that of industry average.

- a) RMCP of XYZ Ltd. is more than that of industry average. XYZ Ltd has to implement better inventory management techniques to reduce the RMCP.
- b) WIPCP of XYZ Ltd. is same as that of industry Average.
- c) FGCP of XYZ Ltd. is less than that of industry average; due to this the firm may loose some profitable opportunities.
- d) DCP of XYZ Ltd. is less than that of industry average. XYZ Ltd. might be adopting strict collection policies which may affect the future sales.
- e) CPP of XYZ Ltd. is more than that of industry average. This may show a negative impact on the credit rating of the organization.

**PROBLEM NO. 18**

**Statement Showing Evaluation of Debtors Policies**

	Particulars	Present Policy (45 DAYS)	Proposed Policy (60 DAYS)
A.	<b>Expected Profit</b>		
	Credit Sales	2,56,48,750	2,82,13,625
	Less: Total Cost other than Bad Debts	(1,84,67,100)	(2,03,13,810)
	Less: Bad Debts	(3,84,731)	(5,64,273)
	Profit before tax	67,96,919	73,35,542
	Less: Tax @ 35%	(23,78,922)	(25,67,440)
	Profit after tax	44,17,997	47,68,102
B.	<b>Opportunity Cost of investment in Receivables</b>	3,46,258	5,07,845
C.	<b>Net Benefits [A-B]</b>	<b>40,71,739</b>	<b>42,60,257</b>

**Recommendation:** Proposed Policy should be implemented since the net benefit under this policy are higher than those under present policy.

**Working Note: Opportunity Costs of Average Investments**

$$= \text{Total Cost} \times \frac{\text{Collection period}}{360 \text{ days}} \times \text{Rate of Return}$$

$$\text{Present Policy} = 1,84,67,100 \times \frac{45}{360} \times 15\% = 3,46,258$$

$$\text{Proposed Policy} = 2,03,13,810 \times \frac{60}{360} \times 15\% = 5,07,845$$

**PROBLEM NO: 19**

**A. Calculation of PAT**

Particulars	Amount (Rs.)
a) Sales	120000
b) Less: Cost of sales @ 85%	(102000)

c) Less: Bad debts @10%	(12000)
PBT	6000
Less: Tax@30%	(1800)
PAT	4200

**B. Calculation of opportunity cost**

$$\frac{120000}{12} \times 1.5 \times 85\% \times 40 = 5100 \text{ B}$$

**C. Incremental Net benefit**

$$\text{Increment net benefit/Loss} = A - B = 4200 - 5100$$

$$\text{Loss} = 9,00$$

Since the estimated profit after tax an additional sales Rs. 4200 is less than the required return on additional investment of Rs. 5100 in receivables, hence the offer should not be accepted.

**PROBLEM NO. 20****Calculation of incremental net profit**

Particulars	Proposal A	Proposal B
Sales	1,00,000	2,00,000
Less: Variable Cost @ 50%	50,000	1,00,000
Contribution	50,000	1,00,000
Less: Bad Debts	(1,00,000 × 20%) 20,000	(2,00,000 × 40%) 80,000
Less: Administration Expenses	(1,00,000 × 5%) 5,000	(2,00,000 × 12%) 24,000
Net Profit / (Loss)	25,000	(4,000)

**Conclusion:** If proposal A is accepted profits will increase by Rs.25,000 and if proposal B is accepted we incur a loss of Rs.4,000.

**PROBLEM NO: 21****A) Evaluation of credit policy company**

Particulars	Present (1m)	Proposed (2m)	Increment
a) Sales	75,00,000	81,00,000	6,00,000
b) Variable cost	(50,00,000)	(54,00,000)	4,00,000
c) Contribution	25,00,000	27,00,000	2,00,000
d) Fixed cost	6,25,000	6,25,000	-
e) PAT	18,75,000	20,75,000	2,00,000

**B) Calculation of investments on the debtors:**

$$\text{Proposed investment on Debtors} = \frac{81,00,000}{12\text{m}} \times 2\text{m} = 13,50,000$$

$$\text{Present investment of Debtors} = \frac{75,00,000}{12\text{m}} \times 1\text{m} = 6,25,000$$

$$\text{C) Additional investment} = 13,50,000 - 6,25,000 = 7,25,000$$

$$\text{Net benefit} = 2,00,000 - 77,333 = 1,22,667$$

**Conclusion:** it is advisable to extend the credit period from 1 month to 2 months , since net benefit is positive.

**PROBLEM NO: 22****Calculation Additional Contribution**

$$\text{a) Proposed Sales} = \frac{25\text{L}}{2\text{m}} \times 12\text{m} = 150\text{L}$$

$$\text{b) Present Sales} = \frac{10\text{L}}{1\text{m}} \times 12\text{m} = 120\text{L}$$

$$\text{Additional Sales} = 30\text{L}$$

$$\text{Contribution Ratio} = 40\%$$

$$\text{Additional contribution (30L x 40\%)} = 12\text{L}$$

**PROBLEM NO: 23****Evaluation of credit policy (i. e, Extending From 60 days to 75 days)**

PARTICULARS	Rs
2) Additional sales = 6 crores x 15%	90,00,000
3) Profitability of additional sales = Rs.90,00,000 x 0.2	18,00,000
4) Additional receivables associated with the new sales = Rs.90,00,000/4.8	18,75,000
5) Additional investment in receivables associated with the new sales = Rs 18,75,000 x 0.8	15,00,000
6) New level of receivables associated with the original sales = Rs.6,00,00,000/4.8	1,25,00,000
7) Old level of receivables associated with the original sales = Rs.6,00,00,000/8	75,00,000
8) Incremental receivable investment, original sales (New level - old level)	50,00,000
9) Incremental Investment = Rs 50,00,000 x 0.8	40,00,000
10) Total increase in receivable investment = Rs 15,00,000 + Rs 40,00,000	55,00,000
11) Carrying cost of additional investment = 0.20 x Rs.55,00,000	11,00,000

**Working Note:** Receivable turnover =  $\frac{360}{75} = 4.8$

**Advise:** As the incremental carrying cost is less than the incremental profitability, the company should lengthen its credit period from 30 to 60 days.

**PROBLEM NO: 24****Evaluation of Alternative Collection Programmes**

Particulars	Present Policy	Alternative I	Alternative II
<b>A) Expected Profit</b>	<b>Rs.</b>	<b>Rs.</b>	<b>Rs.</b>
Sales Revenues	30,00,000	30,00,000	30,00,000
Average Collection Period (ACP) (days)	50	40	30
Receivables Rs. $\left( \text{Sales} \times \frac{\text{ACP}}{360} \right)$	4,16,667	3,33,333	2,50,000
Reduction in Receivables from Present Level (Rs)	-	83,334	1,66,667
Savings in Interest @ 10% p.a. (A)	-	RS 8,333	RS 16,667
% of Bad Debt Loss	5%	4%	3%
Amount (Rs)	1,50,000	1,20,000	90,000
Reduction in Bad Debts from Present Level (B)	-	30,000	60,000
<b>Incremental Benefits from Present Level (C) = (A) + (B)</b>	-	38,333	76,667
Collection Expenses (Rs)	30,000	60,000	95,000
Incremental Collection Expenses from Present Level (D)	-	30,000	65,000
<b>Incremental Net Benefit (C - D)</b>	-	<b>RS 8,333</b>	<b>RS 11,667</b>



**Conclusion:** From the analysis it is apparent that Alternative I has a benefit of RS 8,333 and Alternative II has a benefit of RS 11,667 over present level. Alternative II has a benefit of Rs 3,334 more than Alternative I. Hence Alternative II is more viable.

(Note: In absence of Cost of Sales has been taken for purpose of calculating investment in receivables. 1 year = 360 days.)

### PROBLEM NO: 25

#### Evaluation of the Different Options in Credit Policy of JKL Ltd

(Rs. in lakhs)

Credit period	1 month Current position	1.5 months Option I	2 months Option II	3 months Option III
Sales	200	210	220	250
Contribution @ 40%	80	84	88	100
Increase in contribution over current level	–	4	8	20 (A)
Debtors	$\frac{1 \times 200}{12} - 16.67$	$\frac{1.5 \times 210}{12} - 26.65$	$\frac{2 \times 220}{12} - 36.67$	$\frac{3 \times 250}{12} - 62.50$
Increase in debtors over current level	–	9.58	20.00	45.83
Cost of funds for additional amount of debtors @ 20%	–	1.92	4.00	9.17 (B)
Credit administrative cost	1.20	1.30	1.50	3.00
Increase in credit administration cost over present level	–	0.10	0.30	1.80 (C)
Bad debts	4.00	5.25	6.60	12.50
Increase in bad debts over current levels	–	1.25	2.60	8.50 (D)
Net gain/loss A – (B + C + D)	–	0.73	1.10	0.53

**Advise:** It is suggested that the company JKL Ltd. should implement Option II which has a credit period of 2 months.

### PROBLEM NO: 26

#### Step: 1 Calculation of Incremental PBT

Particulars	Option-I	Option-II
Incremental Sales	450000	900000
<b>Less:</b> Incremental Variable cost	(300000)	(600000)
Incremental Contribution	150000	300000
<b>Less:</b> Incremental Fixed cost	Nil	(50000)
<b>Less:</b> Incremental Bad debts	73500	(165000)
	(103500-30000)	(195000-30000)
<b>Incremental PBT</b>	76500	85000

#### Step: 2 Calculation of opportunity cost

Particulars	Option-I	Option-II
Proposed Invest in Debtors	$\frac{(3450000)}{12} \times 2 \times \frac{2}{3}$ 383333	$\frac{3900000}{12} \times 3 \times \frac{2}{3}$

Existing Invest in Debtors	$\frac{3000000}{12} \times 1 \times \frac{2}{3}$ (166667)	$\frac{3000000}{12} \times 1 \times \frac{2}{3}$ (166667)
Addition Invest in Debtors	216667	483333
Opportunity COC	20%	20%
Opportunity Cost	43333	96667

**Step: 3** Incremental net benefit

Particulars	Option – I	Option – II
Incremental PBT	76500	85000
Opportunity Cost	43333	96667
Incremental Net benefit	33167	(11667)

**Conclusion:** Sanachandini Limited should adopt the 2 months credit policy as it yields higher return.

### PROBLEM NO: 27

Since the amount of revenue generated from each category of customer is not given in the question. Let us consider Rs.100 as the amount of revenue generated from each type of customer. Therefore, Rs.100 shall be taken as the basis for reappraisal of Company's credit policy.

#### Statement showing the Evaluation of credit Policy

	Particulars	Classification of Customers			
		1	2	3	4
A	. Expected Profit:				
	a) Revenue	100	100	100	100
	b) Total Cost other than Bad Debt:				
	i) Cost of Goods Sold	85	85	85	85
	ii) Fixed Cost	5	5	5	5
		<u>90</u>	<u>90</u>	<u>90</u>	<u>90</u>
	c) Bad Debt	2	2.00	10.00	20.00
	d) Expected Profit [(a)-(b)-(c)]	10	8.00	0	(10.00)
B	. Opportunity Cost of Investment in Receivables	1.66	1.55	1.48	2.96
C.	Net Benefits [A-B]	8.34	6.45	(1.48)	(12.96)

**Recommendation:** The reappraisal of company's credit policy indicates that the company either follows a lenient credit policy or it is inefficient in collection of debts. Even though the company sells its products on terms of net 30 days, it allows average collection period for more than 30 to all categories of its customers.

The company can continue with customers covered in categories 1 and 2 since net benefits are favourable. The company either should not continue with customer covered in categories 3 and 4 or should reduce the bad debt % by at least 1.48% and 12.96% respectively since net benefits are unfavourable to the extent of 1.48% and 12.96% of sales respectively. The other factors to be taken into consideration before changing the present policy includes (i) past performance of the customers and (ii) their credit worthiness.

#### Working Note: Calculation of Opportunity Cost:

$$\text{Opportunity cost} = \text{Total cost} \times \frac{\text{average collection period}}{365} \times \text{Rate of interest}$$

$$\text{For category 1} = \text{RS.}90 \times \frac{45}{365} \times \frac{15}{100} = \text{RS.}1.66$$

$$\text{For category 2} = \text{RS.}90 \times \frac{42}{365} \times \frac{15}{100} = \text{RS.}1.55$$

$$\text{For category 3} = \text{RS.}90 \times \frac{40}{365} \times \frac{15}{100} = \text{RS.}1.48$$

$$\text{For category 4} = \text{RS.}90 \times \frac{80}{365} \times \frac{15}{100} = \text{RS.}2.96$$

**PROBLEM NO: 28****Evaluation of the given proposal of cash discount**

Particulars	Amount
<b>A. Benefit</b>	
a) Reduction in interest in debtors $\left( \frac{25L}{12m} \times 2m \times 60\% \right) \times \frac{9}{10} = 2,25,000$	
b) Savings there on @ 35% (2,25,000 x 35%)	78,750
<b>B. Cost</b>	
Cash discount (25 L x 60 x 5%)	75,000
<b>NET BENEFIT (A)-(B)</b>	<b>3750</b>

**Conclusion:** Since benefit is more than cost it is beneficial for the company to accept the proposal.

**Note:** Debtors have been valued at average cost of Rs.9 per unit. Alternatively they can be valued at full value of Rs.10 per unit.

**PROBLEM NO: 29****i) Evaluation of the given proposal assuming no incremental sales**

Particulars	Amount
<b>A. Benefit</b>	
a) Investment in Debtors (existing) $\left( \frac{10,00,000}{365} \times 80 \right) \times 80\%$	1,75,342
b) Investment in debtors $\left( \frac{10,00,000 \times 60\% \times 7}{365} + \frac{10,00,000 \times 20\% \times 80}{365} + \frac{10,00,000 \times 20\% \times 100}{365} \right) \times 80\%$	88,110
(a - b)	87,232
Savings in interest there on (87,232, x 14%)	12,212
<b>B. Cost</b>	
Cash discount (10,00,000 x 60% x 3%)	18,000
<b>Net Loss (B - A)</b>	<b>5,788</b>

**ii) Evaluation of Cash Discount Policy when cash discount is given.**

Particulars	Amount
<b>A. Benefit</b>	
a) Incremental Profit (50,000 x 20%)	10,000
b) Savings in loss of interest	11,596
<b>Deduction in investment in debtors</b>	
$\left( \frac{10,00,000 \times 80}{365} \right) - \left( \frac{10,50,000 \times 60\% \times 7}{365} + \frac{10,50,000 \times 20\% \times 80}{365} + \frac{10,50,000 \times 20\% \times 100}{365} \right) \times 80\% \times 14\%$	
<b>B. Cost</b>	
Cash discount (10,50,000 x 60% x 3%)	18,900
<b>Net Loss (B - A)</b>	<b>2,696</b>

**Conclusion:** It is worth for the company to offer cash discount when new sales are obtained.

**PROBLEM NO: 30****Evaluation of factoring service:**

<b>A. Benefit:</b>	
1. Savings on bad debts (5000x1000)x10%	500000
2. Opportunity cost saving	
a) Present investment on debtors $\left(\frac{50,00,000}{12} \times 2\right)$	= 8,33,333
b) Proposed investment on debtors $\left(\frac{50,00,000 \times 80\%}{12} \times 2\right)$	= 6,66,667
Reduction on Investment	1,66,667
Opportunity cost- (1,66,667 x 75% x 15%)	18,750
<b>Total</b>	<b>5,18,750</b>
<b>B. Cost</b>	
1. Factoring charges	2,50,000
2. Contribution loan (50,00,000x20%25%)	250,000
<b>Total</b>	<b>5,00,000</b>
<b>C. Net benefit: (A-B)</b>	<b>18,750</b>

**Conclusion:** it is advisable to enter into a factoring agreement, since net benefit is positive.

**PROBLEM NO: 31****Evaluation of factoring service**

Particulars	Amount (Rs.)
<b>A) Benefit</b>	
a) savings on bad debts (100L x 0.5%)	50,000
b) savings on administrative cost	1,00,000
c) opportunity cost of saving	
i) present investment on debtors $\frac{100}{365} \times 80 = 21.91L$	
ii) proposed investment on debtors $\frac{100}{365} \times 60 = 16.43L$	
Opportunity cost (i-ii) = 5.48L	
∴ opportunity cost = 5.48L x 80% x 15%	
<b>TOTAL</b>	<b>65760</b>
<b>B) Cost</b>	
a) factoring charges (100L*2%)	2,00,000
<b>TOTAL</b>	<b>2,00,000</b>
<b>NET BENEFIT = (A-B)</b>	<b>15,760</b>

**Conclusion:** it is advisable to enter into a factoring agreement, since net benefit is positive.

**PROBLEM NO: 32****Evaluation of factoring service**

Particulars	Amount (Rs.)
<b>A) Benefit</b>	
a) savings on bad debts (320 Lakhs x 1.5%)	4,80,000
b) savings on administrative cost	5,00,000

	<b>TOTAL</b>	<b>9,80,000</b>
<b>B) Cost</b>		
<b>a) Factoring Commission</b>		
(i). Receivables $(3,20,00,000 \times 90/360) = 80,00,000$		
(ii). Factoring commission $(80,00,000 \times 2/100) = 1,60,000$		
(iii). Factoring commission p.a $(Rs\ 1,60,000 \times 360/90)$		6,40,000
<b>b) Interest</b>		
(i). Loan $\{80,00,000 - (80,00,000 \times 10\%)\} - 1,60,000 = 70,40,000$		
(ii). Interest $(70,40,000 \times 18\%)$		12,67,200
	<b>TOTAL</b>	<b>19,07,200</b>
<b>NET BENEFIT (A-B)</b>		<b>9,27,200</b>

$$\text{Effective rate of int to the firm} = \frac{RS.9,27,200 \times 100}{67,23,200} = 13.79\%$$

(Note: The number of days in a year has been assumed to be 360 days.)

### PROBLEM NO: 33

**Preparation of cash budget for the month of Jan, Feb, March:**

Particulars	Jan	feb	March
<b>A. Opening balance</b>	22,000	35,000	48000
<b>B. Receipts:</b>			
1. Cash sales	20000	20000	24000
2. Collection from debtors	80,000	80,000	80,000
3. Sale of machinery	-	-	5000
<b>TOTAL</b>	<b>100000</b>	<b>100000</b>	<b>109000</b>
<b>C. Payments</b>			
1. Purchase of machineries	40000	40000	40000
2. Cash purchases	2000	2000	2000
3. Wages	15000	15000	15000
4. Manufacturing expenses	25000	25000	25000
5. General selling expenses	10000	10000	10000
6. Purchase of machinery	-	-	50000
<b>TOTAL</b>	<b>87000</b>	<b>87000</b>	<b>137000</b>
<b>D. Closing balance (a + b - c)</b>	<b>35000</b>	<b>48000</b>	<b>20000</b>

### PROBLEM NO: 34

#### Cash Budget

	Jan	Feb	March	April	May	June	Total
<b>Receipts</b>							
Cash sales	36,000	48500	43000	44300	51250	54350	2,77,400
Collections from debtors	-	36000	48500	43000	44300	51250	2,23,050
Bank loan	-	-	-	-	30000	-	30000
<b>Total</b>	<b>36000</b>	<b>84,500</b>	<b>91,500</b>	<b>87,300</b>	<b>1,25,550</b>	<b>1,05,600</b>	<b>5,30,450</b>
<b>Payments</b>							
Materials	-	25000	31000	25500	30600	37000	149100
Salaries and wages	10000	12100	10600	25000	22000	23000	102700
Production overheads	-	6000	6300	6000	6500	8000	32800
Office & selling overheads	-	5500	6700	7500	8900	11000	39600
Sales commission	2160	2910	2580	2658	3075	3261	16644
Capital expenditure	-	8000	-	25000	-	-	33000

Dividend	-	-	-	-	-	35000	35000
<b>Total</b>	<b>12160</b>	<b>59510</b>	<b>57180</b>	<b>91658</b>	<b>71075</b>	<b>1,17,261</b>	<b>4,08,844</b>
Net cash flow	23,840	24990	34320	(4,358)	54,475	(11,661)	1,21,606
Opening balance of month	72,500	96340	121330	155650	151292	205767	1,94,106
<b>Closing balance of month</b>	<b>36340</b>	<b>121330</b>	<b>155650</b>	<b>151292</b>	<b>205767</b>	<b>194106</b>	<b>3,15,712</b>

**PROBLEM NO: 35****1) Sale receipts**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Forecast sales (S)	1,000	1,000	1,000	1,250	1,500	2,000	1,900	2,200
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs
S×15	15,000	15,000	15,000	18,750	22,500	30,000	28,500	33,000
Debtors pay:								
1 month 40%		6,000	6,000	6,000	7,500	9,000	12,000	11,400
2 month 60% -			9,000	9,000	9,000	11,250	13,500	18,000
	-	-	<u>15,000</u>	<u>15,000</u>	<u>16,500</u>	<u>20,250</u>	<u>25,500</u>	<u>29,400</u>

**2) Payment for materials – books produced two months before sale**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs
Materials (Q×5)	5,000	6,250	7,500	10,000	9,500	11,000	11,000	11,500
Paid (2 months after)	-	-	5,000	6,250	7,500	10,000	9,500	11,000

**3) Variable overheads**

Month	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	Rs	Rs	Rs	Rs	Rs	Rs	Rs	Rs
Var. overhead (Q×2)	2,000	2,500	3,000	4,000	3,800			
Var. overhead (Q×2.50)						5,500	5,500	5,750
Paid one month later		2,000	2,500	3,000	4,000	3,800	5,500	5,500

**4) Wages payments**

Month	Dec	Jan	Feb	Mar	Apr	May	Jun
Qty produced (Q)	1,250	1,500	2,000	1,900	2,200	2,200	2,300
	RS	RS	RS	RS	RS	RS	RS
Wages (Q × 4)	5,000	6,000	8,000				
Wages (Q × 4.50)				8550	9,900	9,900	10,350
75% this month	3,750	4,500	6,000	6,412	7,425	7,425	7,762
25% this month		<u>1,250</u>	<u>1,500</u>	<u>2,000</u>	<u>2,137</u>	<u>2,475</u>	<u>2,475</u>
		<u>5,750</u>	<u>7,500</u>	<u>8,412</u>	<u>9,562</u>	<u>9,900</u>	<u>10,237</u>

**Cash budget – six months ended June**

	Jan Rs	Feb Rs	Mar Rs	Apr Rs	May Rs	Jun Rs
Receipts:						
Credit sales	15,000	15,000	16,500	20,250	25,500	29,400
Premises disposal	-	-	-	-	25,000	-
	<b>15,000</b>	<b>15,000</b>	<b>16,500</b>	<b>20,250</b>	<b>50,500</b>	<b>29,400</b>
Payments:						
Materials	5,000	6,250	7,500	10,000	9,500	11,000
Var. overheads	2,500	3,000	4,000	3,800	5,500	5,500
Wages	5,750	7,500	8,412	9,562	9,900	10,237
Fixed assets	-	-	-	-	10,000	-
Corporation tax	-	-	10,000	-	-	-

	13,250	16,750	29,912	23,362	34,900	26,737
Net cash flow	1,750	(1,750)	(13,412)	(3,112)	15,600	2,663
Balance b/f	1,500	3,250	1,500	(11,912)	(15,024)	576
Cumulative cash flow	3,250	1,500	(11,912)	(15,024)	576	3,239

**PROBLEM NO: 36**

Workings:	Rs in '000'		
1. Payments to creditors:	Jan. 2014	Feb. 2014	March, 2014
Cost of Sales	1,635	1,405	1,330
Add Closing Stocks	1,200	1,100	1,000
	2,835	2,505	2,330
Less: Opening Stocks	1,300	1,200	1,100
Purchases	1,535	1,305	1,230
Add: Trade Creditors, Opening balance	2,110	2,000	1,950
	3,645	3,305	3,180
Less: Trade Creditors, closing balance	2,000	1,950	1,900
Payment	1,645	1,355	1,280
2. Receipts from debtors:			
Debtors, Opening balances	2,570	2,600	2,500
Add: Sales	2,100	1,800	1,700
	4,670	4,400	4,200
Less: Debtors, closing balance	2,600	2,500	2,350
Receipt	2,070	1,900	1,850

**CASH BUDGET****a) 3 months ending 31st March, 2014**

	(Rs, in 000's)		
	January, 2014	Feb. 2014	March, 2014
Opening cash balances	545	315	65
<b>Add: Receipts:</b>			
From Debtors	2,070	1,900	1,850
Sale of Investments	---	700	---
Sale of Plant	---	---	50
Total (A)	2,615	2,915	1,965
<b>Deduct: Payments</b>			
Creditors	1,645	1,355	1,280
Expenses	255	210	195
Capital Expenditure	---	800	---
Payment of dividend	---	485	---
Purchase of investments	400	---	200
Total payments (B)	2,300	2,850	1,675
Closing cash balance (A - B)	315	65	290

**b) Statement of Sources and uses of Funds for the Three Month Period Ending 31st March, 2014**

Sources:	Rs '000	Rs '000
Funds from operation:		
Net profit	390	
Add: Depreciation	180	570
Sale of plant		50
		620
Decrease in Working Capital		665
Total		1,285

<b>Uses:</b>		
Purchase of plant		800
Payment by dividends		<u>485</u>
Total		<u>1,285</u>

**Statement of Changes in Working Capital**

	January, 14	March, 14	Increase	Decrease
	Rs 000	Rs 000	Rs 000	Rs 000
<b>Current Assets:</b>				
Cash in hand and at Bank	545	290		255
Short term Investments	300	200		100
Debtors	2,570	2,350		220
Stock	<u>1,300</u>	<u>1,000</u>		300
	<u>4,715</u>	<u>3,840</u>		
<b>Current Liabilities:</b>				
Trade Creditors	2,110	1,900	210	---
Other Creditors	200	200	---	---
Tax Due	<u>320</u>	<u>320</u>	---	---
	<u>2,630</u>	<u>2,420</u>		
Working Capital	2,085	1,420		
Decrease		<u>665</u>	<u>665</u>	
	<b>2,085</b>	<b>2,085</b>	<b>875</b>	<b>875</b>

**PROBLEM NO: 37**

The optimum cash balance  $C = \sqrt{\frac{2 \times 12,60,000 \times 20}{0.08}} = 25,100$

**PROBLEM NO: 38**

a) Given information,

Total cash required during the year (F) = 37,50,000

Transaction cost (T) = 25

Rate of interest (r) = 0.12

**Economic lot size (C) =**  $\sqrt{\frac{2FT}{r}} = \sqrt{\frac{2 \times 37,50,000 \times 40}{0.12}} = \text{Rs.} 50,000$

**b) Number of Transactions =**  $\frac{\text{Annual Cash Requirement}}{\text{Economic Lot Size}} = \frac{37,50,000}{50,000} = 75 \text{ Transactions}$

**c) Average Cash balance =**  $\frac{0 + 50,000}{2} = \text{Rs.} 25,000$

Holding cost =  $25,000 \times 12\% = \text{Rs.} 3,000$

Total Transaction Cost =  $75 \times 40 = \text{Rs.} 3,000$

**PROBLEM NO: 39**

Given information

Transaction cost per conversion (T) = Rs.10

Variance of daily cash balance (V) =  $(200)^2 = 40,000$

Lower Limit (L) = Rs.100

Rate of interest per day (i) =  $\frac{0.01(1\%)}{30} = 0.00033$



**Step 1:** Calculation of Z

$$Z = \sqrt[3]{\frac{3TV}{4i}} = \sqrt[3]{\frac{3 \times 10 \times 40,000}{4 \times 0.00033}} = \sqrt[3]{909090909} = 970.13$$

**Step 2:** Return level  $R = L + Z = 970.13 + 100 = 1070.13$

**Step 3:** Upper limit  $H = 3Z + L = 3(970.13) + 100 = 3010.39$

Spread  $= H - L = 3010.39 - 100 = 2910.39$

Average Cash Balance  $= \frac{4R - L}{3} = \frac{4(1070.13) - 100}{3} = 1393.5$

**PROBLEM NO: 40**

Given information,

Reduction in mailing float = 2.5 days

Reduction in processing float = 1 day

Opportunity cost of capital = 5%

Average collection per day = Rs. 5,00,000

**Evaluation of the proposal of lock box system**

Particulars	Amount
<b>A. Benefit</b>	
Reduction in float = 3.5 days	
Reduction in Average Cash Balance = Rs. 5,00,000 × 3.5 = 17,50,000	
Savings in opportunity cost of loss of interest = Rs. 17,50,000 × 5%	87,500
<b>B. Cost</b>	
Service Charge of Lock Box System	75,000
<b>Net Benefit (A - B)</b>	<b>12,500</b>

**Conclusion:** It is advisable to initiate lock box system.

**PROBLEM NO. 41****Evaluation of least cost transfer of funds****CHEQUE**

1) Cost of cheque = 0.5

2) Opportunity cost

$$\frac{15000 \times 14.5}{365} \times 3 = 17.87$$

**TOTAL COST = 18.37**

(1+2)

**ELECTRONIC FUND TRANSFER**

Cost = 7.50

**OBSERVATION:** Since electronic fund transfer is the least economic way to transfer money.

**COMMERCIAL PAPER**

It is a short term financial instrument

**Redeemed:** 7 days – 1 year

**Approval:** RBI

**Rating:** Credit Agencies (CRISIC, ICRA)

Face value = 1,00,000

Issue price = 80,000

Period = 2 Months

**PROBLEM NO: 42****Method – I**

$$\begin{aligned}\text{MPBF} &= 0.75 (\text{CA} - \text{CL}) \\ &= 0.75 (360 - 120) \\ &= 0.75 (240) \\ &= 180\end{aligned}$$

$$\begin{aligned}\text{Balance permissible} &= 180 - 180 \\ &= \text{NIL}\end{aligned}$$

**Method – II**

$$\begin{aligned}\text{MPBF} &= .75 (\text{CA}) - \text{CL} \\ &= 0.75 (360) - 120 \\ &= 270 - 120 \\ &= 150\end{aligned}$$

$$\begin{aligned}\text{Balance} &= 150 - 180 \\ &= (30\text{L})\end{aligned}$$

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**Method – III**

$$\begin{aligned}\text{MPBF} &= 0.75 (\text{CA} - \text{CCA}) - \text{CL} \\ &= 0.75 (360 - 180) - 120\text{L} \\ &= 0.75 (180) - 120\text{L}\end{aligned}$$

$$\begin{aligned}\text{A} &= 135 - 120 \\ &= 15\text{L}\end{aligned}$$

$$\begin{aligned}\text{Balance Perm} &= 15\text{L} - 180\text{L} \\ &= (165\text{L})\end{aligned}$$

**PROBLEM NO. 43****PART-A:**

$$\text{Given contract} = 3/20 \text{ net } 40$$

$$\text{Annualised cash discount} = \frac{d}{1-d} \times \frac{365}{n-p}$$

$$\begin{aligned}\text{Annualised cash discount} &= \frac{3}{97} \times \frac{365}{40-20} \times 100 \\ &= 56.44\%\end{aligned}$$

**PART-B:**

$$\text{Given contract} = 3/20 \text{ net } 50$$

$$\text{Annualised cash discount} = \frac{3}{97} \times \frac{365}{50-20} \times 100 = 37.63\%$$

**PROBLEM NO: 44**

$$\text{Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.01}{0.99} \times \frac{365}{60-10} = 7.37\%$$

$$\text{Interest on borrowed money} = 18\%$$

In the point of view of seller, it is better to allow cash credit because they can't get less than that. In the point of view of buyer, it is not advisable to borrow, they can invest in other benefits.

**Conclusion:** Since the borrowing cost is more than 7.37%, it is not advisable for ABC Ltd. to avail discount.

### **PROBLEM NO: 45**

Given, opportunity cost = 18%

$$\text{i) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{60-7} = 17.66\%$$

**Decision:** Since the borrowing cost of company is less than 17.66% it is not beneficial for the company to offer cash discount.

$$\text{ii) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{80-7} = 12.82\%$$

**Decision:** Since the borrowing cost of company is greater than 12.82% it is beneficial for the company to offer cash discount instead of borrowing funds.

$$\text{iii) Cost of not availing the cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{0.025}{0.975} \times \frac{365}{105-7} = 9.55\%$$

**Decision:** Since the borrowing cost of company is greater than 9.55% it is beneficial for the company to offer cash discount instead of borrowing funds.

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**THE END**