

WORKING CAPITAL MANAGEMENT

Question 1

Marks Limited is launching a new project for the manufacture of a unique component. At full capacity of 24,000 units, the cost will be as follows:

	Cost per unit Rs.
Material	80
Labour and Variable Expenses	40
Fixed Manufacturing and Administrative Expenses	20
Depreciation	<u>10</u>
	<u>150</u>

The selling price per unit is expected at Rs. 200 and the selling expenses per unit will be Rs. 10, 80% of which is variable.

In the first two years production and sales are expected to be as follows:

Year	Production	Sales
1	15,000 units	14,000 units
2	20,000 units	18,000 units

To assess working capital requirement, the following additional information is given:

- (a) Stock of raw material -3 months' average consumption.
 - (b) Work-in-progress- Nil.
 - (c) Debtors-1 month average sales.
 - (d) Creditors for supply of materials- 2 months average purchases of the year.
 - (e) Creditors for expenses- 1 month average of all expenses during the year.
 - (f) Cash balance-Rs. 20,000
- Stock of finished goods is taken at average cost.

2.2 Financial Management

You are required to prepare for the two years:

- (1) A projected statement of profit/loss
- (2) A projected statement of working capital requirements. (Final-May 1996) (20 marks)

Answer

Marks Ltd.

(1) Projected Statement of Profit/Loss

	Year I Rs.	Year II Rs.
Production in units	<u>15,000</u>	<u>20,000</u>
Sales in units	<u>14,000</u>	<u>18,000</u>
Sales Revenue @ Rs. 200 per unit (A)	<u>28,00,000</u>	<u>36,00,000</u>
Cost of Production		
Material @ Rs. 80 per unit	12,00,000	16,00,000
Direct labour & variable expenses @ Rs. 40 per unit	6,00,000	8,00,000
Fixed manufacturing & Administrative expenses @ Rs.20 on 24,000 units	4,80,000	4,80,000
Depreciation @ Rs. 10 for 24,000 units	<u>2,40,000</u>	<u>2,40,000</u>
Total Cost of Production	25,20,000	31,20,000
Add: Opening stock of finished goods at average cost	-	1,68,000*
$\frac{*25,20,000}{15,000} \times 1000$		
Cost of goods available	25,20,000	32,88,000
Less: Closing stock of finished goods at average cost	1,68,000	4,69,714@
$\frac{@32,88,000}{21,000} \times 3000$		
Cost of goods sold	23,52,000	28,18,286
Add: Selling expenses	1,12,000	1,44,000
(Variable at Rs. 8)		
Selling expenses fixed at Rs. 2	<u>48,000</u>	<u>48,000</u>
Cost of Sales (B)	<u>25,12,000</u>	<u>29,10,286</u>
Profit A-B	2,88,000	714

Working Notes

	Year I Rs.	Year II Rs.
(a) Creditors for supply of material		
Materials consumed	12,00,000	16,00,000
Add: Closing stock of Average consumption	<u>3,00,000</u>	<u>4,00,000</u>

Working Capital Management 2.3

	(3 months)		
		15,00,000	20,00,000
	Less: Opening Stock	<u>-</u>	<u>3,00,000</u>
	Purchases	<u>15,00,000</u>	<u>17,00,000</u>
	Average purchases per month (Creditors)	1,25,000	1,41,667
	Creditors (2 months for goods)	2,50,000	2,83,334
(b)	Creditors for expenses	<u>1,03,334*</u>	<u>1,22,667*</u>
	Total of Current Liabilities (B)	<u>3,53,334</u>	<u>4,06,001</u>
	*Labour, Manufacturing expenses & Selling expenses		
		6,00,000	8,00,000
		4,80,000	4,80,000
		1,12,000	1,44,000
		<u>48,000</u>	<u>48,000</u>
		<u>12,40,000</u>	<u>14,72,000</u>
		12	12

(2) Projected Statement of Working Capital Requirements

		Year I	Year II
		Rs.	Rs.
Current Assets:		3,00,000	4,00,000
Stock of materials			
(3 months average consumption)			
Finished Goods		1,68,000	4,69,714
Debtors (one month)		2,33,334	3,00,000
Cash		<u>20,000</u>	<u>20,000</u>
Total Current Assets	(A)	<u>7,21,334</u>	<u>11,89,714</u>
Current Liabilities:			
Creditors for supply of materials		2,50,000	2,83,334
Creditors for expenses		1,03,334	1,22,667
(See W.N. (b) above)			
Estimated Working Capital requirement	(B)	<u>3,53,334</u>	<u>4,06,001</u>
Estimated Working Capital		<u>3,68,000</u>	<u>7,83,713</u>

Question-2

Foods Ltd. is presently operating at 60% level producing 36,000 packets of snack foods and proposes to increase capacity utilisation in the coming year by $33\frac{1}{3}\%$ over the existing level of production.

2.4 Financial Management

The following data has been supplied:

(i) Unit cost structure of the product at current level:

	Rs.
Raw Material	4
Wages (Variable)	2
Overheads (Variable)	2
Fixed Overhead	1
Profit	<u>3</u>
Selling Price	<u>12</u>

(ii) Raw materials will remain in stores for 1 month before being issued for production. Material will remain in process for further 1 month. Suppliers grant 3 months credit to the company.

(iii) Finished goods remain in godown for 1 month.

(iv) Debtors are allowed credit for 2 months.

(v) Lag in wages and overhead payments is 1 month and these expenses accrue evenly throughout the production cycle.

(vi) No increase either in cost of inputs or selling price is envisaged.

Prepare a projected profitability statement and the working capital requirement at the new level, assuming that a minimum cash balance of Rs. 19,500 has to be maintained.

(Final-Nov. 1996) (20 marks)

Answer

FOODS LIMITED

Projected Profitability Statement at 80% capacity

Units to be produced $(36,000/60 \times 80) = 48,000$ packets

A.	Cost of Sales:		(Rs.)
	Raw material	Rs. $4 \times 48,000$	= 1,92,000
	Wages	Rs. $2 \times 48,000$	= 96,000
	Overheads (Variable)	Rs. $2 \times 48,000$	= 96,000
	Overheads (Fixed)	Rs. $1 \times 36,000$	= <u>36,000</u>
			4,20,000
B.	Profit	Rs. $3.25 \times 48,000$	= <u>1,56,000</u>
C.	Sale value	Rs. $12 \times 48,000$	= <u>5,76,000</u>

Alternatively:

If we assume the movement in stock levels, because of increase in capacity, i.e., from 60% to 80%, the profitability statement will be as follows:

Units to be produced (36,000/60 × 80) 48,000 packets

A. Cost of goods sold:

		Rs.
Raw Material	(4 × 48,000)	1,92,000
Wages	(2 × 48,000)	96,000
Overheads (Variable)	(2 × 48,000)	96,000
Overheads (Fixed)	(1 × 36,000)	<u>36,000</u>
		4,20,000

Less: Increase in stock of
Materials + WIP + Finished goods

(Refer to working note) 18,000

Adjusted cost of sales 4,02,000

B. Profit 1,62,000

C. Sales (12 × 47,000)* 5,64,000

* Opening Stock + production – closing stock = 3,000 + 48,000 - 4,000 = 47,000

Working Note:

Capacity		60%	80%
Number of units of production		36,000	48,000
	Cost/Unit	Rs.	Rs.
Raw material stock (1 month)	4	12,000	16,000
WIP Stock:			
Material (1 month)	4	12,000	16,000
Wages (1/2 month)	2	3,000	4,000
Variable overheads (1/2 month)	2	3,000	4,000
Fixed overheads (1/2 month)	1	1,500 (0.75)	1,500
Finished goods (1 month)	9	<u>27,000</u> (8.75)	<u>35,000</u>
		58,500	76,500
Increase in Stock			18,000

Working Notes:

Cost of Sales-average per month

	Per annum	Per month
Raw material	1,92,000	16,000
Wages	96,000	8,000

2.6 Financial Management

Overheads (Variable)	96,000	8,000
Overheads (Fixed)	<u>36,000</u>	<u>3,000</u>
	4,20,000	35,000
Profit	<u>1,56,000</u>	<u>13,000</u>
Sale value	<u>5,76,000</u>	<u>48,000</u>

Projected Statement of Working Capital at 80% capacity

Current Assets

Raw material ($48000/12 \times 4$)	16,000	
Work in process	25,500	
Materials ($48,000 \times 4 \times 1/12$)	16,000	
Wages ($48,000 \times 2 \times 1/24$)	4,000	
Variable overheads ($48,000 \times 2 \times 1/24$)	4,000	
Fixed overheads ($48,000 \times 0.75 \times 1/24$)	1,500	
Finished goods ($48,000 \times 8.75 \times 1/12$)	<u>35,000</u>	
	76,500	
Sundry debtors	<u>96,000</u>	
	1,72,500	
Cash balance	<u>19,500</u>	(A) 1,92,000

Less: Current Liabilities:

Creditors for goods ($48,000 \times 4 \times 3/12$)	48,000	
Creditors for expenses ($48,000 \times 4.75 \times 1/12$)	<u>19,000</u>	(B) <u>67,000</u>
Net working capital (A)–(B)		<u>1,25,000</u>

Note: (i) Since wages and overheads payments accrue evenly, it is assumed that they will be in process for half a month in average.

(ii) Fixed overheads per unit = Rs. $36000/48000$ = Rs. 0.75

Question 3

The fixed assets and equities of Eastern Manufacturing Co. Ltd. are supplied to you both at the beginning and at the end of the year 1996-97:

	1.04.96	31.03.97
	Rs.	Rs.
Plant Less Depreciation	63,500	1,42,500
Investment in Shares of Southern Manufacturing Company	1,32,000	2,90,000
Bonds Payable	2,50,000	70,000

Capital Stock	4,00,000	4,00,000
Retained Earnings	2,38,000	4,10,500

You are not in a position to have complete Balance Sheet data or an income statement for the year in spite of the fact that you have obtained the following information:

- (a) Dividend of Rs. 37,500 were paid.
- (b) The net income included Rs. 13,000 as profit on sale of equipment. There has been an increase of Rs. 93,000 in the value of gross plant assets even though equipments worth Rs. 29,000 with a net book value of Rs. 19,000 was disposed off. From the particulars given above, prepare a statement of sources and uses of net working capital.

(Final- Nov. 1997) (10 marks)

Answer

(a) Working Notes:

- (i) Purchase of plant Rs.
- Net increase in gross value 93,000
- Add: Gross value of plant sold 29,000
- 1,22,000
- (ii) Depreciation on plant and machinery

Plant and Machinery account

	Rs.		Rs.
To Balance b/d	63,500	By Sale of Plant & machinery A/c	19,000
To Purchases	1,22,000	By Depreciation (balancing figure)	24,000
		By Balance c/d	<u>1,42,500</u>
	<u>1,85,500</u>		<u>1,85,500</u>

- (iii) Funds from Operations Rs.
- Increase in retained earnings [4,10,500 – 2,38,000] 1,72,500
- Add: Dividend paid 37,500
- Add: Depreciation on plant 24,000
- 2,34,000
- Less: Gain on sale of equipment 13,000
- 2,21,000

2.8 Financial Management

Statement of Sources and Uses of Fund

Sources	Rs.	Uses	Rs.
Funds form operation	2,21,000	Purchase of plant	1,22,000
Sale of equipment	32,000	Purchase of Investments	1,58,000
		(2,90,000 -1,32,000)	
Decrease in net working capital	2,44,500	Payment of bonds	1,80,000
(Balancing figure)		Dividends	<u>37,500</u>
	<u>4,97,500</u>		<u>4,97,500</u>

Question 4

A newly formed company has applied to the commercial bank for the first time for financing its working capital requirements. The following information is available about the projections for the current year:

Estimated level of activity: 1,04,000 completed units of production plus 4,000 units of work-in-progress. Based on the above activity, estimated cost per unit is:

Raw material	Rs. 80 per unit
Direct wages	Rs. 30 per unit
Overheads (exclusive of depreciation)	Rs. 60 per unit
Total cost	<u>Rs. 170 per unit</u>
Selling price	<u>Rs. 200 per unit</u>

Raw materials in stock: Average 4 weeks consumption, work-in-progress (assume 50% completion stage in respect of conversion cost) (materials issued at the start of the processing).

Finished goods in stock	8,000 units
Credit allowed by suppliers	Average 4 weeks
Credit allowed to debtors/receivables	Average 8 weeks
Lag in payment of wages	Average $1\frac{1}{2}$ weeks

Cash at banks (for smooth operation) is expected to be Rs. 25,000

Assume that production is carried on evenly throughout the year (52 weeks) and wages and overheads accrue similarly. All sales are on credit basis only.

Find out

- the net working capital required;
- the maximum permissible bank finance under first and second methods of financing as per Tandon Committee Norms.

(Final-Nov. 1998) (20 marks)

Answer**(i) Estimate of the Requirement of Working Capital**

	Rs.	Rs.
A. Current Assets:		
Raw material stock (Refer to Working note 3)	6,64,615	
Work in progress stock (Refer to Working note 2)	5,00,000	
Finished goods stock (Refer to Working note 4)	13,60,000	
Debtors (Refer to Working note 5)	29,53,846	
Cash and Bank balance	<u>25,000</u>	55,03,461
B. Current Liabilities:		
Creditors for raw materials (Refer to Working note 6)	7,15,740	
Creditors for wages (Refer to Working note 7)	<u>91,731</u>	8,07,471
Net Working Capital (A-B)		<u>46,95,990</u>

(ii) The maximum permissible bank finance as per Tandon Committee Norms*First Method:*

75% of the net working capital financed by bank i.e. 75% of Rs. 46,95,990

(Refer to (i) above)

= Rs. 35,21,993

Second Method:

(75% of Current Assets)- Current liabilities (i.e. 75% of Rs. 55,03,461)-Rs. 8,07,471

(Refer to (i) above)

= Rs. 41,27,596 – Rs. 8,07,471

= Rs. 33,20,125

Working Notes:1. *Annual cost of production*

	Rs.
Raw material requirements (1,04,000 units × Rs. 80)	83,20,000
Direct wages (1,04,000 units × Rs. 30)	31,20,000

2.10 Financial Management

Overheads (exclusive of depreciation)(1,04,000 × Rs. 60)	<u>62,40,000</u>
	<u>1,76,80,000</u>

2. *Work in progress stock*

	Rs.
Raw material requirements (4,000 units × Rs. 80)	3,20,000
Direct wages (50% × 4,000 units × Rs. 30)	60,000
Overheads (50% × 4,000 units × Rs. 60)	<u>1,20,000</u>
	<u>5,00,000</u>

3. *Raw material stock*

It is given that raw material in stock is average 4 weeks consumption. Since, the company is newly formed, the raw material requirement for production and work in progress will be issued and consumed during the year.

Hence, the raw material consumption for the year (52 weeks) is as follows:

	Rs.
For Finished goods	83,20,000
For Work in progress	<u>3,20,000</u>
	<u>86,40,000</u>

Raw material stock $\frac{\text{Rs. } 86,40,000}{52 \text{ weeks}} \times 4 \text{ weeks}$

i.e. Rs. 6,64,615

4. *Finished goods stock*

8,000 units @ Rs. 170 per unit = Rs. 13,60,000

5. *Debtors for sale*

Credit allowed to debtors	Average 8 weeks
Credit sales for year (52 weeks) i.e. (1,04,000 units-8,000 units)	96,000 units
Selling price per unit	Rs. 200
Credit sales for the year (96,000 units × Rs. 200)	Rs. 1,92,00,000
Debtors	$\frac{\text{Rs. } 1,92,00,000}{52 \text{ weeks}} \times 8 \text{ weeks}$
	i.e Rs. 29,53,846

6. *Creditors for raw material:*

Credit allowed by suppliers	Average 4 weeks
Purchases during the year (52 weeks) i.e. (Rs. 83,20,000 + Rs. 3,20,000 + Rs. 6,64,615)	Rs. 93,04,615
(Refer to Working notes 1,2 and 3 above)	

Creditors	$\frac{\text{Rs. } 93,04,615}{52 \text{ weeks}} \times 4 \text{ weeks}$ i.e Rs. 7,15,740
7. Creditors for wages	
Lag in payment of wages	Average $1 \frac{1}{2}$ weeks
Direct wages for the year (52 weeks) i.e. (Rs. 31,20,000 + Rs. 60,000) (Refer to Working notes 1 and 2 above)	Rs. 31,80,000
Creditors	$\frac{\text{Rs. } 31,80,000}{52 \text{ weeks}} \times 1 \frac{1}{2} \text{ weeks}$ i.e. Rs. 91,731

Question 5

Q Ltd. sells goods at a uniform rate of gross profit of 20% on sales including depreciation as part of cost of production. Its annual figures are as under:

	Rs.
Sales (At 2 months' credit)	24,00,000
Materials consumed (Suppliers credit 2 months)	6,00,000
Wages paid (Monthly at the beginning of the subsequent month)	4,80,000
Manufacturing expenses (Cash expenses are paid – one month in arrear)	6,00,000
Administration expenses (Cash expenses are paid – one month in arrear)	1,50,000
Sales promotion expenses (Paid quarterly in advance)	75,000

The company keeps one month stock each of raw materials and finished goods. A minimum cash balance of Rs. 80,000 is always kept. The company wants to adopt a 10% safety margin in the maintenance of working capital.

The company has no work in progress

Find out the requirements of working capital of the company on cash cost basis.

(Final-May 1999) (12 marks)

Answer

(a) Working Notes:

1. Manufacturing expenses	Rs.
Sales	24,00,000
Less: Gross profit margin at 20%	<u>4,80,000</u>
Total Manufacturing cost	19,20,000

2.12 Financial Management

Less: Materials consumed	6,00,000	
Wages	<u>4,80,000</u>	<u>10,80,000</u>
Manufacturing expenses		8,40,000
Less: Cash manufacturing expenses (50,000 × 12)		<u>6,00,000</u>
Depreciation		<u>2,40,000</u>
2. Total cash costs		Rs.
Manufacturing costs		19,20,000
Less: Depreciation		<u>2,40,000</u>
Cash Manufacturing costs		16,80,000
Add: Administrative expenses		1,50,000
Add: Sales promotion expenses		<u>75,000</u>
Total cash costs		<u>19,05,000</u>

Statement showing the Requirements of Working Capital of the Company

		Rs.
<i>Current Assets:</i>		
Debtors 1/6 th of total cash costs (1/6 × Rs. 19,05,000)		3,17,500
(Refer to Working note 2)		
Sales promotion expenses (prepaid)		18,750
Stock of raw materials (1 month)		50,000
Finished goods (1/12 of cash manufacturing costs)		1,40,000
(Rs. 16,80,000 × 1/12)		
(Refer to Working note 2)		
Cash in hand		<u>80,000</u>
		6,06,250
<i>Less: Current liabilities</i>		
Creditors for goods (2 months)	1,00,000	
Wages (1 month)	40,000	
Manufacturing expenses (1 month)	50,000	
Administrative expenses (1 month)	<u>12,500</u>	<u>2,02,500</u>
Net working capital		4,03,750
Add: Safety margin 10%		<u>40,375</u>
Working Capital Required		<u>4,44,125</u>

Question 6

A company is considering its working capital investment and financial policies for the next year. Estimated fixed assets and current liabilities for the next year are Rs. 2.60 crores and Rs. 2.34 crores respectively. Estimated Sales and EBIT depend on current assets investment,

particularly inventories and book-debts. The financial controller of the company is examining the following alternative Working Capital Policies:

(Rs. Crores)

Working Capital Policy	Investment in Current Assets	Estimated Sales	EBIT
Conservative	4.50	12.30	1.23
Moderate	3.90	11.50	1.15
Aggressive	2.60	10.00	1.00

After evaluating the working capital policy, the Financial Controller has advised the adoption of the moderate working capital policy. The company is now examining the use of long-term and short-term borrowings for financing its assets. The company will use Rs. 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

(Rs. Crores)

Financing Policy	Short-term Debt	Long-term Debt
Conservative	0.54	1.12
Moderate	1.00	0.66
Aggressive	1.50	0.16
Interest rate-Average	12%	16%

You are required to calculate the following:

(1) Working Capital Investment for each policy:

- (a) Net Working Capital position
- (b) Rate of Return
- (c) Current ratio

(2) Financing for each policy :

- (a) Net Working Capital position.
- (b) Rate of Return on Shareholders equity.
- (c) Current ratio.

(Final-Nov. 2001) (20 marks)

Answer

Statement showing Working Capital for each policy

(Rs. in crores)

	Working Capital Policy		
	Conservative	Moderate	Aggressive
Current Assets: (i)	4.50	3.90	2.60

2.14 Financial Management

Fixed Assets: (ii)	<u>2.60</u>	<u>2.60</u>	<u>2.60</u>
Total Assets: (iii)	<u>7.10</u>	<u>6.50</u>	<u>5.20</u>
Current liabilities: (iv)	2.34	2.34	2.34
Net Worth: (v)=(iii)-(iv)	<u>4.76</u>	<u>4.16</u>	<u>2.86</u>
Total liabilities: (iv)+(v)	<u>7.10</u>	<u>6.50</u>	<u>5.20</u>
Estimated Sales: (vi)	12.30	11.50	10.00
EBIT: (vii)	1.23	1.15	1.00
(a) Net working capital position: (i)-(iv)	2.16	1.56	0.26
(b) Rate of return: (vii)/(iii)	17.3%	17.7%	19.2%
(c) Current ratio: (i)/(iv)	1.92	1.67	1.11

Statement Showing Effect of Alternative Financing Policy

(Rs. in crores)

Financing Policy	Conservative	Moderate	Aggressive
Current Assets: (i)	3.90	3.90	3.90
Fixed Assets: (ii)	<u>2.60</u>	<u>2.60</u>	<u>2.60</u>
Total Assets: (iii)	<u>6.50</u>	<u>6.50</u>	<u>6.50</u>
Current Liabilities: (iv)	2.34	2.34	2.34
Short term Debt: (v)	0.54	1.00	1.50
Long term Debt: (vi)	1.12	0.66	0.16
Equity Capital	<u>2.50</u>	<u>2.50</u>	<u>2.50</u>
Total liabilities	<u>6.50</u>	<u>6.50</u>	<u>6.50</u>
Forecasted Sales	11.50	11.50	11.50
EBIT: (vii)	1.15	1.15	1.15
Less: Interest short-term debt : (viii)	0.06	0.12	0.18
	(12% of Rs. 0.54)	(12% of Rs. 1.00)	(12% of Rs. 1.50)
Long term debt : (ix)	0.18	0.11	0.03
	(16% of Rs. 1.12)	(16% of Rs. 0.66)	(16% of Rs. 1.16)
Earning before tax : (x)-(viii+ix)	0.91	0.92	0.94
Taxes @ 35%	0.32	0.32	0.33
Earning after tax: (xi)	0.59	0.60	0.61
(a) Net Working Capital Position : (i)-[(iv)+(v)]	1.02	0.56	0.06
(b) Rate of return on shareholders Equity capital : (xi)	23.6%	24%	24.4%
(c) Current Ratio : [(i)/(iv)+(v)]	1.35%	1.17	1.02

Question 7

The following information has been extracted from the records of a Company:

Product Cost Sheet	Rs./unit
Raw materials	45
Direct labour	20
Overheads	<u>40</u>
Total	105
Profit	<u>15</u>
Selling price	120

- Raw materials are in stock on an average of two months.
- The materials are in process on an average for 4 weeks. The degree of completion is 50%.
- Finished goods stock on an average is for one month.
- Time lag in payment of wages and overheads is 1½ weeks.
- Time lag in receipt of proceeds from debtors is 2 months.
- Credit allowed by suppliers is one month.
- 20% of the output is sold against cash.
- The company expects to keep a Cash balance of Rs.1,00,000.
- Take 52 weeks per annum.

The Company is poised for a manufacture of 1,44,000 units in the year.

You are required to prepare a statement showing the Working Capital requirements of the Company.
(PE-II-Nov. 2002) (6 marks)

Answer**Statement showing the Working Capital Requirement of the Company**

A. Current Assets:	Rs.
Stock of raw materials	10,80,000
$[(Rs.64,80,000 / 12 \text{ months}) \times 2 \text{ months}]$	
Work-in-progress	5,81,538
$[(Rs.1,51,20,000 \times 4) / 52 \text{ months}] \times 50\%$	
Finished goods	12,60,000
$(Rs.1,51,20,000 / 12 \text{ months})$	
Debtors	23,04,000
$(Rs.28,80,000 \times 80\%)$	
(Refer to Working note 2)	
Cash balances	1,00,000

2.16 Financial Management

	53,25,538
<i>Current Liabilities:</i>	
Creditors of raw materials (Rs.64,80,000 / 12 months)	5,40,000
Creditors for wages & overheads $\left(\frac{\text{Rs.86,40,000}}{52 \text{ weeks}} \times 1.5 \text{ weeks} \right)$	2,49,231 7,89,231
Net Working Capital (C.A– C.L)	45,36,307
Working Notes:	
1, Annual raw materials requirements (Rs.) $1,44,000 \text{ units} \times \text{Rs.45}$	64,80,000
Annual direct labour cost (Rs.) $1,44,000 \text{ units} \times \text{Rs.20}$	28,80,000
Annual overhead costs (Rs.) $1,44,000 \text{ units} \times \text{Rs.40}$	57,60,000
Total Cost (Rs.)	1,51,20,000
2. Total Sales: $(1,44,000 \text{ units} \times \text{Rs.120})$	1,72,80,000
Two months sales (Rs.1,72,80,000 / 6 months)	28,80,000

Question 8

An engineering company is considering its working capital investment for the year 2003-04. The estimated fixed assets and current liabilities for the next year are Rs.6.63 crore and Rs.5.967 crore respectively. The sales and earnings before interest and taxes (EBIT) depend on investment in its current assets – particularly inventory and receivables. The company is examining the following alternative working capital policies:

Working Capital Policy	Investment in Current Assets (Rs. Crore)	Estimated Sales (Rs. Crore)	EBIT (Rs. Crore)
Conservative	11.475	31.365	3.1365
Moderate	9.945	29.325	2.9325
Aggressive	6.63	25.50	2.55

You are required to calculate the following for each policy:

- (i) Rate of return on total assets.
- (ii) Net working capital position.

- (iii) Current assets to fixed assets ratio.
 (iv) Discuss the risk-return trade off of each working capital policy.

(PE-II-May 2003) (6 marks)

Answer

Basic data:

		(Rs. in Crores)		
		Working Capital Investment Policy		
		Conservative	Moderate	Aggressive
1.	Current assets	11.475	9.945	6.630
2.	Fixed assets	6.630	6.630	6.630
3.	Total assets	18.105	16.575	13.26
4.	Current liabilities	5.967	5.967	5.967
5.	Estimated sales	31.365	29.325	25.50
6.	Estimated EBIT	3.1365	2.9325	2.55
7.	Current ratio {(1) / (4)}	1.92	1.67	1.11

Computation of following for each policy:

- | | | | | |
|-------|---|-------|-------|-------|
| (i) | Rate of return on total assets
(in percentages):
$[(6)/(3)] \times 100$ | 17.32 | 17.69 | 19.23 |
| (ii) | Net working capital position :
(in crores)
$[(1)-(4)]$ | 5.508 | 3.978 | 0.663 |
| (iii) | Current assets to fixed assets ratio:
$[(1) / (2)]$ | 1.73 | 1.50 | 1.00 |

- (iv) Risk return trade off:

The net working capital or current ratio is a measure of risk. Rate of return on total assets is a measure of return. The expected risk and return are minimum in the case of conservative investment policy and maximum in the case of aggressive investment policy. The firm can improve profitability by reducing investment in working capital.

Question 9

XYZ Co. Ltd. is a pipe manufacturing company. Its production cycle indicates that materials are introduced in the beginning of the production cycle; wages and overhead accrue evenly

2.18 Financial Management

throughout the period of the cycle. Wages are paid in the next month following the month of accrual. Work in process includes full units of raw materials used in the beginning of the production process and 50% of wages and overheads are supposed to be conversion costs. Details of production process and the components of working capital are as follows:

Production of pipes	12,00,000 units
Duration of the production cycle	One month
Raw materials inventory held	One month consumption
Finished goods inventory held for	Two months
Credit allowed by creditors	One month
Credit given to debtors	Two months
Cost price of raw materials	Rs. 60 per unit
Direct wages	Rs. 10 per unit
Overheads	Rs. 20 per unit
Selling price of finished pipes	Rs. 100 per unit

Required to calculate:

- The amount of working capital required for the company.
- Its maximum permissible bank finance under all the three methods of lending norms as suggested by the Tondon Committee, assuming the value of core current assets: Rs. 1,00,00,00. (PE-II May 2005) (10 marks)

Answer

(i)	Amount in Rs
A – Current Assets	
(i) Raw material inventory –(1 month)- $12,00,000 \text{ Uts} \times 60 \times \frac{1}{12}$	60,00,000
(ii) – Work in Progress – Production cycle 1 month	
Raw material (added in the beginning)	Rs 60,00,000
Wages $(12,00,000 \times 10 \times \frac{1}{2}) \times 50\% = 5,00,000$	
Overheads $20 \times 10,00,000 \times \frac{1}{12} \times 50\% = 10,00,000$	
Total	75,00,000
(iii) Finished goods (inventory held for 2 months)	
Total Cost	
Material	60.00
Labour	10.00
	1,80,00,000

Working Capital Management 2.19

Overheads	$20.00 = 90 \times 12,00,000 \times \frac{2}{12}$	
(iv) Debtors for 2 months	$12,00,000 \times Rs\ 90 \times \frac{2}{12}$	1,80,00,000
Total current assets		4,95,00,000
B – Current liabilities		
(v) Creditors for Raw material – 01 month		
	$7,20,00,000 \times \frac{1}{12}$	60,00,000
(vi) Creditors for wages		
	$12,00,000 \times 10 \times \frac{1}{12}$	10,00,000
Total current liabilities		70,00,000
Net working capital		4,25,00,000

(ii) Computation of Maximum Permissible Bank Finance according to Tandon Committee Norms

1st Method

	Rs
CAs	4,95,00,000
CLs	70,00,000
Working capital gap	4,25,00,000
Less 25% from long term sources	(1,06,25,000)
Max Permissible Bank Finance	3,18,75,000

2nd Method

	Rs
Working capital gap	4,25,00,000
Less: 25% of CAs	(1,23,75,000)
MPBF	3,01,25,000

2.20 Financial Management

3rd Method

$$\begin{aligned}\text{Total current assets} - \text{Core current assets} &= \text{Rs } 4,95,00,000 - 1,00,00,000 \\ &= \text{Rs } 3,95,00,000\end{aligned}$$

	Rs
Real current assets	3,95,00,000
Less: 25%	98,75,000
	2,96,25,000
Less: Current Liabilities	70,00,000
MPBF	2,26,25,000

Question 10

The following annual figures relate to MNP Limited:

Sales (at three months credit)	Rs.90,00,000
Materials consumed (suppliers extend one and half month's credit)	Rs.22,50,000
Wages paid (one month in arrear)	Rs.18,00,000
Manufacturing expenses outstanding at the end of the year (cash expenses are paid one month in arrear)	Rs.2,00,000
Total Administrative expenses for the year (cash expenses are paid one month in arrear)	Rs.6,00,000
Sales Promotion expenses for the year (paid quarterly in advance)	Rs.12,00,000

The company sells its products on gross-profit of 25% assuming depreciation as a part of cost of production. It keeps two month's stock of finished goods and one month's stock of raw materials as inventory. It keeps cash balance of Rs.2,50,000.

Assume a 5% safety margin, work out the working capital requirements of the company on cash cost basis. Ignore work-in-progress (PE-II-May 2004) (6 marks)

Answer

Computation of Total Cash Cost:

	Rs.	Rs.
Sales		90,00,000
Less: Gross profit (25% x sales revenue)		<u>22,50,000</u>
Total Manufacturing cost (A)		67,50,000
Less: Material consumed cost	22,50,000	
Less: Wages paid	<u>18,00,000</u>	<u>40,50,000</u>
Manufacturing expenses		27,00,000

Working Capital Management 2.21

Less: Cash manufacturing expenses (Rs. 2,00,000 × 12)	<u>24,00,000</u>
Depreciation: (B)	3,00,000
Total Manufacturing cost : (C) = (A) – (B)	64,50,000
Add: Administrative expenses	6,00,000
Add: Sales promotion expenses	<u>12,00,000</u>
Total cash cost of manufacturing and sales	<u>82,50,000</u>

Estimation of Current Assets :

	Rs.
Debtors (Total cash cost × 3/12) or (Rs. 82,50,000 × 3/12)	20,62,500
Cash balance	2,50,000
Pre-paid sales promotion expenses	3,00,000
Raw materials stock (Material consumed / 12) or (Rs. 22,50,000 / 12)	1,87,500
Finished goods stock (Total cash cost × 2/12) or (Rs. 82,50,000 × 2/12)	13,75,000
Total Current Assets	<u>41,75,000</u>

Estimation of Current Liabilities :

Sundry creditors	2,81,250
Material cost (Rs. 22,50,000 × 1.5 months / 12 months)	
Manufacturing expenses outstanding	2,00,000
Wages outstanding (Rs. 18,00,000 × 1/12 months)	1,50,000
Administrative expenses outstanding (Rs. 6,00,000 × 1 month / 12 months)	50,000
Total Current Liabilities	- <u>6,81,250</u>
Working capital requirements : (CA – CL) (On cash cost basis)	- <u>34,93,750</u>

2.22 Financial Management

Question 11

A proforma cost sheet of a Company provides the following particulars:

	Amount per unit (Rs.)
Raw materials cost	100
Direct labour cost	37.50
Overheads cost	75
Total cost	212.50
Profit	37.50
Selling Price	250

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs.37,500.

Required:

Prepare a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

(PE-II-Nov 2006) (12 marks)

Answer

(a)

Activity level: 1,30,000 units
Statement showing Estimate of Working Capital Needs

A. Investment in Inventory:

Raw material inventory: 1 month	10,00,000
$\left(1,30,000 \times \frac{4}{52} \times \text{Rs. } 100\right)^*$	
WIP Inventory : 1 week $\left(1,30,000 \times \frac{1}{52} \times 0.80 \times 212.50\right)$	4,25,000
Finished goods inventory: 2 weeks	
$\left(1,30,000 \times \frac{2}{52} \times 212.50\right)$	10,62,500

B.	Investment in Debtors: 4 weeks at cost		
	$\left(1,30,000 \times \frac{4}{5} \times \frac{4}{52} \times 212.50\right)$	17,00,000	
C.	Cash balance		<u>37,500</u>
D.	Investment in Current Assets (A + B + C)		42,25,000
E.	Current Liabilities:		
	Creditors : 3 weeks		
	$\left(1,30,000 \times \frac{3}{52} \times 100\right)$	7,50,000	
	Deferred wages : 1 week		
	$\left(1,30,000 \times \frac{1}{52} \times 37.50\right)$	93,750	
	Deferred overheads : 2 weeks		
	$\left(1,30,000 \times \frac{2}{52} \times 75\right)$	<u>3,75,000</u>	<u>12,18,750</u>
	Net Working Capital Needs		<u>30,06,250</u>

* For calculation purposes, 4 weeks has been considered as equivalent to a month.

Question 12

A proforma cost sheet of a Company provides the following data:

	Rs.
Raw material cost per unit	117
Direct Labour cost per unit	49
Factory overheads cost per unit	
(includes depreciation of Rs. 18 per unit at budgeted level of activity)	<u>98</u>
Total cost per unit	264
Profit	<u>36</u>
Selling price per unit	<u>300</u>

Following additional information is available:

Average raw material in stock	:	4 weeks
Average work-in-process stock	:	2 weeks
(% completion with respect to		

2.24 Financial Management

Materials : 80%

Labour and Overheads : 60%)

Finished goods in stock : 3 weeks

Credit period allowed to debtors : 6 weeks

Credit period availed from suppliers : 8 weeks

Time lag in payment of wages : 1 week

Time lag in payment of overheads : 2 weeks

The company sells one-fifth of the output against cash and maintains cash balance of Rs. 2,50,000.

Required:

Prepare a statement showing estimate of working capital needed to finance a budgeted activity level of 78,000 units of production. You may assume that production is carried on evenly throughout the year and wages and overheads accrue similarly. (PE-II-Nov 2007) (9 marks)

Answer

Estimation of Working Capital Needs

I	Investment in Inventory	Rs.
(i)	Raw material Inventory = $78,000 \times \frac{4}{52} \times \text{Rs. } 117$	7,02,000
(ii)	Work-in-Process Inventory	
	Material = $78,000 \times \frac{2}{52} \times 0.80 \times 117 = 2,80,800$	
	Labour and Overheads Cost (other than depreciation)	
	= $78,000 \times \frac{2}{52} \times 0.60 \times 129 = 2,32,200$	5,13,000
(iii)	Finished Goods Inventory (Cash Cost)	
	= $78,000 \times \frac{3}{52} \times 246$	11,07,000
II	Investment in Debtors (Cash Cost)	
	= $78,000 \times \frac{6}{52} \times 0.8 \times 246$	17,71,200
III	Cash Balance	<u>2,50,000</u>
	Investment in Current Assets	<u>43,43,200</u>

Current Liabilities and Deferred Payment

	Rs.
(i) Creditors = $78,000 \times \frac{8}{52} \times 117$	14,04,000
(ii) Wages outstanding = $78,000 \times \frac{1}{52} \times 49$	73,500
(iii) Overheads outstanding (cash cost) = $78,000 \times \frac{2}{52} \times 80$	<u>2,40,000</u>
Total Deferred Payments	<u>17,17,500</u>
Net Working Capital (Current assets – Non-interest bearing current liabilities)	
$43,43,200 - 17,17,500 = \text{Rs. } 26,25,700$	

Question 13

MNO Ltd. has furnished the following cost data relating to the year ending of 31st March, 2008.

	Rs. (in Lakhs)
Sales	450
Material consumed	150
Direct wages	30
Factory overheads (100% variable)	60
Office and Administrative overheads (100% variable)	60
Selling overheads	50

The company wants to make a forecast of working capital needed for the next year and anticipates that:

- ◆ Sales will go up by 100%,
- ◆ Selling expenses will be Rs. 150 lakhs,
- ◆ Stock holdings for the next year will be—Raw material for two and half months, Work-in-progress for one month, Finished goods for half month and Book debts for one and half months,
- ◆ Lags in payment will be of 3 months for creditors, 1 month for wages and half month for Factory, Office and Administrative and Selling overheads.

You are required to:

- (i) Prepare statement showing working capital requirements for next year, and
- (ii) Calculate maximum permissible bank finance as per Tandon Committee guidelines assuming that core current assets of the firm are estimated to be Rs. 30 lakhs.

(PE-II-May 2008) (8 marks)

2.26 Financial Management

Answer

Working:

Statement showing the projected Cost and Profitability for the year ending on 31-3-2009

	Year ending 31/3/2008 (Rs.in lakhs)	Increase/Decrease	Forecast for the next Year ending 31/3/2009 (Rs.in lakhs)	Per month
Sales:	<u>450</u>	+100%	<u>900</u>	<u>75</u>
Direct Materials Consumed	150	+100%	300	25
Direct Wages	<u>30</u>	+100%	<u>60</u>	<u>5</u>
Prime Cost	180		360	30
+ Factory overheads	<u>60</u>	+100%	<u>120</u>	<u>10</u>
Works cost	240		480	40
+ Office & Administrative overheads	<u>60</u>	+100%	<u>120</u>	<u>10</u>
Cost of Production	300		600	50
+ Selling overheads	<u>50</u>	Increase	<u>150</u>	<u>12.50</u>
Total Cost	<u>350</u>		<u>750</u>	<u>62.50</u>
Profit	<u>100</u>		<u>150</u>	<u>12.50</u>

(i) **Statement showing Working Capital Requirements of MNO Ltd. for the year 31-3-2009**

Amount (Rs. in lakhs)

(A) Current Assets		
Raw Material	(25 × 2.5 month)	62.50
Work-in-Progress		
Raw Material	(25 × 1 month)	25.00
Direct Wages	(5 × 1 month)	5.00
Factory Overheads	(10 × 1 month)	10.00
Finished goods	(600 × 0.5/ 12)	25.00
Debtors	(900 × 1.5/12)	<u>112.50</u>
Total (A)		<u>240.00</u>

(B) Current Liabilities – Lags in payment:		
(i) Creditors	$(300 \times 3/12)$	75.00
(ii) Wages	$(60 \times 1/12)$	5.00
(iii) Factory overheads	$(120 \times 0.5/12)$	5.00
(iv) Office & Administrative overheads	$(120 \times 0.5/12)$	5.00
(v) Selling overhead	$(150 \times 0.5/12)$	<u>6.25</u>
Total (B)		<u>96.25</u>
Networking capital (A–B)		<u>143.75</u>

Note: In the above answer while computing Work-in-Progress the degree of completion in respect of Labour and Overheads components have been assumed at 100%, which can be assumed otherwise also.

(ii) **Maximum permissible Bank Finance (MPBF):**

<i>First Method</i>	Rs. in lakhs
Total current assets	240
(–) Current Liabilities	<u>96.25</u>
	143.75
(–) 25% from long term sources (approx.)	<u>35.94</u>
MPBF	<u>107.81</u>
<i>Second Method</i>	
Total current assets	240
(–) 25% from long term sources	<u>60</u>
	180
(–) Current Liabilities	<u>96.25</u>
MPBF	<u>83.75</u>
<i>Third Method</i>	
Total current assets	240
(–) Core Current Assets	<u>30</u>
	210
(–) 25% from long term sources	<u>52.5</u>
	157.5
(–) Current Liabilities	<u>96.25</u>
MPBF	<u>61.25</u>

2.28 Financial Management

Question 14

H Ltd. has a present annual sales of 10,000 units at Rs. 300 per unit. The variable cost is Rs. 200 per unit and the fixed costs amount to Rs. 3,00,000 per annum. The present credit period allowed by the company is 1 month. The company is considering a proposal to increase the credit period to 2 months and 3 months and has made the following estimates:

	Existing	Proposed	
Credit Policy	1 month	2 months	3 months
Increase in sales	-	15%	30%
% of Bad Debts	1%	3%	5%

There will be increase in fixed cost by Rs. 50,000 on account of increase of sales beyond 25% of present level.

The company plans on a pre-tax return of 20% on investment in receivables.

You are required to calculate the most paying credit policy for the company.

(Final-May 1996) (20 marks)

Answer

H Ltd.

Evaluation of Credit Policy

	Present Policy	Proposed Policy	
	1 month	2 months	3 months
A. Sales (Units)	10,000	11,500	13,000
B. Sales income	30,00,000	34,50,000	39,00,000
Variable cost at Rs. 200 per unit	<u>20,00,000</u>	<u>23,00,000</u>	<u>26,00,000</u>
Contribution	10,00,000	11,50,000	13,00,000
Fixed Costs	<u>3,00,000</u>	<u>3,00,000</u>	<u>3,50,000</u>
C. Net Margin	7,00,000	8,50,000	9,50,000
D. Investment in receivables (see Working notes)	1,91,666	4,33,333	7,37,500
E. Expected Return on receivables at 20%	38,333	86,666	1,47,500
F. Bad Debts	30,000	1,03,500	1,95,000
G. Net Profit (C-E-F)	6,31,667	6,59,834	6,07,500
H. Increase in profits	-	28,167	(-) 52,334

As 2 months credit policy yield higher return, it should be adopted.

Working Notes:

Calculation showing investments in receivables:

$$\text{Formula} = \frac{\text{Variable Cost} + \text{Fixed Cost}}{12} \times \text{No. of months credit.}$$

Investment

$$1 \text{ month: } \frac{23,00,000}{12} \times 1 = 1,91,666$$

$$2 \text{ months: } \frac{26,00,000}{12} \times 2 = 4,33,333$$

$$3 \text{ months: } \frac{29,50,000}{12} \times 3 = 7,37,500$$

Question 15

The present credit terms of P Company are 1/10 net 30. Its annual sales are Rs. 80 lakhs, its average collection period is 20 days. Its variable cost and average total costs to sales are 0.85 and 0.95 respectively and its cost of capital is 10 per cent. The proportion of sales on which customers currently take discount is 0.5. P company is considering relaxing its discount terms to 2/10 net 30. Such relaxation is expected to increase sales by Rs. 5 lakhs, reduce the average collection period to 14 days and increase the proportion of discount sales to 0.8. What will be the effect of relaxing the discount policy on company's profit? Take year as 360 days. (Final-May 1998) (5 marks)

Answer

Evaluation of effect of relaxing the discount policy on company's profit

A. Incremental Revenue Rs.

Increase in contribution (Rs. 5,00,000 × 15%) 75,000

Reduction in investment in receivable × cost of capital

$$\text{Present: } \left[\frac{\text{Rs. 80 lacs} \times 0.95 \times 20 \text{ days}}{360 \text{ days}} \right] = \text{Rs. 4,22,222}$$

$$\text{Proposed: } \left[\frac{(\text{Rs. 80 lacs} \times 0.95 + \text{Rs. 5 lacs} \times 0.85) \times 14 \text{ days}}{360 \text{ days}} \right] = \text{Rs. 3,12,083}$$

Reduction in investment in receivable Rs. 1,10,139 (Rs. 4,22,222 – Rs. 3,12,083)

Cost of savings on investment in receivable (Rs. 1,10,139 × 10%) 11,014

86,014

B. Incremental Cost

Increase in discount

Present: (Rs. 80 lacs × 1% × 0.5) = Rs. 40,000

Proposed : (Rs. 85 lacs × 2% × 0.8) = Rs. 1,36,000

2.30 Financial Management

Net increase in discount	= <u>Rs. 96,000</u>
C. Net effect on profits (A–B)	= Rs. 86,014 – Rs. 96,000
	= (–) Rs. 9,986

Since, the proposed discount policy will reduce the profits of the company to the extent of Rs. 9,986. Therefore, it is not advisable for the company to relax the present discount policy.

Question 16

Radiance Garments Ltd. manufactures readymade garments and sells them on credit basis through a network of dealers. Its present sale is Rs. 60 lakh per annum with 20 days credit period. The company is contemplating an increase in the credit period with a view to increasing sales. Present variable costs are 70% of sales and the total fixed costs Rs. 8 lakh per annum. The company expects pre-tax return on investment @ 25%. Some other details are given as under:

Proposed Credit Policy	Average Collection Period (days)	Expected Annual Sales (Rs. Lakh)
I	30	65
II	40	70
III	50	74
IV	60	75

Required: Which credit policy should the company adopt? Present your answer in a tabular form. Assume 360-days a year. Calculations should be made upto two digits after decimal.

(Final-Nov. 1999) (10 marks)

Answer

Statement showing Evaluation of the Proposed Credit Policies

(Amount Rs. In Lakhs)

	<u>Credit policies</u>				
	<u>Present</u>	<u>I</u>	<u>Proposed</u> <u>II</u>	<u>III</u>	<u>IV</u>
Average Collection Period (days)	(20 days)	(30 days)	(40 days)	(50 days)	(60 days)
Sales (Annual)	60.00	65.00	70.00	74.00	75.00
Less: Variable cost (70% of sales)	<u>42.00</u>	<u>45.50</u>	<u>49.00</u>	<u>51.80</u>	<u>52.50</u>
Contribution	18.00	19.50	21.00	22.20	22.50
Less: Fixed Costs	<u>8.00</u>	<u>8.00</u>	<u>8.00</u>	<u>8.00</u>	<u>8.00</u>
Profit	10.00	11.50	13.00	14.20	14.50
Increase in profit compared to present	-	1.50	3.00	4.20	4.50

profit: (A)					
Investments in debtors (Variable cost+ Fixed cost)	50.00	53.50	57.00	59.80	60.50
Debtors turnover (360 days/Average collection period)	18	12	9	7.2	6
Average investment in debtors (Investment in debtors/ Debtors turnover)	2.78	4.46	6.33	8.3	10.08
Additional investment in debtors compared to present level	-	1.68	3.55	5.52	7.30
Required return on additional investment (25%) : (B)	-	0.42	0.89	1.38	1.83
Incremental profit: (A)–(B)	-	1.08	2.11	2.82	2.67

Decision: The company should adopt the credit policy III (with collection period of 50 days) as it yields a maximum profit to the company.

Question 17

A bank is analysing the receivables of Jackson Company in order to identify acceptable collateral for a short-term loan. The company's credit policy is 2/10 net 30. The bank lends 80 percent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period. A schedule of Jackson's receivables has been prepared. How much will the bank lend on pledge of receivables, if the bank uses a 10 per cent allowance for cash discount and returns?

Account	Amount Rs.	Days Outstanding in days	Average Payment Period historically
74	25,000	15	20
91	9,000	45	60
107	11,500	22	24
108	2,300	9	10
114	18,000	50	45
116	29,000	16	10
123	<u>14,000</u>	27	48
	<u>1,08,800</u>		

(Final-Nov. 2000) (10 marks)

2.32 Financial Management

Answer

Analysis of the receivables of Jackson Company by the bank in order to identify acceptable collateral for a short-term loan:

- (i) *The Jackson Company's credit policy is 2/10 net 30.*

The bank lends 80 per cent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period i.e. thirty days. From the schedule of receivables of Jackson Company Account No. 91 and Account No. 114 are currently overdue and for Account No. 123 the average payment period exceeds 40 days. Hence Account Nos. 91, 114 and 123 are eliminated. Therefore, the selected Accounts are Account Nos. 74, 107, 108 and 116.

- (ii) **Statement showing the calculation of the amount which the bank will lend on a pledge of receivables if the bank uses a 10 per cent allowances for cash discount and returns**

Account No.	Amount (Rs.)	90 per cent of amount (Rs.)	80% of amount (Rs.)
	(a)	(b)=90% of (a)	(c)=80% of (b)
74	25,000	22,500	18,000
107	11,500	10,350	8280
108	2,300	2,070	1,656
116	29,000	26,100	<u>20,880</u>
		Total loan amount	<u>48,816</u>

Question 18

The credit manager of XYZ Ltd. is reappraising the company's credit policy. The company sells the products on terms of net 30. Cost of goods sold is 85% of sales and fixed costs are further 5% of sales. XYZ classifies its customers on a scale of 1 to 4. During the past five years, the experience was as under:

Classification	Default as a percentage of sales	Average collection period- in days for non-defaulting accounts
1	0	45
2	2	42
3	10	40
4	20	80

The average rate of interest is 15%. What conclusions do you draw about the company's Credit Policy? What other factors should be taken into account before changing the present policy? Discuss.
(Final-May 2001) (6 marks)

Answer

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.

Classification	Gross profit @ 15%* (Rs.)	Bad debts (Rs.)	Interest Cost (Refer to Working note)(Rs.)	Total Cost (Rs.)	Net effect (Rs.)	Strategy
	(i)	(ii)	(iii)	(iv)=(ii)+(iii)	(v)=(i)-(iv)	
1	15	Nil	1.57	1.57	13.43	Accept
2	15	2	1.47	3.47	11.53	Accept
3	15	10	1.40	11.40	3.60	Accept
4	15	20	2.80	22.80	(7.80)	Reject

*It is given the cost of goods sold is 85%. Therefore Gross Profit is 15% of sales.

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 net effect i.e. Gross Profit less Total Cost is favourable in respect of categories 1, 2 and 3 therefore these customers shall be taken into fold. For the customers covered in category 4 the net effect is unfavourable i.e. total cost is more than the gross profit. The company should try to reduce bad debt % for this category of customers at least by 7.8% (i.e. at 12.20%). If the company is able to do so, the company can allow the credit period of 80 days for at least increasing the market share.

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.

The information so required may be outsourced as well as insourced.

Working Note:*Computation of interest cost*

$$\text{Interest Cost} = \frac{\text{Average rate of interest} \times \text{Cost of goods sold} \times \text{Average collection period in days for non-defaulting accounts}}{365 \text{ days}}$$

$$\text{For Category 1} = \frac{15\% \times \text{Rs. } 85 \times 45 \text{ days}}{365 \text{ days}} = \text{Rs. } 1.57$$

2.34 Financial Management

$$\text{For Category 2} = \frac{15\% \times \text{Rs. } 85 \times 42 \text{ days}}{365 \text{ days}} = \text{Rs. } 1.47$$

$$\text{For Category 3} = \frac{15\% \times \text{Rs. } 85 \times 40 \text{ days}}{365 \text{ days}} = \text{Rs. } 1.40$$

$$\text{For Category 4} = \frac{15\% \times \text{Rs. } 85 \times 80 \text{ days}}{365 \text{ days}} = \text{Rs. } 2.80$$

Question 19

A company has prepared the following projections for a year:

<i>Sales</i>	<i>21,000 units</i>
<i>Selling Price per unit</i>	<i>Rs.40</i>
<i>Variable Costs per unit</i>	<i>Rs.25</i>
<i>Total Costs per unit</i>	<i>Rs.35</i>
<i>Credit period allowed</i>	<i>One month</i>

The Company proposes to increase the credit period allowed to its customers from one month to two months. It is envisaged that the change in the policy as above will increase the sales by 8%. The company desires a return of 25% on its investment.

You are required to examine and advise whether the proposed Credit Policy should be implemented or not.
(PE-II-Nov. 2002) (4 marks)

Answer

Computation of contribution and extra funds blockage if the credit period allowed to customers is increased from one month to two months

Increase in sales units	1,680
<i>(8% × 21,000 units)</i>	
Contribution per unit (Rs.)	15
Total contribution on	25,200
increased sales units (Rs.) : (A)	
<i>(Rs.1,680 units × Rs.15)</i>	
Total cost (Rs.)	7,35,000
<i>21,000 units × Rs.35</i>	
Additional variable cost of 1,680 units (Rs.)	42,000
<i>(1,680 units × Rs.25)</i>	
Total cost (Rs.)	7,77,000
Funds blocked for 2 months (Rs.)	1,29,500
<i>(Rs.7,77,000 /12 months)× 2 month</i>	

Less: Present blockage of funds for 1 month (Rs.)	61,250
(Rs.7,35,000 / 12 months) × 1 month	
Extra blockage of funds (Rs.)	<u>68,250</u>
due to change in credit policy	

$$\text{Return} = \frac{\text{Contribution on increased sales}}{\text{Extra funds blockage}} \times 100$$

(due to change in credit policy)

$$= \frac{\text{Rs. 25,200}}{\text{Rs. 68,250}} \times 100 = 36.92\%$$

Advise: The return due to a change in the credit policy comes to 36.92%, which is more than the desired return of 25%. Hence, the proposal of increasing the credit period from one month to two months should be accepted.

Question 20

A firm has a current sales of Rs.2,56,48,750. The firm has unutilised capacity. In order to boost its sales, it is considering the relaxation in its credit policy. The proposed terms of credit will be 60 days credit against the present policy of 45 days. As a result, the bad debts will increase from 1.5% to 2% of sales. The firm's sales are expected to increase by 10%. The variable operating costs are 72% of the sales. The Firm's Corporate tax rate is 35%, and it requires an after-tax return of 15% on its investment. Should the firm change its credit period?

(PE-II-Nov. 2003) (6 marks)

Answer

Computation of after-tax operating profits:

	Rs.
Sales increase	25, 64, 875
(10% of Rs. 2, 56, 48, 750)	
Contribution margin	7,18,165
28% of Rs.25,64,875	
Less: Bad debt + losses	(1,79,542)
1.5% × Rs.2,56,48,750 = Rs.3,84,731	
2% × Rs.2,82,13,625 = Rs.5,64,273	
Operating profits	<u>5,38,623</u>
Operating profits after tax (OPAT)	<u>3,50,105</u>
0.65 × Rs.5,38,623	
Increase in receivable investment	

2.36 Financial Management

$$\begin{aligned}\text{Increase in receivable Investment} &= \frac{\text{Sales}_n}{360} \times \text{ACP}_n - \frac{\text{Sales}_0}{360} \times \text{ACP}_0 \\ &= \frac{\text{Rs. } 2,82,13,625}{360 \text{ days}} \times 60 \text{ days} - \frac{\text{Rs. } 2,56,48,750}{360 \text{ days}} \times 45 \text{ days} \\ &= \text{Rs. } (47,02,271 - 32,06,094) \\ &= \text{Rs. } 14,96,177\end{aligned}$$

$$\begin{aligned}\text{Expected rate of return} &= \frac{\text{Operating profits after tax}}{\text{Increase in receivable investment}} \\ &= \text{Rs. } 3,50,105 / \text{Rs. } 14,96,177 = 23.40\%\end{aligned}$$

The expected rate of return is 23.40%. It can be compared with the required rate of return of investment of 15%. Since the expected rate of return is higher than its required rate of returns therefore it is beneficial for the firm to lengthen its credit period to 60 days. The firm shall gain 8.4% on incremental investment.

Question 21

A firm is considering offering 30-day credit to its customers. The firm likes to charge them an annualized rate of 24%. The firm wants to structure the credit in terms of a cash discount for immediate payment. How much would the discount rate have to be?

(PE-II-Nov.2004) (4 marks)

Answer

$$\begin{aligned}\text{Interest @ 24\% pa for a period of 30 days (year 365 days)} &= 0.24 \times \frac{30}{365} = 0.019726 \text{ ie} \\ &1.9726 \%\end{aligned}$$

Hence the principal of Re 1, including the interest after 30 days will become 1.019726.

$$\text{The present value as on zero date will be } \frac{1}{1.019726} = 0.980656$$

$$\begin{aligned}\text{Hence discount which can be offered to receivables as on zero date} &= 1 - 0.980656 = \\ &0.019344 \text{ i.e. } 1.93\%.\end{aligned}$$

Question 22

JKL Ltd. is considering the revision of its credit policy with a view to increasing its sales and profit. Currently all its sales are on credit and the customers are given one month's time to settle the dues. It has a contribution of 40% on sales and it can raise additional funds at a cost of 20% per annum. The marketing manager of the company has given the following options along with estimates for considerations:

Working Capital Management 2.37

Particulars	Current Position	I Option	II Option	III Option
Sales (Rs. in lakhs)	200	210	220	250
Credit period (in months)	1	1½	2	3
Bad debts (% of sales)	2	2½	3	5
Cost of Credit administration (Rs. in lakhs)	1.20	1.30	1.50	3.00

You are required to advise the company for the best option. (PE-II-May 2007) (8 marks)

Answer

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 Average Collection Period × Credit Sales	$= \frac{1 \times 200}{12} = 16.67$	$\frac{1.5 \times 210}{12} = 26.25$	$\frac{2 \times 220}{12} = 36.67$	$\frac{3 \times 250}{12} = 62.50$
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.

Question 23

A Company has sales of Rs. 25,00,000. Average collection period is 50 days, bad debt losses are 5% of sales and collection expenses are Rs. 25,000. The cost of funds is 15%. The Company has two alternative Collection Programmes:

2.38 Financial Management

	Programme I	Programme II
Average Collection Period reduced to	40 days	30 days
Bad debt losses reduced to	4% of sales	3% of sales
Collection Expenses	Rs. 50,000	Rs. 80,000

Evaluate which Programme is viable.

(P.E.-II-May 2006)(6 marks)

Answer

(a) Evaluation of Alternative Collection Programmes

	Present Programme	1st Programme	2nd Programme
	Rs.	Rs.	Rs.
Sales revenues	25,00,000	25,00,000	25,00,000
Average collection period (days)	50	40	30
Receivables (Rs.)	3,42,466 $\left(25,00,000 \times \frac{50}{365} \right)$	2,73,973	2,05,479
Reduction in receivables from present level (Rs.)	–	68,493	1,36,987
Savings in interest @ 15% p.a. (A)	–	Rs. 10,274	Rs. 20,548
% of bad debt loss	5%	4%	3%
Amount (Rs.)	1,25,000	1,00,000	75,000
Reduction in bad debts from present level (B)	–	25,000	50,000
Incremental benefits from present level (C) = (A) + (B)	–	35,274	Rs. 70,548
Collection expenses (Rs.)	25,000	50,000	80,000
Incremental collection expenses from present level (D)	–	25,000	55,000
Increment net benefit (C – D)	–	<u>Rs. 10,274</u>	<u>Rs. 15,548</u>

Conclusion: From the analysis it is apparent that Programme I has a benefit of Rs. 10,274 and Programme II has a benefit of Rs. 15,548 over present level. Whereas Programme II has

a benefit of Rs. 5,274 more than Programme I. Thus, benefits accrue at a diminishing rate and hence Programme II is more viable.

Note: In the above solution, 1 year = 365 days has been assumed. Alternatively, some candidates may give the solution on the basis 1 year = 360 days. In that case, the figures calculated for the different Programmes would be different from the figures given in the above solution. But the final conclusion regarding viability of the Programme would remain the same. The candidates may be given due credit.

Question 24

The annual cash requirement of A Ltd. is Rs. 10 Lakhs. The company has marketable securities in lot sizes of Rs. 50,000, Rs. 1,00,000, Rs. 2,00,000, Rs. 2,50,000 and Rs. 5,00,000. Cost of conversion of marketable securities per lot is Rs. 1,000. The company can earn 5% annual yield on its securities.

You are required to prepare a table indicating which lot size will have to be sold by the company.

Also show that the economic lot size can be obtained by the Baumal Model.

(Final- Nov. 1996) (14 marks)

Answer

Table indicating lot size of securities

Total annual cash requirements = T = Rs. 10,00,000

Lot Size (Rs.) = C	50,000	1,00,000	2,00,000	2,50,000	5,00,000
Number of Lots (T/C)	20	10	5	4	2
Conversion Cost (Rs.) = (T/C) b	20,000	10,000	5,000	4,000	2,000
Where b = cost of conversion per lot.					
Interest charges Rs. = (C/2)I	1,250	2,500	5,000	6,250	12,500
Total Cost Rs. =	21,250	12,500	10,000	10,250	14,500

Economic lot size is Rs. 2,00,000 at which total costs are minimum.

William J. Baumal Model: Cash management model of William J. Baumal assumes that the concerned company keeps all its cash on interest yielding deposits from which it withdraws as and when required. It also assumes that cash usage is linear over time. The amount of money is withdrawn from deposits in such a way that the cost of withdrawal are optimally balanced with those of interest foregone by holding cash. The model is almost same as economic stock order quantity model.

$$\text{Formula Economic lot size} = \sqrt{\frac{2 \times T b}{I}}$$

Where T = Projected cash requirement

= Rs. 10,00,000

2.40 Financial Management

b= Conversion cost per lot = Rs. 1000

I= Interest earned on marketable securities per annum. = 5%

By substituting the figures in the formula

$$\text{Economic lot size} = \sqrt{\frac{2 \times 10,00,000 \times 1000}{0.05}}$$
$$= \text{Rs. } 2,00,000$$

Question 25

(a) The following details are available in respect of a firm:

- (i) Annual requirement of inventory 40,000 units
- (ii) Cost per unit (other than carrying and ordering cost) Rs. 16
- (iii) Carrying cost are likely to be 15% per year
- (iv) Cost of placing order Rs. 480 per order.

Determine the economic ordering quantity.

(b) The experience of the firm being out of stock is summarised below:

(1) Stock out (No. of units)	No. of times
500	1 (1)
400	2 (2)
250	3 (3)
100	4 (4)
50	10 (10)
0	80 (80)

Figures in brackets indicate percentage of time the firm has been out of stock.

- (2) Stock out costs are Rs. 40 per unit.
- (3) Carrying cost of inventory per unit is Rs. 20

Determine the optimal level of stock out inventory.

(c) A firm has 5 different levels in its inventory. The relevant details are given. Suggest a breakdown of the items into A, B and C classifications:

Item No.	Avg. No. of units inventory	Avg. Cost per unit
1	20,000	Rs. 60
2	10,000	Rs. 100
3	32,000	Rs. 11
4	28,000	Rs. 10
5	60,000	Rs. 3.40

(Final-Nov.1997) (6 + 8 + 6 marks)

Answer

(a) Carrying cost per unit per annum

= cost per unit $\times$ carrying cost % p.a.= Rs. 16 $\times$ 0.15 = Rs. 2.40

Now from the formula for Economic Order Quantity (EOQ)

$$= \sqrt{\frac{2 \times \text{total consumption p.a.} \times \text{ordering cost per order}}{\text{Carrying cost per unit}}}$$

$$= \sqrt{\frac{2 \times 40,000 \times 480}{2.40}} = 4000 \text{ units}$$

Alternative working:

Ordering size (units)	1,000	2,000	2,500	4,000	5,000	8,000	10,000
No. of orders required	40	20	16	10	8	5	4
Average inventory (units)	500	1,000	1,250	2,000	2,500	4,000	5,000
Total carrying cost of Average inventory in Rs.	1,200	2,400	3,000	4,800	6,000	9,600	12,000

Total ordering cost = No. of orders $\times$ Cost of placing each order	19,200	9,600	7,680	4,800	3,840	2,400	1,920
Total cost in Rs.	20,400	12,000	10,680	9,600	9,840	12,000	13,920

Hence least cost of Rs. 9,600 is at the ordering size of 4,000 units.

(b)

<i>Safety stock level (units)</i>	<i>Stock out (units)</i>	<i>Stock out cost @ Rs. 40 per unit Rs.</i>	<i>Probability of stock out</i>	<i>Expected stock out at this level</i>	<i>Total expected stock out cost</i>
500	0	0	0	0	0
400	100	4000	0.01	40	40
250	250	10,000	0.01	100	
	150	6000	0.02	120	260
100	400	16,000	0.01	160	
	300	12,000	0.02	240	
	150	6,000	0.03	180	840
50	450	18,000	0.01	180	

2.42 Financial Management

	350	14,000	0.02	280	
	200	8,000	0.03	240	
	50	2,000	0.04	80	1,620
0	500	20,000	0.01	200	
	400	16,000	0.02	320	
	250	10,000	0.03	300	
	100	4,000	0.04	160	
	50	2,000	0.10	200	2,800

Safety stock level (units)	Expected stock out costs	Carrying cost at Rs. 20 per unit Rs.	Total safety stock cost
0	2,800	0	2,800
50	1,620	1,000	2,620
100	840	2,000	2,840
250	260	5,000	5,260
400	40	8,000	8,040
500	0	10,000	10,000

Optimum safety stock where the total cost is the least is at 50 units level.

(c)

Item No.	Units	% of total Units	Unit cost Rs.	Total cost Rs.	% of total cost
1	20,000	13.3	60.00	12,00,000	39.5] A
2	10,000	6.7	100.00	10,00,000	32.9]
3	32,000	21.3	11.00	3,52,000	11.6] B
4	28,000	18.7	10.00	2,80,000	9.2]
5	<u>60,000</u>	<u>40.0</u>	<u>3.40</u>	<u>2,04,000</u>	<u>6.8</u>
	1,50,000	100.0		30,36,000	100.0

Item Nos. I and II being very valuable are to be controlled first though in quantity are hardly 20% of the total, hence can be classified as A. Next priority is for items 3 and 4, though quantity wise 40% to be classified as B and last priority item 5 though in quantity bulk but value is less hence to be classified as C.

Question 26

A Ltd uses inventory turnover as one performance measure to evaluate its production manager. Currently, its inventory turnover (based on cost of goods sold ÷ inventory) is 10

times per annum, as compared with industry average of 4. Average sales are Rs. 4,50,000 p.a. variable costs of inventory have consistently remained at 70% of sales with fixed costs of Rs. 10,000. Carrying costs of inventory (excluding financing costs) are 5% per annum. Sales force complained that low inventory levels are resulting in lost-sales due to stock outs. Sales manager has made an estimate based on stock out reports as under:

Inventory Policy	Inventory Turnover	Sales in Rs.
Current	10	4,50,000
A	8	5,00,000
B	6	5,40,000
C	4	5,65,000

On the basis of above estimates, assuming a 40% tax rate and an after tax required return of 20% on investment in inventory, which policy would you recommend?

(Final-May 2002) (6 marks)

Answer

Calculation of Cost of Goods Sold

Policy	Variable Cost (Rs.)	Fixed Cost (Rs.)	Total Cost (Rs.)
Current	$4,50,000 \times .7 = 3,15,000 +$	10,000	3,25,000
A	$5,00,000 \times .7 = 3,50,000 +$	10,000	3,60,000
B	$5,40,000 \times .7 = 3,78,000 +$	10,000	3,88,000
C	$5,65,000 \times .7 = 3,95,500$	10,000	4,05,500

Investment Level in Various Policies

		(Rs.)
Current	$3,25,000 \div 10$	32,500
A	$3,60,000 \div 8$	45,000
B	$3,88,000 \div 6$	64,667
C	$4,05,500 \div 4$	1,01,375

Evaluation of Inventory Policies

Policy	Current	A	B	C
	Rs.	Rs.	Rs.	Rs.
Sales	4,50,000	5,00,000	5,40,000	5,65,000
Cost of Goods sold	<u>3,25,000</u>	<u>3,60,000</u>	<u>3,88,000</u>	<u>4,05,500</u>
Contribution	1,25,000	1,40,000	1,52,000	1,59,500
Less: Carrying cost @ 5%	<u>1,625</u>	<u>2,250</u>	<u>3,233</u>	<u>5,069</u>
Profit before tax	1,23,375	1,37,750	1,48,767	1,54,431
Incremental Profit (Before tax)		14,375	11,017	5,664
Incremental Profit (After tax)		8,625	6,610	3,398

2.44 Financial Management

Incremental Investment	12,500	19,667	36,708
Incremental Rate of Return (%)	69	33.6	9.26

Conclusion: Since the incremental rate of return is highest with inventory policy A, therefore, policy A should be followed.

Question 27

A publishing house purchases 72,000 rims of a special type paper per annum at cost Rs. 90 per rim. Ordering cost per order is Rs. 500 and the carrying cost is 5 per cent per year of the inventory cost. Normal lead time is 20 days and safety stock is NIL. Assume 300 working days in a year:

You are required:

- (i) Calculate the Economic Order Quantity (E.O.Q).*
- (ii) Calculate the Reorder Inventory Level.*
- (iii) If a 1 per cent quantity discount is offered by the supplier for purchases in lots of 18,000 rims or more, should the publishing house accept the proposal?*

(PE-II-Nov. 2008) (8 marks)

Answer

$$(i) \quad EOQ = \sqrt{\frac{2SC_0}{ic_1}}$$

Where,

S = Annual consumption

C₀ = Ordering cost per order

ic₁ = Stock carrying cost per unit per annum

$$= \sqrt{\frac{2 \times 72,000 \times 500}{5\% \text{ of Rs. 90}}}$$

$$= \sqrt{1,60,00,000}$$

$$= 4,000 \text{ Rims.}$$

$$(ii) \quad \text{Re-order Level} = \text{Normal Lead Time} \times \text{Normal Usage}$$

$$= 20 \times 240$$

$$= 4,800 \text{ Rims.}$$

Note:

$$\text{Normal Usage} = \frac{\text{Annual usage}}{\text{Normal working days in a year}}$$

$$= \frac{72,000}{300} = 240 \text{ Rims.}$$

(iii) Evaluation of Quantity Discount Offer:

	<u>EOQ</u>	<u>Discount Offer</u>
Size of order	4,000 Rims	18,000 Rims
No. of orders in a year	18	4
Average inventory $\left(\frac{\text{Order size}}{2} \right)$	2,000 Rims	9,000 Rims
Cost:	<u>Rs.</u>	<u>Rs.</u>
Ordering Cost @ Rs. 500 per order	9,000	2,000
Inventory carrying cost		
At EOQ – $(4,000/2) \times \text{Rs. 4.5}$	9,000	-
At Discount offer – $(18,000/2) \times \text{Rs. 4.455}$	-	40,095
<i>Purchases Cost</i>		
At EOQ – $72,000 \times \text{Rs. 90}$	64,80,000	—
At discount offer – $72,000 \times \text{Rs. 89.10}$	—	<u>64,15,200</u>
Total Cost	<u>64,98,000</u>	<u>64,57,295</u>

The total cost is less in case of quantity discount offer. Hence, quantity discount offer should be accepted.

Question 28

A Ltd. has a total sales of Rs. 3.2 crores and its average collection period is 90 days. The past experience indicates that bad-debt losses are 1.5% on sales. The expenditure incurred by the firm in administering its receivable collection efforts are Rs. 5,00,000. A factor is prepared to buy the firm's receivables by charging 2% commission. The factor will pay advance on receivables to the firm at an interest rate of 18% p.a. after withholding 10% as reserve.

Calculate the effective cost of factoring to the Firm.

(Final-May 2002) (6 marks)

Answer

Average level of Receivables	$= 3,20,00,000 \times 90/360$	80,00,000
Factoring commission	$= 80,00,000 \times 2/100$	1,60,000
Factoring reserve	$= 80,00,000 \times 10/100$	8,00,000

2.46 Financial Management

Amount available for advance = Rs. 80,00,000 - (1,60,000 + 8,00,000) 70,40,000

Factor will deduct his interest @ 18% :-

$$\text{Interest} = \frac{\text{Rs. } 70,40,000 \times 18 \times 90}{100 \times 360} = \text{Rs. } 3,16,800$$

Advance to be paid = Rs. 70,40,000 – Rs. 3,16,800 = Rs. 67,23,200

Annual Cost of Factoring to the Firm:

Factoring commission (Rs. 1,60,000 × 360/90)	Rs. 6,40,000
Interest charges (Rs. 3,16,800 × 360/90)	<u>12,67,200</u>
Total	<u>19,07,200</u>

Firm's Savings on taking Factoring Service:

Cost of credit administration saved	Rs. 5,00,000
Cost of Bad Debts (Rs. 3,20,00,000 × 1.5/100) avoided	<u>4,80,000</u>
Total	<u>9,80,000</u>
Net Cost to the firm (Rs. 19,07,200 – Rs. 9,80,000)	<u>9,27,200</u>

$$\text{Effective rate of interest to the firm} = \frac{\text{Rs. } 9,27,200 \times 100}{67.23.200} = 13.79\%*$$

Note: The number of days in a year have been assumed to be 360 days.

Question 29

Briefly explain the meaning and importance of 'Credit-rating'. (Final-May 2002) (4 marks)

Answer

Credit-rating essentially reflects the probability of timely repayment of principal and interest by a borrower company. It indicates the risk involved in a debt instrument as well its qualities. Higher the credit rating, greater is the probability that the borrower will make timely payment of principal and interest and vice-versa.

It has assumed an important place in the modern and developed financial markets. It is a boon to the companies as well as investors. It facilitates the company in raising funds in the capital market and helps the investor to select their risk-return trade off. By indicating creditworthiness of a borrower, it helps the investor in arriving at a correct and rational decision about making investments.

Credit rating system plays a vital role in investor protection. Fair and good credit ratings motivate the public to invest their savings.

As a fee based financial advisory service, credit rating is obviously extremely useful to the investors, the corporates (borrowers) and banks and financial institutions. To the investors, it is an indicator expressing the underlying credit quality of a (debt) issue programme. The

investor is fully informed about the company as any effect of changes in business/economic conditions on the company is evaluated and published regularly by the rating agencies. The corporate borrowers can raise funds at a cheaper rate with good rating. It minimizes the role of the 'name recognition' and less known companies can also approach the market on the basis of their rating. The fund ratings are useful to the banks and other financial institutions while deciding lending and investment strategies.

Question 30

Enumerate the activities which are covered by Treasury Management.

(PE-II-Nov. 2002) (3 marks)

Answer

Treasury Management is concerned about the efficient management of liquidity and financial risk in business. Main activities which are covered by Treasury Management are as follows:

- (i) *Cash management:* Treasury management in a business organisation is concerned about the efficient collection and repayment of cash to both insiders and to third parties.
- (ii) *Currency management:* It manages the foreign currency risk, exchange rate risks etc. It may advise on the currency to be used when invoicing overseas sales.
- (iii) *Funding management:* Responsible for planning and sourcing firm's short, medium and long term cash needs. It participates in capital structure, forecasting of future interest and foreign currency rates decision-making process.
- (iv) *Banking:* Maintains good relations with bankers and carry out initial negotiations with them for any short term loan.
- (v) *Corporate finance:* It advises on aspects of corporate finance including capital structure, mergers and acquisitions.

Question 31

Explain the 'Aging Schedule' in the context of monitoring of receivables.

(PE-II-Nov. 2004) (3 marks)

Answer

Ageing Schedule : An important means to get an insight into collection pattern of debtors is the preparation of their 'Ageing Schedule'. Receivables are classified according to their age from the date of invoicing e.g. 0 – 30 days, 31 – 60 days , 61 – 90 days, 91 – 120 days and more. The ageing schedule can be compared with earlier month's figures or the corresponding month of the earlier year.

This classification helps the firm in its collection efforts and enables management to have a close control over the quality of individual accounts. The ageing schedule can be compared with other firms also.

2.48 Financial Management

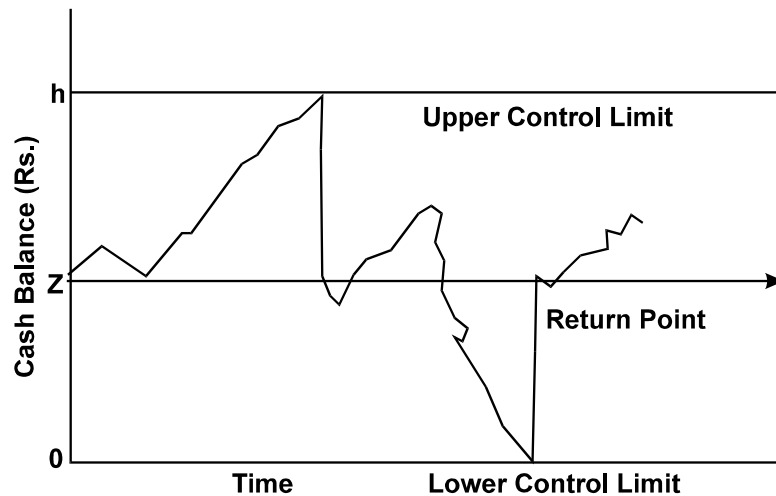
Question 32

Discuss Miller-Orr Cash Management model. (P.E-II-Nov. 2005 & Nov. 2007) (3 marks)

Answer

Miller – Orr Cash Management Model

According to this model the net cash flow is completely stochastic. When changes in cash balance occur randomly, the application of control theory serves a useful purpose. The Miller – Orr model is one of such control limit models. This model is designed to determine the time and size of transfers between an investment account and cash account. In this model control limits are set for cash balances. These limits may consist of 'h' as upper limit, 'z' as the return point and zero as the lower limit.



MILLER-ORR CASH MANAGEMENT MODEL

When the cash balance reaches the upper limit, the transfer of cash equal to 'h – z' is invested in marketable securities account. When it touches the lower limit, a transfer from marketable securities account to cash account is made. During the period when cash balance stays between (h, z) and (z, 0) i.e. high and low limits, no transactions between cash and marketable securities account is made. The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transaction, the opportunities cost of holding cash and degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs. The formula for calculation of the spread between the control limits is:

$$\text{Spread} = 3 \left(\frac{3/4 \times \text{Transaction Cost} \times \text{Variance of Cashflows}}{\text{Interest rate}} \right)^{1/3}$$

And, the return point can be calculated using the formula:

$$\text{Return point} = \text{Lower limit} + \frac{\text{Spread}}{3}$$

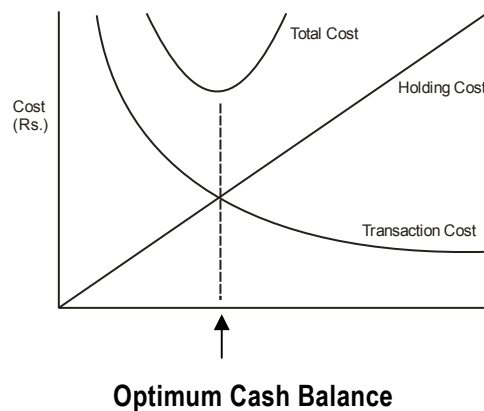
Question 33

Explain Baumol's Model of Cash Management.

(PE-II-May 2008) (4 marks)

Answer

William J. Baumol developed a model for optimum cash balance which is normally used in inventory management. The optimum cash balance is the trade-off between cost of holding cash (opportunity cost of cash held) and the transaction cost (i.e. cost of converting marketable securities in to cash). Optimum cash balance is reached at a point where the two opposing costs are equal and where the total cost is minimum. This can be explained with the following diagram:



The optimum cash balance can also be computed algebraically.

$$\text{Optimum Cash Balance} = \sqrt{\frac{2AT}{H}}$$

A = Annual Cash disbursements

T = Transaction cost (Fixed cost) per transaction

H = Opportunity cost one rupee per annum (Holding cost)

The model is based on the following assumptions:

- (i) Cash needs of the firm are known with certainty.
- (ii) The cash is used uniformly over a period of time and it is also known with certainty.
- (iii) The holding cost is known and it is constant.
- (iv) The transaction cost also remains constant.

2.50 Financial Management

Question 34

Discuss the meaning and features of 'Commercial paper'.

(PE-II- May 2008)(4marks)

Answer

Commercial Paper and its Features

CP is a short term usance promissory note issued by a company, negotiable by endorsement and delivery, issued at such a discount on face value as may be determined by the issuing company. It is a money market instrument issued by highly rated corporate borrowers for meeting their working capital requirements.

In India corporate borrowers were allowed to issue CP since January, 1990. The main features of CP are:

- (i) CP is a short term money market instrument with fixed maturity value.
- (ii) It is a certificate evidencing an unsecured corporate debt of short term maturity.
- (iii) It is generally issued at discount to face value but it can also be issued in interest bearing form.
- (iv) CPs can be directly issued by a company to investors or through banks.
- (v) It is an unsecured instrument.

Question 35

Discuss the factors to be taken into consideration while determining the requirement of working capital.

(PE-II- Nov. 2008) (4 marks)

Answer

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

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

Question 36

Write short notes on the following:

(a) *Impact of inflation on working capital.*

(Final-May 1996) (4 marks)

(b) *Different kinds of float with reference to management of cash.*

(Final-May 1998, May 1999) (4 marks)

- (c) *Factoring* (Final-Nov. 1998)(PE-II-Nov. 2003, May 2007 & May 2008) (4 marks)
- (d) *Effect of inflation on inventory management* (Final-May 2001, Nov. 2001) (4 marks)
- (e) *Commercial Paper* (PE-II-Nov. 2003) (3 marks)
- (f) *Recent changes in Maximum Permissible Bank Finance (MPBF)* (PE-II-Nov. 2003) (3 marks)
- (g) *William J. Baumal vs. Miller-Orr Cash Management Model* (PE-II-May 2004) (3 marks)

Answer

- (a) **Impact of Inflation on Working Capital:** The impact of inflation on working capital is direct. For the same quantity of sales, the value of sundry debtors, closing stock etc. increases as a result of inflation. The valuation of closing stock progressively on higher amounts would result in the company not being able to maintain its operating capability unless it finds extra funds to maintain the same stock level. The higher valuation results in acute shortage of funds as it triggers profit related cash outflows in respect of income tax, dividends and bonus. Unless proper planning is done, the business is likely to face a condition known as “technical insolvency”.
- (b) **Different Kinds of Float with Reference to Management of Cash:** The term float is used to refer to the periods that affect cash as it moves through the different stages of the collection process. Four kinds of float can be identified:
 - (i) *Billing Float:* An invoice is the formal document that a seller prepares and sends to the purchaser as the payment request for goods sold or services provided. The time between the sale and the mailing of the invoice is the billing float.
 - (ii) *Mail Float:* This is the time when a cheque is being processed by post office, messenger service or other means of delivery.
 - (iii) *Cheque processing float:* This is the time required for the seller to sort, record and deposit the cheque after it has been received by the company.
 - (iv) *Bank processing float:* This is the time from the deposit of the cheque to the crediting of funds in the seller's account.
- (c) **Factoring:** Factoring is a new financial service that is presently being developed in India. Factoring involves provision of specialised services relating to credit investigation, sales ledger management, purchase and collection of debts, credit protection as well as provision of finance against receivables and risk bearing. In factoring, accounts receivables are generally sold to a financial institution (a subsidiary of commercial bank-called “Factor”), who charges commission and bears the credit risks associated with the accounts receivables purchased by it.

Its operation is very simple. Clients enter into an agreement with the “factor” working out a factoring arrangement according to his requirements. The factor then takes the responsibility of monitoring, follow-up, collection and risk-taking and provision of advance. The factor generally fixes up a limit customer-wise for the client (seller).

2.52 Financial Management

Factoring offers the following advantages which makes it quite attractive to many firms.

- (1) The firm can convert accounts receivables into cash without bothering about repayment.
- (2) Factoring ensures a definite pattern of cash in flows.
- (3) Continuous factoring virtually eliminates the need for the credit department. That is why receivables financing through factoring is gaining popularity as a useful source of financing short-term funds requirements of business enterprises because of the inherent advantage of flexibility it affords to the borrowing firm. The seller firm may continue to finance its receivables on a more or less automatic basis. If sales expand or contract it can vary the financing proportionally.
- (4) Unlike an unsecured loan, compensating balances are not required in this case. Another advantage consists of relieving the borrowing firm of substantially credit and collection costs and to a degree from a considerable part of cash management.

However, factoring as a means of financing is comparatively costly source of financing since its cost of financing is higher than the normal lending rates.

- (d) **Effect on Inflation on Inventory Management:** The main objective of inventory management is to determine and maintain the optimum level of investment in inventories. For inventory management a moderate inflation rate say 3% can be ignored but if inflation rate is higher it becomes important to take into consideration the effect of inflation on inventory management. The effect of inflation on goods which the firm stock is relatively constant can be dealt easily, one simply deducts the expected annual rate of inflation from the carrying cost percentage and uses this modified version in the EOQ model to compute the optimum stock. The reason for making this deduction is that inflation causes the value of the inventory to raise, thus offsetting somewhat the effects of depreciation and other carrying cost factors. Since carrying cost will now be smaller, the calculated EOQ and hence the average inventory will increase. However, if rate of inflation is higher the interest rates will also be higher, and this will cause carrying cost to increase and thus lower the EOQ and average inventories.

Thus, there is no evidence as to whether inflation raises or lowers the optimal level of inventories of firms in the aggregate. It should still be thoroughly considered, however, for it will raise the individual firm's optimal holdings if the rate of inflation for its own inventories is above average and is greater than the effects of inflation on interest rates and vice-versa.

- (e) **Commercial paper (CP):** To give a boost to the money market and reducing the dependence of highly rated corporate borrowers on bank finance for meeting their working capital requirement, corporate borrowers were permitted to arrange short-term borrowing by issue of commercial paper w.e.f. 1st Jan, 1990. It is being regulated by the RBI. The interest rates on such an instrument are determined by the market forces. The companies which are allowed to issue 'Commercial Paper' must have a net worth of Rs.10 crores, maximum permissible bank finance not less than Rs.25 crore and are listed on the stock exchange. In India, the cost of a C.P. will include the following components:

- Discount;
- rating charges;
- stamp duty;
- issuing ; and
- issuing paying agent (IPA) charges.

A commercial paper is a short-term issuance promissory note issued by a company negotiable by endorsement & delivery, issued at such a discount on face value as may be determined by the company.

- (f) **Maximum Permissible Bank Finance (MPBF):** The maximum permissible limit for bank finance as recommended and suggested by study groups of RBI was 75% of working capital gap shown as below:

Current assets	100
Less: Non-interest bearing current liabilities	<u>40</u>
Working capital gap	60
Financing from long term-sources 25% of either CA or working capital gap	15
MPBF	<u>45</u>

The RBI vide its credit policy (beginning of 1997) scrapped the concept of MPBF. The salient features of new credit system were:

- For borrowers with requirements of upto Rs.25 lakhs credit limit will be computed after detailed discussions with the borrower, without going into detailed evaluation.
 - For borrowers with requirements above Rs.25 lakhs, but upto Rs.5 crore, credit limit can be offered upto 20% of the projected gross sales of the borrower.
 - For large borrowers not falling in the above categories, the cash budget systems may be used to identify the working capital needs.
- (g) **William J Baumal vs Miller- Orr Cash Management Model :** According to William J Baumal's Economic order quantity model optimum cash level is that level of cash where the carrying costs and transactions costs are the minimum. The carrying costs refers to the cost of holding cash, namely, the interest foregone on marketable securities. The transaction costs refers to the cost involved in getting the marketable securities converted into cash. This happens when the firm falls short of cash and has to sell the securities resulting in clerical, brokerage, registration and other costs.

The optimum cash balance according to this model will be that point where these two costs are equal. The formula for determining optimum cash balance is :

$$C = \sqrt{\frac{2U \times P}{S}},$$

2.54 Financial Management

Where

- C = Optimum cash balance
- U = Annual (monthly) cash disbursements
- P = Fixed cost per transaction
- S = Opportunity cost of one rupee p.a. (or p.m)

Miller-Orr cash management model is a net cash flow stochastic model. This model is designed to determine the time and size of transfers between an investment account and cash account. In this model control limits are set for cash balances. These limits may consist of h as upper limit, z as the return point, and zero as the lower limit.

When the cash balances reach the upper limit, the transfer of cash equal to $h-z$ is invested in marketable securities account. When it touches the lower limit, a transfer from marketable securities account to cash account is made. During the period when cash balance stays between (h,z) and $(z, 0)$ i.e high and low limits no transactions between cash and marketable securities account is made. The high and low limits of cash balance are set up on the basis of fixed cost associated with the securities transactions, the opportunity cost of holding cash and the degree of likely fluctuations in cash balances. These limits satisfy the demands for cash at the lowest possible total costs.