Financing of Working Capital

Q.1 Following information is forecasted by the Puja Limited for the year ending 31st March, 20X8:

	Balance as at 1st April, 20X7 (₹)	Balance as at 31st March, 20X8 (₹)
Raw Material	45,000	65,356
Work-in-progress	35,000	51,300
Finished goods	60,181	70,175
Debtors	1,12,123	1,35,000
Creditors	50,079	70,469
Annual purchases of raw material (all credit)		4,00,000
Annual cost of production		7,50,000
Annual cost of goods sold		9,15,000
Annual operating cost		9,50,000
Annual sales (all credit)		11,00,000

You may take one year as equal to 365 days.

Required:

CALCULATE

(i) Net operating cycle period.

(ii) Number of operating cycles in the year.

(iii) Amount of working capital requirement using operating cycles.

Ans

Working Notes:

1. **Raw Material Storage Period (R)**

$$= \frac{\text{Average Stock of Raw Material}}{\text{Annual Consumption of Raw Material}} \times 365$$

$$= \frac{\frac{₹\,45,000 + ₹\,65,356}{2}}{₹\,3,79,644} \times 365$$

$$= 53 \text{ days.}$$

Annual Consumption of Raw Material = Opening Stock + Purchases - Closing Stock

= ₹ 45,000 + ₹ 4,00,000 – ₹ 65,356

= ₹ 3,79,644

2. **Work-in-Progress (WIP) Conversion Period (W)**

$$\text{WIP Conversion Period} = \frac{\text{Average Stock of WIP}}{\text{Annual Cost of Production}} \times 365$$

$$= \frac{\frac{₹\,35,000 + ₹\,51,300}{2}}{₹\,7,50,000} \times 365$$

= 21 days

3. **Finished Stock Storage Period (F)**

$$= \frac{\text{Average Stock of Finished Goods}}{\text{Cost of Goods Sold}} \times 365$$

$$= \frac{₹\ 65,178}{₹9,15,000} \times 365 \quad = 26 \text{ days.}$$

$$\text{Average Stock} = \frac{₹60,181 + ₹70,175}{2}$$

$$= ₹\ 65,178.$$

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

$$= \frac{\text{Average Debtors}}{\text{Annual Credit Sales}} \times 365$$

$$= \frac{₹\ 1,23,561.50}{₹\ 11,00,000} \times 365$$

= 41 days

$$\text{Average debtors} = \frac{₹1,12,123 + ₹1,35,000}{2} = ₹1 \quad 61.50$$

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

$$= \frac{\text{Average Creditors}}{\text{Annual Net Credit Purchases}} \times 365$$

$$= \frac{\left(\frac{₹50 \quad + ₹}{2}\right)}{₹4,00,000} \times 365$$

= 55 days

(i) Operating Cycle Period

= R + W + F+ D - C

= 53 + 21 + 26 + 41 - 55

= 86 days

(ii) Number of Operating Cycles in the Year

$$= \frac{365}{\text{Operating Cycle Period}} = \frac{365}{86} = 4.244$$

(iii) Amount of Working Capital Required

$$= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycles}} = \frac{\text{Including all Inventory Costs}}{\text{Inventory Costs}} \frac{₹\ 9,50,000}{4.244} = ₹\ 2,23,845.42$$

Q.2 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 ₹ 2.60 crores and ₹ 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:

(₹ 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 ₹ 2.50 crores of the equity funds. The corporate tax rate is 35%. The company is considering the following debt alternatives.

(₹ 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:

(i) Working Capital Investment for each policy:
   (a) Net Working Capital position
   (b) Rate of Return
   (c) Current ratio

(ii) Financing for each policy:
   (a) Net Working Capital position.
   (b) Rate of Return on Shareholders' equity.
   (c) Current ratio.

Ans

(i) Statement showing Working Capital for each policy

(₹ in crores)

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

Total Assets: (iii)	7.10	6.50	5.20
Current liabilities: (iv)	2.34	2.34	2.34
Net Worth: (v)=(iii)-(iv)	4.76	4.16	2.86
Total liabilities: (iv)+(v)	7.10	6.50	5.20
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

(ii) Statement Showing Effect of Alternative Financing Policy

(₹ in crores)

Financing Policy	Conservative	Moderate	Aggressive
Current Assets: (i)	3.90	3.90	3.90
Fixed Assets: (ii)	2.60	2.60	2.60
Total Assets: (iii)	6.50	6.50	6.50
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 (vii)	2.50	2.50	2.50
Total liabilities	6.50	6.50	6.50
Forecasted Sales	11.50	11.50	11.50
EBIT: (viii)	1.15	1.15	1.15
Less: Interest short-term debt: (ix)	0.06 (12% of ₹ 0.54)	0.12 (12% of ₹ 1.00)	0.18 (12% of ₹ 1.50)
Long term debt: (x)	0.18 (16% of ₹ 1.12)	0.11 (16% of ₹ 0.66)	0.03 (16% of ₹ 0.16)
Earning before tax: (xi) - (ix + x)	0.91	0.92	0.94
Tax @ 35%	(0.32)	(0.32)	(0.33)
Earning after tax: (xii)	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 Equity shareholders' capital : (xii)/(vii)	23.6%	24%	24.4%
(c) Current Ratio: [(i)/(iv)+(v)]	1.35	1.17	1.02

Q.3 TMT Limited is commencing a new project for manufacture of electric toys. The following cost information has been ascertained for annual production of 60,000 units at full capacity:

		Amount per unit (₹)
Raw materials		20
Direct labour		15
Manufacturing overheads:		
	₹	
Variable	15	
Fixed	10	25
Selling and Distribution overheads:		
	₹	
Variable	3	
Fixed	1	4
Total cost		64
Profit		16
Selling price		80

In the first year of operations expected production and sales are 40,000 units and 35,000 units respectively. To assess the need of working capital, the following additional information is available:

(i) Stock of Raw materials 3 months consumption.

(ii) Credit allowable for debtors 1½ months.

(iii) Credit allowable by creditors 4 months.

(iv) Lag in payment of wages 1 month.

(v) Lag in payment of overheads ½ month.

(vi) Cash in hand and Bank is expected to be ₹ 60,000.

(vii) Provision for contingencies is required @ 10% of working capital requirement including that provision.

You are required to PREPARE a projected statement of working capital requirement for the first year of operations. Debtors are taken at cost.

Ans

Statement Showing Cost and Sales for the First Year

Annual Production Capacity	60,000 units
Production	40,000 units
Sales	35,000 units

Particulars	₹
Sales Revenue (₹ 80 × 35,000)	28,00,000
Cost of Production:	
Materials @ ₹ 20 per unit	8,00,000
Direct Labour @ ₹ 15 per unit	6,00,000
Manufacturing Overheads	
Variable @ ₹ 15 per unit	6,00,000
Fixed (based on production capacity 60,000 units × ₹ 10)	6,00,000
Cost of Production	26,00,000
Less: Closing Stock (40,000 – 35,000 = 5,000 units)	
$\left(₹ \frac{26,00,000}{40,000} \times 5,000 \text{ units}\right)$	3,25,000
Cost of Goods Sold	22,75,000
Add: Selling & Distribution Overheads	
Variable @ ₹ 3 × 35,000 units = 1,05,000	
Fixed (Re. 1 × 60,000 units) = 60,000	1,65,000
Cost of Sales	24,40,000
Profit	3,60,000

Statement Showing Working Capital Requirement

A.	Current Assets	₹
	Stock of Raw Materials (₹ 8,00,000 × 3/12)	2,00,000
	Stock of Finished Goods	3,25,000
	Debtors at Cost (₹ 24,40,000 × 3/24)	3,05,000
	Cash and Bank	60,000
	Total (A)	8,90,000
B.	**Current Liabilities**	
	Creditors for Materials (₹ 10,00,000 × 4/12)	3,33,333
	Creditors for Expenses (₹ 13,65,000 × 1/24)	56,875
	Outstanding Wages (₹ 6,00,000 × 1/12)	50,000
	Total (B)	4,40,208
	Working Capital Requirement before Contingencies **(A – B)**	4,49,792
	Add: Provision for Contingencies (₹ 4,49,792 × 1/9)	49,977
	Estimated Working Capital Requirement	4,99,769

Workings Notes:

Purchase of Raw Material during the first year	₹
Raw Material consumed during the year	8,00,000
Add: Closing Stock of Raw Materials (3 months consumption)	2,00,000
	10,00,000
Less: Opening Stock of Raw Material	Nil
Purchases during the year	10,00,000

Q.4 Banu Limited is considering relaxing its present credit policy and is in the process of evaluating two proposed policies. Currently, the firm has annual credit sales of ₹ 225 lakhs and accounts receivable turnover ratio of 5 times a year. The current level of loss due to bad debts is ₹ 7,50,000. The firm is required to give a return of 20% on the investment in new accounts receivables. Policy option II requires a manager to manage the receivables with salary of ₹ 50,000 per month. The company's variable costs are 60% of the selling price. Given the following information, which is a better option?

(Amount in lakhs)

	Present Policy	Policy Option I	Policy Option II
Annual credit sales (₹)	225	275	350
Accounts receivable turnover ratio	5	4	3
Bad debt losses (₹)	7.5	22.5	47.5

Ans

Statement showing Evaluation of Credit Policies (Amount in lakhs)

	Particulars	Present Policy (₹)	Proposed Policy I (₹)	Proposed Policy II (₹)
A	Expected Profit:			
	(a) Credit Sales	225.00	275.00	350.00
	(b) Total Cost other than Bad Debts:			
	Variable Costs other than manager salary	135.00	165.00	210.00

	(c) Salary of Manager	-	-	6
	(d) Bad Debts	7.50	22.50	47.50
	(e) Expected Profit [(a)-(b)-(c)-(d)]	82.50	87.50	86.50
B	Opportunity Cost of Investment in Receivables*	5.40	8.25	14.40
C	Net Benefits [A-B]	77.10	79.25	72.10

Recommendation: The Proposed Policy I should be adopted since the net benefits under this policy is higher than those under other policies.

Working Note:

***Calculation of Opportunity Cost of Average Investments**

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection Period}}{12} \times \frac{\text{Rate of Return}}{100}$$

Present Policy = ₹ 135 lakhs × 2.4/12 × 20% = ₹ 5.40 lakhs

Proposed Policy I = ₹ 165 lakhs × 3/12 × 20% = ₹ 8.25 lakhs

Proposed Policy II = ₹ 216 lakhs × 4/12 × 20% = ₹ 14.40 lakhs