

## 10. MANAGEMENT OF WORKING CAPITAL

NO. OF PROBLEMS IN 40e OF CA INTER: CLASSROOM - 43, ASSIGNMENT - 45.

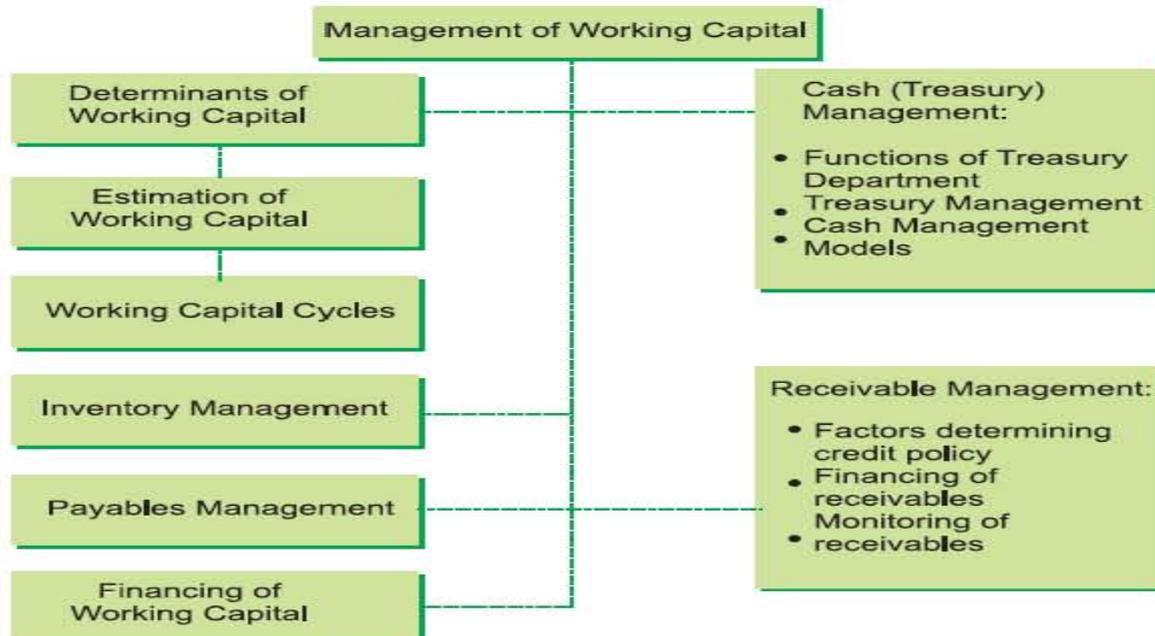
NO. OF PROBLEMS IN 41e OF CA INTER: CLASSROOM - 35, ASSIGNMENT - 35.

NO. OF PROBLEMS IN 42e OF CA INTER: CLASSROOM - 35, ASSIGNMENT - 35.

### SIGNIFICANCE OF EACH PROBLEM COVERED IN THIS MATERIAL

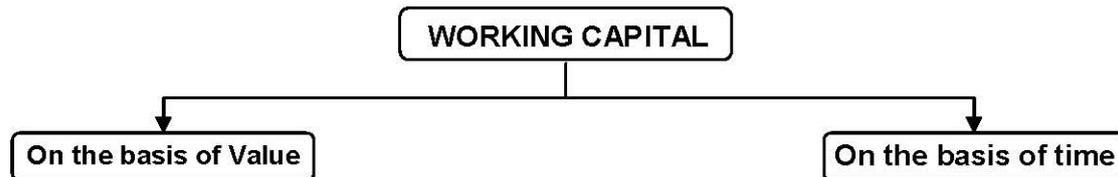
Problem No. in this material	Problem No. in NEW SM	Problem No. in OLD SM	Problem No. in OLD PM	RTP	MTP	Previous Exams	Remarks
CR 1	-	-	-	M17, N16	N16	-	
CR 2	ILL 3	-	-	-	-	-	
CR 3	-	-	-	-	-	M17 - 8M	
CR 4	ILL 4	ILL 4	-	-	N15	-	
CR 5	PQ 3	ILL 7	-	-	M16, N18 (N), M18 (N)	M18 (N) - 10M	
CR 6	PQ 1	ILL 5	-	-	-	-	
CR 7	PQ 2	ILL 6	-	-	-	-	
CR 8	ILL 5	ILL 8	-	-	-	-	
CR 9	ILL 1	ILL 1					
CR 10	-	-	Q 7	N18 (N&O)	-	-	
CR 11	-	-	Q 13	M18 (N&O)	-	-	
CR 12	ILL 11	ILL 17	-	-	-	Q 13	M18 (N&O)
CR 13	-	-	-	-	-	-	
CR 14	-	-	-	-	-	-	
CR 15	ILL 16	ILL 22	-	-	N17, N18 (N&O), M18 (N)	-	
CR 16	ILL 18	ILL 27 (80%)	-	-	-	-	
CR 17	ILL 15	-	-	-	-	M16	
CR 18	PQ 9	ILL 25	-	M18 (N&O)	-	-	
CR 19	PQ 8	ILL 24	-	-	-	-	
CR 20	-	-	-	O(6)	-	-	
CR 21	-	-	-	-	-	-	
CR 22	ILL 17	ILL 26	-	-	-	-	
CR 23	-	-	-	-	-	N15	
CR 24	-	-	-	-	O(3(b))	-	
CR 25	ILL 8	ILL 12	-	-	-	-	
CR 26	PQ 6	ILL 14	-	-	-	-	
CR 27	-	-	EX 7	-	-	N96	
CR 28	-	-	-	-	-	-	
CR 29	-	-	-	-	-	-	
CR 30	-	-	-	-	-	-	
CR 31	ILL 20	ILL 31	Q1	-	-	-	
CR 32	-	-	Q9	-	-	-	
CR 33	ILL 19	ILL 30	-	M18 (N&O)	-	-	
CR 34	-	-	-	-	M17, M18 (O)	-	
CR 35	-	ILL 29	-	-	-	-	
ASG 1	-	-	Q5	-	-	M08	
ASG 2	-	-	-	-	-	-	
ASG 3	-	-	-	-	-	-	
ASG 4	-	-	-	-	-	-	
ASG 5	-	-	-	-	-	-	
ASG 6	-	-	-	-	-	-	
ASG 7	-	-	-	-	-	-	
ASG 8	-	-	-	-	-	-	
ASG 9	-	-	-	-	-	-	
ASG 10	-	-	-	-	-	-	
ASG 11	-	-	-	-	-	-	
ASG 12	-	-	-	-	-	-	
ASG 13	-	-	Q18	-	-	-	

ASG 14	-	-	-	-	-	-	-
ASG 15	-	-	Q3	-	-	-	-
ASG 16	-	-	-	-	-	N18	-
ASG 17	-	-	Q6	-	-	-	-
ASG 18	-	-	-	-	-	-	-
ASG 19	-	-	Q12	-	-	-	-
ASG 20	-	-	-	-	-	-	-
ASG 21	-	-	-	-	-	N15	-
ASG 22	-	-	-	-	-	M18 (0)	-
ASG 23	-	-	-	-	1 (c) N18(0)	-	-
ASG 24	-	-	-	-	-	-	-
ASG 25	-	-	-	-	-	-	-
ASG 26	-	-	-	-	-	-	-
ASG 27	-	-	-	-	-	-	-
ASG 28	-	-	-	-	-	-	-
ASG 29	-	-	-	-	-	-	-
ASG 30	-	-	-	-	-	-	-
ASG 31	-	-	-	-	-	-	-
ASG 32	-	-	Q9	-	-	-	-
ASG 33	ILL 19	ILL 30	-	M18 (N&O)	-	-	-
ASG 34	-	-	-	-	M17, M18 (0)	-	-
ASG 35	-	ILL 29	-	-	-	-	-
PQ 1	-	ILL 2	-	-	-	-	-
PQ 2	-	ILL8	-	-	-	-	-
PQ 3	-	-	ILL3	-	-	-	-
PQ 4	-	-	ILL15	-	-	-	-
PQ 5	-	ILL16	-	-	-	-	-
PQ 6	-	-	-	-	-	-	-
PQ 7	-	ILL28	-	-	-	-	-
PQ 8	-	ILL13	-	-	-	-	-
PQ 9	-	ILL11	-	-	-	-	-

**MEANING AND CONCEPT OF WORKING CAPITAL:**

- Working capital refers to funds required to be invested in the business for a short period usually up to one year. It is also known as short-term capital or circulating capital
- In accounting term, working capital is the difference between the current assets and current liabilities. If we break down the components of working capital we will found working capital as follows:

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$



## PROBLEMS FOR CLASSROOM DISCUSSION

### MODEL 1: ESTIMATION OF WORKING CAPITAL REQUIREMENT

#### ESTIMATION OF CURRENT ASSETS:

**1. Raw Materials Inventory:**

$$\frac{\text{Budgeted production (in units)} \times \text{R.M. Cost per unit} \times \text{Avg. Inventory Holding Period}}{12 \text{ months (365 days)}}$$

- 2. Work-in-process Inventory:** The relevant cost to determine work-in-process investments are the proportionate share of cost of raw materials and conversion costs (labour and manufacturing overhead costs excluding depreciation). The value of work-in-process can be determined as under:

$$\frac{\text{Budgeted production (in units)} \times \text{Cost per unit of WIP} \times \text{Avg. time span of WIP inventory (months/days)}}{12 \text{ months (365 days)}}$$

**Note:** Administration overheads are ignored for valuation of W.I.P. Depreciation is excluded as it does not involve any cash outlay.

**3. Finished Goods Inventory:**

$$\frac{\text{Budgeted Prod. (in units)} \times \text{Manf. Cost p.u. (Excl. Dep.)} \times \text{Finished Goods Holding Period (Months/days)}}{12 \text{ months (365 days)}}$$

- 4. Investment in Debtors:** The W/C tied up in debtors should be estimated in relation to total credit sales (excluding depreciation). The value of debtors is determined as under:

$$\frac{\text{Budgeted Credit Sales (in units)} \times \text{Cost of Sales p.u. (Excl. Dep.)} \times \text{Avg. Debt. Coll. Period (months/days)}}{12 \text{ months (365 days)}}$$

- 5. Cash & Bank Balance:** Apart from W/C needs for financing inventories and debtors firms also find it useful to have some minimum cash balances with them.

#### ESTIMATION OF CURRENT LIABILITIES:

**1. Trade Creditors:**

$$\frac{\text{Budgeted Production (in units)} \times \text{Raw Material cost p.u.} \times \text{Credit Period allowed by Creditors (months/days)}}{12 \text{ months (365 days)}}$$

**2. Direct Wages:**

$$\frac{\text{Budgeted yearly Production (in units)} \times \text{Direct Labour cost p.u.} \times \text{Avg. time – lag in payment of wages (months/days)}}{12 \text{ months (365 days)}}$$

The average credit period for the payment of wages approximates to half-a-month in the case of monthly wage payment.

**3. Overheads (other than Depreciation & Amortization):**

$$\frac{\text{Budgeted yearly Production (in units)} \times \text{Overhead cost p.u.} \times \text{Finished Goods holding period (months/days)}}{12 \text{ months (365 days)}}$$

The amount of overheads may be separately calculated for different types of overheads. In case of selling overheads, the relevant item would be sales volume instead of production volume.

**STATEMENT OF WORKING CAPITAL (ON THE BASIS OF VALUE)**

Particulars	Rs.	Rs.	Rs.
<b>A. CURRENT ASSETS</b>		XXXX	
1. Raw materials			
2. Work-In-Progress			
a) Raw Material	XXXX		
b) Work-In-Progress	XXXX		
c) Fixed Over Heads	XXXX		
3. Finished Goods		XXXX	XXXX
4. Debtors			XXXX
5. Cash			XXXX
6. Prepaid Expenses (If any)			XXXX
Gross Working Capital (A)			XXXX
<b>B. CURRENT LIABILITIES</b>			
1. Creditors		XXXX	
2. Outstanding Expenses			
a) Wages	XXXX		
b) Overheads	XXXX	XXXX	XXXX
Total Current liabilities (B)			XXXX
<b>C. NET WORKING CAPITAL (A - B)</b>			XXXX
Add: Provision for contingencies (If any)			XXXX
<b>REQUIRED WORKING CAPITAL</b>			XXXX

**Notes:**

- If payment is received in advance, the item should appear under CL.
- If advance payment is to be made to creditors, the item should appear under CA.
- The same will be the treatment for advance payment of wages and overheads.
- Depreciation:** An important point in estimating the working capital requirement is the depreciation on fixed assets. The depreciation on the fixed assets is not considered in working capital estimation. The depreciation is a non-cash expense and there is no funds locked up in depreciation therefore, it is ignored. Depreciation is neither included in valuation of work-in-progress nor in finished goods. The working capital calculated by ignoring depreciation is known as cash cost basis working capital. In case, depreciation is included in working capital calculations, such estimate is known as total cost basis working capital.
- Safety Margin:** Sometimes, a firm may also like to have a safety margin of working capital in order to meet any contingency. The safety margin may be expressed as a % of total current assets or total current liabilities or net working capital. The safety margin, if required, is incorporated in the working capital estimates to find out the net working capital required for the firm.
- Additional assumptions:** In the absence of information, it is assumed that
  - All sales and purchases are made on credit basis.
  - Production during the current year will be maintained at the same level as in the previous year.
  - There is no change in inventory and credit terms.
  - Production is evenly carried out throughout the year.

**MODEL 1.1: IN CASE OF EXISTING FIRMS**

**PROBLEM NO 1:** A proforma cost sheet of Fibroplast Limited is given for your consideration. It provides the following particulars:

Particulars	Amount per unit (Rs.)
Raw Materials Cost	80
Direct Labour Cost	30
Overheads Cost	60
Total Cost	170
Profit	30
Selling Price	200

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

The credit allowed by suppliers is one month following annual figures relate and company allows two months credit to its debtors. The lag in payment of wages is one and a half weeks and lag in payment of overhead expenses is one month.

The Company sells one-fourth of the output against cash and maintains cash-in-hand and at bank put together at Rs. 25,000.

You are required to prepare a statement showing estimate of Working Capital needed by Fibroplast Limited to finance an activity level of 1,04,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly.

(B) (RTP M17, RTP N16, SIMILAR M19 – 10M, RTP M19(N) & MTP N16) (ANS.: Rs. 40,30,000)

(SOLVE PROBLEM NO. 1 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** Suppose if production increases/decreases by 10,000 units, how it effects the working capital?

Note: \_\_\_\_\_

**PROBLEM NO 2:** On 1<sup>st</sup> January, the Managing Director of Naureen Ltd. wishes to know the amount of working capital that will be required during the year. From the following information prepare the working capital requirements forecast. Production during the previous year was 60,000 units. It is planned that this level of activity would be maintained during the present year. The expected ratios of the cost to selling prices are Raw materials 60%, Direct wages 10% and Overheads 20%. Raw materials are expected to remain in store for an average of 2 months before issue to production. Each unit is expected to be in process for one month, the raw materials being fed into the pipeline immediately and the labour and overhead costs accruing evenly during the month. Finished goods will stay in the warehouse awaiting dispatch to customers for approximately 3 months. Credit allowed by creditors is 2 months from the date of delivery of raw material. Credit allowed to debtors is 3 months from the date of dispatch. Selling price is Rs. 5 per unit. There is a regular production and sales cycle. Wages and overheads are paid on the 1<sup>st</sup> of each month for the previous month. The company normally keeps cash in hand to the extent of Rs. 20,000.

(Note: Investment in Debtors has to be valued at Cost of sales)

(B) (NEW SM)

(ANS.: ESTIMATED W.C REQUIREMENTS: RS. 1,66,250) (SOLVE PROBLEM NO. 2 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on working capital requirement if credit allowed by creditor is 3 months instead of 2 months?

Note: \_\_\_\_\_

**PROBLEM NO 3: (PRINTED SOLUTION AVAILABLE)** PQ Limited wants to expand its business and has applied for a loan from a commercial bank for its growing financial requirements. The records of the company reveals that the company sells goods in the domestic market at a gross profit of 25% not counting depreciation as part of the cost of goods sold.

The following additional information is also available for you:

Particulars	Amount (Rs.)
Sales-Home at one month's credit	1,20,00,000
Sales-Export at three months' credit (sale price 10% below home price)	54,00,000
Material used (suppliers extends two months credit)	45,00,000
Wages paid ½ month in arrear	36,00,000
Manufacturing Expenses (Cash) paid (one month in arrear)	54,00,000
Adm. Expenses paid (one month in arrear )	12,00,000
Income tax payable in four installments of which one falls in the next financial year	15,00,000

The company keeps one month's stock of each of raw materials and finished goods and believes in keeping 10,00,000 available to it including the overdraft limit of 5,00,000 not yet utilized by the company. Assume a 15% margin for contingencies. Ignore the work-in- progress.

(Note: Investment in Debtors has to be valued at sale value and Stock of Finished Goods has to be valued at Factory cost assuming Admin Expenses are not related to production).

You are required to ascertain the requirement of the working capital of the company. (A) (M17 - 8M)

(ANS.: W.C REQUIREMENT: RS. 29,03,750) (SOLVE PROBLEM NO. 3 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on working capital if credit allowed to domestic customers is 3 months?

Note: \_\_\_\_\_

**PROBLEM NO 4:** The following annual figures relate to XYZ Co.,

	(Rs.)
Sales (at two months credit)	36,00,000
Materials consumed (suppliers extend two months credit)	9,00,000
Wages paid (1 month lag in payment)	7,20,000
Cash manufacturing expenses (expenses are paid one month in arrear)	9,60,000
Administrative expenses (1 month lag in payment)	2,40,000
Sales promotion expenses (paid quarterly in advance)	1,20,000

The company sells its products on gross profit of 25%. Depreciation is considered as a part of the cost of production. It keeps one month's stock each of raw materials and finished goods, and a cash balance of Rs. 1,00,000.

Assuming a 20% safety margin, work out the working capital requirements of the company on cash cost basis. Ignore work-in-process.

(Note: Investment in Debtors has to be valued at Cost of sales or Total Cost and Stock of Finished Goods has to be valued at Factory cost assuming Admin Expenses are not related to production )

(A) (NEW SM, OLD SM, MTP M15)

(ANS.: TOTAL W.C REQUIREMENTS: RS.7,20,000) (SOLVE PROBLEM NO. 4 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What is the need to maintain safety margin?

Note: \_\_\_\_\_

**MODEL 1.2: IN CASE OF NEW FIRMS**

**PROBLEM NO 5: (PRINTED SOLUTION AVAILABLE)** Aneja Limited, 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	Rs.170 per unit
Selling price	Rs.200 per unit

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 ½ weeks

Cash at banks (for smooth operations) 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. You are required to calculate the net working capital required.

**(Note:** Investment in Debtors has to be valued at Total Cost or Cost of Sales and Stock of Finished Goods has to be valued at Factory cost)

(A) (NEW SM - TYK, OLD SM, MTP M16, MTP N18 (N), MTP M18 (N), M18 (N) - 10M)

(ANS.: RS. 42,52,913) (SOLVE PROBLEM NO. 5 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** When do you value the stock of finished goods based on factory cost?

Note: \_\_\_\_\_

**PROBLEM NO 6: (PRINTED SOLUTION AVAILABLE)** PQ Ltd., a company newly commencing business in 2017 has the under mentioned projected Profit and Loss Account:

	Rs.	Rs.
Sales		2,10,000
Cost of goods sold		<u>1,53,000</u>
Gross Profit		57,000
Administrative Expenses	14,000	
Selling Expenses	<u>13,000</u>	<u>27,000</u>
Profit before tax		30,000
Provision for taxation		<u>10,000</u>
Profit after tax		<u>20,000</u>
The cost of goods sold has been arrived at as under:		
Materials used	84,000	
Wages and manufacturing Expenses	62,500	
Depreciation	<u>23,500</u>	
	1,70,000	
Less: Stock of Finished goods	<u>17,000</u>	
(10% of goods produced not yet sold)	<u>1,53,000</u>	

The figure given above relate only to finished goods and not to work-in-progress. Goods equal to 15% of the year's production (in terms of physical units) will be in process on the average requiring

full materials but only 40% of the other expenses. The company believes in keeping materials equal to two month's consumption in stock. All expenses are paid one month in Advance. Suppliers of materials will extend 1½ months credit. Sales will be 20% for cash and the rest at two months' credit. 70% of the Income tax will be paid in advance in quarterly installments. The company wishes to keep Rs. 8,000 in cash. 10% has to be added to the estimated figure for unforeseen contingencies. Prepare an estimate of working capital on cash cost basis.

**Note:** Stock of Finished Goods has to be valued at Factory cost

All workings should form part of the answer.

(A) (NEW SM - TYK, OLD SM) (ANS.: NET WORKING CAPITAL REQUIREMENTS: RS. 75,584)

(SOLVE PROBLEM NO. 6 OF ASSIGNMENT PROBLEMS AS REWORK)

### CONCEPT QUESTIONS:

- What is the impact of cash sales on working capital requirement?
- If the degree of completion with respect to components of working capital is not given, how do you value the work in progress?

**Note:** \_\_\_\_\_

**PROBLEM NO 7: (PRINTED SOLUTION AVAILABLE)** M.A. Limited is commencing a new project for manufacture of a plastic component. The following cost information has been ascertained for annual production of 12,000 units which is the full capacity:

Particulars	Cost per Unit (Rs.)
Materials	40.00
Direct labour and variable expenses	20.00
Fixed manufacturing expenses	6.00
Depreciation	10.00
Fixed administration expenses (Related to factory)	4.00
	80.00

The selling price per unit is expected to be Rs. 96 and the selling expenses Rs. 5 per unit, 80% of which is variable. In the first two years of operations, production and sales are expected to be as follows:

Year	Production (No. of units)	Sales (No. of units)
1	6,000	5,000
2	9,000	8,500

To assess the working capital requirements, the following additional information is available:

Stock of materials	2.25 months' average consumption
Work-in-process	Nil
Debtors	1 month's average sales.
Cash balance	Rs. 10,000
Creditors for supply of materials	1 month's average purchase during the year
Creditors for expenses	1 month's average of all expenses during the year

Prepare, for the two years:

- A projected statement of Profit/Loss (Ignoring taxation); and
- A projected statement of working capital requirements (Based on cash cost)

(Note: Investment in Debtors has to be valued at Total Cost or Cost of Sales and Stock of Finished Goods has to be valued at Cost of Production)

(A) (NEW SM - TYK, OLD SM, Similar : RTP N19(O))

(ANS.: I) Y<sub>1</sub>: Rs. (52,000); Y<sub>2</sub>: Rs. 22,000; II) W.C REQUIREMENTS (CASH COST BASIS): Y<sub>1</sub>: Rs.1,24,583; Y<sub>2</sub>: Rs.1,84,042

(SOLVE PROBLEM NO. 7 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** Why do you value the fixed cost based on full capacity?

Note: \_\_\_\_\_

## MODEL 2: IMPACT OF DOUBLE SHIFT WORKING ON WC REQUIREMENTS

Working Double Shift leads to economies of scale due to greater use of Fixed Assets. As a Firm increases the number of production hours, Working Capital requirements also increase. But the increase in the Working Capital amount may not be directly proportional.

The impact of double shift working on various components of Working Capital is as under:

Item	Effect on Quantity	Effect on Rate
<b>Raw Materials</b>	Stock requirements may double since consumption per day will be twice as earlier.	Due to bulk purchasing, the Firm may be able to avail quantity discounts. Hence, average cost per unit of Raw Material may be reduced.
<b>Work-in-Progress</b>	There will be no change in the quantity of WIP, since work commenced in the first shift will be completed in the second shift. Hence, at the end of any day, the quantity of WIP will remain the same as it was in single shift working.	Due to reduction in Raw Material cost and economies of fixed costs, the average cost per unit of WIP may be reduced.
<b>Finished Goods</b>	Due to greater production, Finished Goods Stocks may <u>double</u> in quantity.	Cost of production per unit will be <u>reduced</u> , due to lower cost of materials and economies of fixed costs per unit.
<b>Sundry Debtors</b>	Increase in demand and increased sales will lead to <u>higher amount</u> of Debtors, for the same credit period. In case of reduction in credit period, the increase may not be proportional or double.	Selling Price per unit may be <u>reduced</u> on account of price elasticity of demand. Additional quantities could be sold only by reducing the price.
<b>Sundry Creditors</b>	Raw Materials purchase quantity and Creditors bill quantity may <u>double</u> , subject to, credit period remaining constant. In case of extended credit periods, Creditors may increase more than proportionately or double.	Due to bulk purchasing and better bargaining power, the Firm may obtain discounts. Hence, amount payable per unit of purchase stands <u>reduced</u> .

**PROBLEM NO 8: (PRINTED SOLUTION AVAILABLE)** Samreen Enterprises has been operating its manufacturing facilities till 31.03.2017 on a single shift working with the following cost structure:

Particulars	Per unit Rs.
Cost of Materials	6.00
Wages (out of which 40% fixed)	5.00
Overheads (out of which 80% fixed)	5.00
Profit	2.00
Selling Price	18.00
Sales during 2016-17 is Rs.4,32,000/-	
As at 31.03.17 the Company held the following balances:	
	Rs.
Stock of raw materials (at cost)	36,000
Work-in-progress (valued at prime cost)	22,000
Finished goods (valued at total cost)	72,000
Sundry debtors	1,08,000

In view of increased market demand, it is proposed to double production by working an extra shift. It is expected that a 10% discount will be available from suppliers of raw materials in view of increased volume of business. Selling price will remain the same. The credit period allowed to customers will remain unaltered. Credit availed of from suppliers will continue to remain at the present level i.e., 2 months. Lag in payment of wages and expenses will continue to remain half a month. Investment in debtors should be valued at Total cost.

You are required to assess the additional working capital requirements, if the policy to increase output is implemented. (A) (NEW SM, OLD SM) (ANS.: ADDITIONAL WORKING CAPITAL REQUIREMENTS 94,800)

(SOLVE PROBLEM NO. 8 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** If fixed wages and overheads increases/decreases by 10%, What is the impact on double shift working capital?

Note: \_\_\_\_\_

### MODEL 3: DIFFERENT APPROACHES OF FINANCING WORKING CAPITAL

Particulars	Matching Approach	Conservative Approach	Aggressive Approach
Long term funds used in	Fixed Assets & Permanent Working Capital.	Fixed Assets, Permanent Working Capital & part of Temporary Working capital	Fixed Assets and part of Permanent Working Capital.
Short term funds used in	Temporary Working Capital	Balance part of Temporary Working Capital	Balance part of Permanent Working Capital and entire Temporary Working Capital
Effect on Liquidity	Well - balanced	High Liquidity.	Low Liquidity.
Effect on Profitability	Comparatively well - balanced.	Low Profitability & Return on assets	High return On assets but risky.

The various approaches to funding are as under:

**PROBLEM NO 9:** A firm has the following data for the year ending 31<sup>st</sup> March, 2017:

	Amount (Rs.)
Sales (1,00,000 @ Rs. 20)	20,00,000
Earnings before Interest and Taxes	2,00,000
Fixed Assets	5,00,000

The three possible current assets holdings of the firm are Rs. 5,00,000, Rs. 4,00,000 and Rs. 3,00,000. It is assumed that fixed assets level is constant and profits do not vary with current assets levels. Prepare a statement showing the effect of the three alternative current assets policies.

(A) (NEW SM, OLD SM) (ANS.: EFFECT OF ALTERNATIVE WORKING CAPITAL POLICIES: CONSERVATIVE: 1.00; MODERATE: 0.80; AGGRESSIVE: 0.60) (SOLVE PROBLEM NO. 9 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What will be the impact on current asset policies if current asset holdings of the firm increases/decreases by 1,00,000?

Note: \_\_\_\_\_

**PROBLEM NO 10:** An engineering company is considering its working capital investment for the year 2018-19. The estimated fixed assets and current liabilities for the next year are Rs.6.63 crore and Rs.5.967 crores 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:

- Rate of return on total assets.
- Net working capital position.
- Current assets to fixed assets ratio.
- Discuss the risk-return trade off of each working capital policy.

(A) (OLD PM, RTP M18 (N&O), Similar : RTP M19(N))

(ANS: (i) 17.32, 17.69, 19.23 (ii) 5.508, 3.978, .663 (iii) 1.73, 1.50, 1.00 (iv) FIRM CAN IMPROVE PROFITABILITY BY REDUCING INVESTMENT IN CURRENT ASSETS) (SOLVE PROBLEM NO. 10 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** Why the Conservative policy has lesser returns and the Aggressive policy has higher returns?

Note : \_\_\_\_\_

### MODEL 4: OPERATING CYCLE

Working Capital cycle indicates the length of time between companies's paying for materials, entering into stock and receiving the cash from sales of finished goods. It can be determined by adding the number of days required for each stage in the cycle. For example, a company holds raw materials on an average for 60 days, it gets credit from the supplier for 15 days, production process needs 15 days, finished goods are held for 30 days and 30 days credit is extended to debtors. The total of all these, 120 days, i.e., 60 - 15 + 15 + 30 + 30 days is the total working capital cycle.

#### Working Capital Cycles



**Net Operating Cycle (NOC) = TOCP - DP = ICP + RCP - DP**

For Calculation of TOCP and NOC, various conversion periods may be calculated as follows:

$$RMCP = \frac{\text{Average Raw material Stock}}{\text{Total Raw material consumption}} \times 365 \quad WPCP = \frac{\text{Average work-in-progress}}{\text{Total Cost of production}} \times 365$$

$$FGCP = \frac{\text{Average Finished Goods}}{\text{Total Cost of goods sold}} \times 365 \quad RCP = \frac{\text{Average Receivables}}{\text{Total Credit Sales}} \times 365$$

$$DP = \frac{\text{Average Creditors}}{\text{Total Credit Purchase}} \times 365$$

On the basis of above conversion periods, the TOCP and NOC may be ascertained as follows:

Particulars	Number of Days
RMCP	..... Days
Add: WPCP	..... Days
Add: FGCP	..... Days
Add: RCP	..... Days
TOCP	..... Days
Less: DP	..... Days
NOC	..... Days

**PROBLEM NO 11:** Alpha Limited has forecasted the following information for the year ending 31<sup>st</sup> March, 2012:

Particulars	Balance as at 1 <sup>st</sup> April, 2011 (Rs.)	Balance as at 31 <sup>st</sup> March, 2012 (Rs.)
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.

You are required to calculate:

- Net operating cycle period.
- Number of operating cycles in the year.
- Amount of working capital requirement.

(A) (OLD PM, RTP M18 (N&O))

(ANS.: (I) 86 DAYS, (II) 4.24, (III) RS. 2,23,845) (SOLVE PROBLEM NO. 11 OF ASSIGNMENT PROBLEMS AS REWORK)

### CONCEPT QUESTIONS:

- What is the interlink between the net operating cycle and no. of operating cycles?
- What would be the impact on net operating cycle if finished goods holding period increase or decrease by 10 days?

Note: \_\_\_\_\_

**PROBLEM NO 12:** The following information is available in respect of Sai trading company:

- On an average, debtors are collected after 45 days; inventories have an average holding period of 75 days and creditor's payment period on an average is 30 days.
- The firm spends a total of Rs. 120 lakhs annually at a constant rate.
- It can earn 10 per cent on investments.

From the above information, you are required to calculate:

- The cash cycle and cash turnover,
- Minimum amounts of cash to be maintained to meet payments as they become due,

c) Savings by reducing the average inventory holding period by 30 days. (Assume 1 Year = 360 days)

(B) (NEW SM, OLD SM, M15 - 8M) (ANS.: A) CASH CYCLE: 90 DAYS (3 MONTHS) CASH TURN OVER: 4; B) MINIMUM OPERATING CASH: RS. 30 LAKHS; C) RS. 1 LAKH) (SOLVE PROBLEM NO. 12 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What are the possible ways to increase your savings in opportunity cost?

Note: \_\_\_\_\_

**Problem No 13: (PRINTED SOLUTION AVAILABLE)** Satyam Sundaram Ltd.'s Profit and Loss A/c and Balance Sheet for the year ended 31.12.2000 are given below. You are required to calculate working capital requirement & operating cycle period.

**Trading and profit & loss a/c for the year ended 31.12.2000**

Particulars	Rs.	Particulars	Rs.
To Opening Stock:		By Credit Sales	1,00,000
Raw materials	10,000	By Closing Stock:	
Work-in-progress	30,000	Raw materials	11,000
Finished goods	5,000	Work-in-progress	30,500
To Credit Purchase	35,000	Finished goods	8,500
To Wages & Manufacturing exp.	15,000		
To Gross profit c/d	55,000		
	<b>1,50,000</b>		<b>1,50,000</b>
To Administrative exp.	15,000	By Gross profit b/d	55,000
To Selling and Dist. Exp.	10,000		
To Net Profit	30,000		
	<b>55,000</b>		<b>55,000</b>

**Balance sheet as at 31.12.2000**

Liabilities	Rs.	Assets	Rs.
Share Capital (16,000 equity Shares of Rs.10 each)	1,60,000	Fixed assets	1,00,000
Profit and Loss Account	30,000	<b>Closing Stock:</b>	
Creditors	10,000	Raw materials	11,000
		Work in Progress	30,500
		Finished goods	8,500
		Debtors	30,000
		Cash and Bank	20,000
	<b>2,00,000</b>		<b>2,00,000</b>

Opening debtors and opening creditors were Rs.6,500 and Rs.5,000 respectively. (ANS.: 317 DAYS)

(SOLVE PROBLEM NO. 13 OF ASSIGNMENT PROBLEMS AS REWORK)

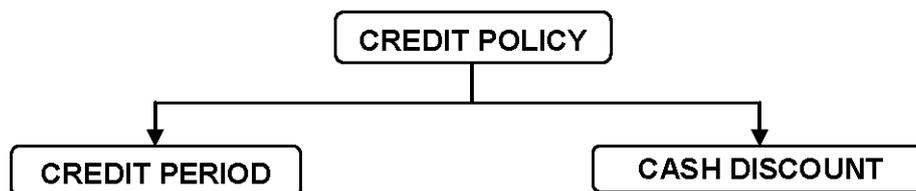
**CONCEPT QUESTION:** What would be the impact on operating cycle if opening debtors & creditors are taken as Rs.7,000 and Rs.10,000 respectively?

Note: \_\_\_\_\_

### **MODEL 5: MANAGEMENT OF RECEIVABLES**

- Management of receivables refers to planning and controlling of 'debt' owed to the firm from customer on account of credit sales. It is also known as trade credit management.
- If large amounts are tied up in receivables, there are chances of bad debts and there will be cost of collection of debts. On the contrary, if the investment in receivables is low, the sales may be restricted, since the competitors may offer more liberal terms.

- Therefore, management of receivables is an important issue and requires proper policies and their implementation. The basic objective of management of receivables (debtors) is to optimize the return on investment on these assets.
- The finance manager is responsible for designing appropriate credit policy to optimize the investment in debtors.



### EVALUATION OF CREDIT POLICY (HOW MUCH CREDIT CAN BE EXTENDED)

#### A. BENEFIT:

Particulars	Present	Proposed
Sales	XXXX	XXXX
Less: Variable cost	XXXX	XXXX
Less: Fixed cost	XXXX	XXXX
Less: Bad Debts	XXXX	XXXX
Less: Collection Expenses	XXXX	XXXX
Less: Administration Expenses	XXXX	XXXX
Profit Before Tax	XXXX	XXXX
Less: Tax	XXXX	XXXX
Profit After Tax	XXXX	XXXX

#### B. OPPORTUNITY COST (OC):

Particulars	Present	Proposed
a) Investment in debtors	XXXX	XXXX
b) Opportunity Cost ((a) x OC (as a %) will be given in the problem)	XXXX	XXXX

#### C. NET BENEFIT:

Particulars	Present	Proposed
Incremental Net Benefit (A - B)	XXXX	XXXX

**Decision:** If the net benefit is positive, then accept the proposed credit policy. Otherwise continue the existing credit policy.

#### Investment in Debtors can be computed:

1. Based on sales value
2. Based on Total cost
3. Based on Variable cost

$$\text{Sales} / \text{Total Cost (FC + VC)} / \text{Variable Cost} \times \frac{\text{Debtors Collection period}}{365D / 12M / 52W}$$

### MODEL 5.1: EVALUATION OF CREDIT POLICY

**PROBLEM NO 14:** X Ltd. wishes to increase its credit period from "net 35" to "net 50". It expects sales to increase from Rs.120 lakhs to Rs. 180 lakhs and the average collection period to increase from 35 days to 50 days. The bad-debt loss ratio and collection costs ratio will remain at 5% and 6% respectively. The company's variable costs ratio is 85%, tax rate is 50% and the after tax required rate of return is 20%. Advise X Ltd based on (i) Variable cost valuation (ii) Sales value valuation.

(Note: Assume No. of days in year 360 days)

(A) (ANS.: (I) (1.067) (II) (1.47)) (SOLVE PROBLEM NO. 14 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on investment in debtors, if you adopt variable cost approach instead of sale value approach & vice versa?

Note: \_\_\_\_\_

**PROBLEM NO 15:** XYZ Corporation 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 Rs. 50 lakhs and accounts receivable turnover ratio of 4 times a year. The current level of loss due to bad debts is Rs. 1,50,000. The firm is required to give a return of 25% on the investment in new accounts receivables. The company's variable costs are 70% of the selling price. Given the following information, which is the better option?

Particulars	Present Policy	Policy Option I	Policy Option II
Annual credit sales	50,00,000	60,00,000	67,50,000
Accounts receivable turnover ratio	4 times	3 times	2.4 times
Bad debt losses	1,50,000	3,00,000	4,50,000

(A) (NEW SM, OLD SM, SIMILAR: MTP N17, MTP M18 (N), MTP N18 (N&O)) (ANS.: PRESENT POLICY: 11,31,250 POLICY I – 11,50,000 POLICY II – 10,82,812, POLICY I should be adopted) (SOLVE PROBLEM NO. 15 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTIONS:** What is the interlink between the investment in debtors and debtors turnover ratio?

Note: \_\_\_\_\_

**PROBLEM NO 16:** Mosaic Limited has current sales of Rs. 15 lakh per year. Cost of sales is 75 per cent of sales and bad debts are one per cent of sales. Cost of sales comprises 80 per cent variable costs and 20 per cent fixed costs, while the company's required rate of return is 12 per cent. Mosaic Limited currently allows customers 30 days credit, but is considering increasing this to 60 days credit in order to increase sales.

It has been estimated that this change in policy will increase sales by 15 per cent, while bad debts will increase from one per cent to four percent. It is not expected that the policy change will result in an increase in fixed costs and creditors and stock will be unchanged. Should Mosaic Limited introduce the proposed policy? (Assume 1 year = 360 days)

(A) (NEW SM, OLD SM)

(ANS.: SAVINGS BY INTRODUCING CHANGE IN POLICY: RS. 22,050)

(SOLVE PROBLEM NO. 16 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on opportunity cost if required rate of return increases/decreases by 1%?

Note: \_\_\_\_\_

**PROBLEM NO 17:** A trader whose current sales are in the region of Rs.6 lakhs per annum and an average collection period of 30 days wants to pursue a more liberal policy to improve sales. A study made by a management consultant reveals the following information:

Credit Policy	Increase in credit period	Increase in sales (Rs.)	Bad-debt as % total sales
A	10 days	30,000	1.5
B	20 days	48,000	2
C	30 days	75,000	3
D	45 days	90,000	4

The selling price per unit is Rs. 3. Total cost per unit is Rs. 2.25 and variable costs per unit are Rs. 2. The current bad debt loss is 1%. Required return on additional investment is 20%.

Which of the above policies would you recommend for adoption? (Assume 1 year = 360 days).

(A) (NEW SM, OLD SM, M16 - 8M) (ANS.: PROPOSED POLICY A SHOULD BE ADOPTED)

(SOLVE PROBLEM NO. 17 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What is the interlink between the investment in debtors and credit period?

Note: \_\_\_\_\_

**PROBLEM NO 18: (PRINTED SOLUTION AVAILABLE)** Slow Payers are regular customers of Goods Dealers Ltd., Calcutta and have approached the sellers for extension of a credit facility for enabling them to purchase goods from Goods Dealers Ltd. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges in regard to Slow Payers:

	Pattern of Payment Schedule
At the end of 30 days	15% of the bill
At the end of 60 days	34% of the bill
At the end of 90 days	30% of the bill
At the end of 100 days	20% of the bill
Non-recovery	1% of the bill

Slow Payers want to enter into a firm commitment for purchase of goods of Rs. 15 lakhs in 2017, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is Rs. 150 on which a profit of Rs. 5 per unit is expected to be made. It is anticipated by Goods Dealers Ltd. that taking up of this contract would mean an extra recurring expenditure of Rs. 5,000 per annum. If the opportunity cost of funds in the hands of Goods Dealers is 24% per annum, would you as the finance manager of the seller recommend the grant of credit to Slow Payers? Workings should form part of your answer. (Assume 1 year = 365 days).

(A) (NEW SM - TYK, OLD SM, RTP N18 (N&amp;O), Similar : RTP N19(N))

(ANS.: NET BENEFITS: RS. (38,787)) (SOLVE PROBLEM NO. 18 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on investment in debtors, if profit per unit is taken as Rs.25/- instead of Rs.5/-

Note: \_\_\_\_\_

**PROBLEM NO 19:** As a part of the strategy to increase sales and profits, the sales manager of a company proposes to sell goods to a group of new customers with 10% risk of non-payment. This group would require one and a half months credit and is likely to increase sales by Rs.1,00,000 p.a. Production and Selling expenses amount to 80% of sales and the income-tax rate is 50%. The company's minimum required rate of return (after tax) is 25%.

Should the sales manager's proposal be accepted? Also find the degree of risk of non-payment that the company should be willing to assume if the required rate of return (after tax) were (i) 30%, (ii) 40% and (iii) 60%.

(A) (NEW SM - TYK, OLD SM) (ANS.: NET BENEFIT: RS. 2,500)

(SOLVE PROBLEM NO. 19 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** If minimum required rate of return is taken as 25% BEFORE tax, How it will impact your decision?

Note: \_\_\_\_\_

**PROBLEM NO 20: (PRINTED SOLUTION AVAILABLE)** Tony Limited, manufacturer of Colour TV sets is considering the liberalization of existing credit terms to three of their large customers A, B and C. The credit period and likely quantity of TV sets that will be sold to the customers in addition to other sales are as follows:

## Quantity sold (No. of TV Sets)

Credit Period (Days)	A	B	C
0	1,000	1,000	-
30	1,000	1,500	-
60	1,000	2,000	1,000
90	1,000	2,500	1,500

The selling price per TV set is Rs. 9,000. The expected contribution is 20% of the selling price. The cost of carrying receivable averages 20% per annum.

You are required:

- Compute the credit period to be allowed to each customer.
- Demonstrate the other problems the company might face in allowing the credit period as determined in a) above? (Assume 1 year = 360 days).

(RTP N18 (N&O)) (ANS.: A) FOR A: NO INCREASE IN SALES IF CREDIT PERIOD IS GIVEN, B: 90 DAYS, C: 90 DAYS; B) HENCE A ALSO MAY DEMAND CREDIT FOR 60 DAYS COMPULSORILY, B MAY ASK FOR 150 DAYS CREDIT.)

(SOLVE PROBLEM NO. 20 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the effect on profitability, if selling price per unit is Rs.11,000 and expected contribution is 15%?

Note: \_\_\_\_\_

### MODEL 5.2: EVALUATION OF CASH DISCOUNT

#### A. BENEFIT

Particulars	Before Cash Discount	After Cash Discount
Sales	XXXX	XXXX
Less: Variable cost	XXXX	XXXX
Less: Fixed cost	XXXX	XXXX
Less: Bad Debts	XXXX	XXXX
Less: Collection Expenses	XXXX	XXXX
Less: Administration Expenses	XXXX	XXXX
Less: Cash Discount	-	XXXX
Profit Before Tax	XXXX	XXXX
Less: Tax	XXXX	XXXX
Profit After Tax	XXXX	XXXX

#### B. OPPORTUNITY COST (OC):

Particulars	Present	Proposed
a) Investment in debtors	XXXX	XXXX
b) Opportunity Cost ((a) x OC (as a %)) will be given in the problem)	XXXX	XXXX

#### C. NET BENEFIT:

Particulars	Present	Proposed
Incremental Net Benefit (A - B)	XXXX	XXXX

**Decision:** If the net benefit is positive, then accept the proposed Cash Discount proposal. Otherwise continue the existing credit policy.

**Investment in Debtors can be computed:**

- Based on sales value
- Based on Total cost

3. Based on Variable cost

$$\text{Sales} / \text{Total Cost (FC+VC)} / \text{Variable Cost} \times \frac{\text{Debtors Collection period}}{365D / 12M / 52W}$$

**PROBLEM NO 21:** A company is presently having a credit sale of Rs. 12 Lakh. The existing credit terms are 1/10 net 45 days, and average collection period is 30 days. The current bad debts loss is 1.5%. In order to accelerate the collection process further as also to increase sales, the company is contemplating liberalization of its existing credit terms to 2/10 net 45 days. It is expected that sales are likely to increase 1/3 of existing sales, bad debts increase to 2% of sales and average collection period to decline to 20 days. The contribution to sales ratio of the company is 22% and opportunity cost of investment in receivables is 15% (Pre-tax). 50% and 80% of customers in terms of sales Revenue are expected to avail cash discount under existing and liberalization scheme respectively. Tax rate is 30%. Should the company change its credit terms? (Assume 360 days in a year) (A) (PDK)

(ANS.: THE COMPANY MAY CHANGE ITS CREDIT TERMS, DUE TO ADDITIONAL NET BENEFIT OF RS. 38,990)

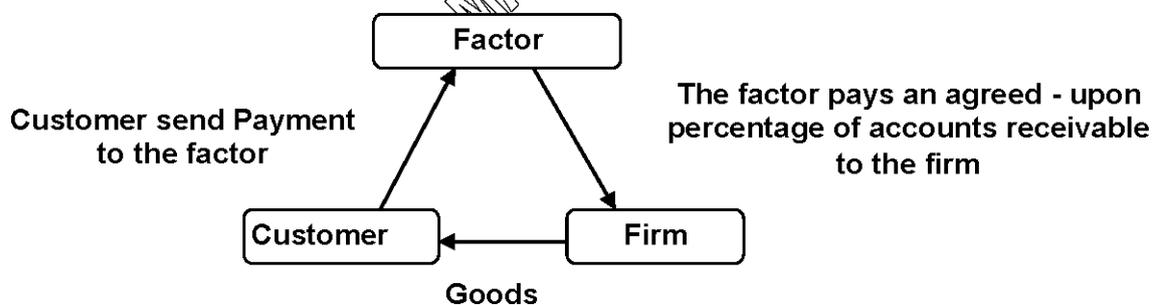
(SOLVE PROBLEM NO. 21 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on average investment in debtors, if 60% and 90% of customers are expected to avail cash discount?

Note: \_\_\_\_\_

**MODEL 5.3: FACTORING**

- Factoring is a relatively new concept in financing of accounts receivables. This refers to outright sale of accounts receivables to a factor or a financial agency.
- A factor is a firm that acquires the receivables of other firms.
- The factoring lays down the conditions of the sale in a factoring agreement.
- The factoring agency bears the right of collection and services the accounts for a fee.



Normally, factoring is the arrangement on a non-recourse basis where in the event of default the loss is borne by this factor. However, in a factoring arrangement with recourse, in such situation, the accounts receivables will be turned back to the firm by the factor for resolution.

**Statement showing the Evaluation of Factoring Proposal:**

	Particulars	(Rs.)
<b>A.</b>	<b>Annual Savings (Benefit) on taking Factoring Service:</b>	
	Cost of Credit Administration saved	xxxx
	Bad Debts avoided	xxxx
	Interest saved due to reduction in Average collection period (Wherever applicable) [Cost of Annual Credit Sales × Rate of Interest × (Present Collection Period - New Collection Period)/360 × No. of days]	xxxx
	<b>Total</b>	xxxx
<b>B.</b>	<b>Annual Cost of Factoring to the Firm:</b>	
	Factoring Commission [Annual credit Sales × % of Commission (or calculated annually)]	xxxx

	Interest Charged by Factor on advance (or calculated annually )	XXXX
	[Amount available for advance or (Annual Credit Sales - Factoring Commission - Factoring Reserve)] $\times \left( \frac{\text{Collection Period (days)}}{360 * } \times \text{Rate of Interest} \right)$	
	<b>Total</b>	XXXX
<b>C.</b>	<b>Net Annual Benefits / Cost of Factoring to the Firm:</b>	
	Rate of Effective Cost of Factoring to the Firm $= \frac{\text{Net Annual Cost of Factoring}}{\text{Amount available for Advance}} \times 100 \text{ Or } \frac{\text{Net Annual Cost of Factoring}}{\text{Advances to be paid}} \times 100$ Advances to be paid = (Amount available for advance - Interest deducted by factor)	XXXX

\*1 Year is taken as 360 days

**Advise:**

- The company should avail Factoring services if rate of effective Cost of Factoring to the firm is less than the existing cost of borrowing or if availing services of factoring results in to positive Net Annual Benefits.
- The company should not avail Factoring services if the Rate of Effective Cost of Factoring to the Firm is more than the existing cost of borrowing.

**PROBLEM NO 22:** A Factoring firm has credit sales of Rs. 360 lakhs and its average collection period is 30 days. The financial controller estimates, bad debt losses are around 2% of credit sales. The firm spends Rs.1,40,000 annually on debtors administration. This cost comprises of telephonic and fax bills along with salaries of staff members. These are the avoidable costs. A Factoring firm has offered to buy the firm's receivables. The factor will charge 1% commission and will pay an advance against receivables on an interest @15% p.a. after withholding 10% as reserve. What should the firm do?

(Note: Assume 1 year = 360 days and commission is collected in advance )

(A) (NEW SM, OLD SM) (ANS.: NET BENEFITS TO THE FIRM: RS. 99,500)

(SOLVE PROBLEM NO. 22 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on advance if commission is 2% and interest on advance is at 18% and factors reserve is 20%?

Note: \_\_\_\_\_

**PROBLEM NO 23:** A firm has a total sales of Rs. 200 lakhs of which 80% is on credit. It is offering credit terms of 2/40, net of 120. Of the total, 50% of customers' avail of discount and the balance pay in 120 days. Past experience indicates that the bad debt losses are around 1% of credit sales. The firm spends about Rs.2,40,000 per annum to administer its credit sales. These are avoidable as a factor is prepared to buy the firm's receivables. He will charge 2% commission. He will pay advance against receivables to the firm at an Interest rate of 18% after withholding 10% as reserve.

- What is the effective cost of factoring? Consider year as 360 days.
- If bank finance for working capital is available at 14% interest, should the firm avail of factoring services?

(Note: Assume 1 year = 360 days and commission & Interest on loan is collected in advance)

(A) (N15 - 8M)

(ANS.: I) EFFECTIVE COST OF FACTORING: 16.09%, II) FIRM WILL NOT AVAIL FACTORING SERVICE AS 14 % IS LESS THAN 16.08%) (SOLVE PROBLEM NO. 23 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the effect on advance if interest and commission are collected in arrears?

Note: \_\_\_\_\_

**MODEL 6: CASH MANAGEMENT****MODEL 6.1. CASH BUDGET**

- Cash Budget is a statement showing the estimated cash inflows, cash outflows and the resultant cash balances over a given budget period.
- Cash Budget serves as a device for planning and controlling the inflows and outflows of cash to ensure the availability of cash when it is needed.
- Cash Budget may be done on monthly / quarterly / half yearly / yearly basis. Cash planning involves:
  - a) Estimating the timings and amount of expected cash inflows.
  - b) Estimating the timings and amount of expected cash outflows.
  - c) Estimating the timings and amount of expected cash deficit.
  - d) Estimating the timings and amount of expected surplus cash.

For this purpose, Cash Flow Statements and Cash Budgets are required to be prepared.

**PROBLEM NO 24: (PRINTED SOLUTION AVAILABLE)** NNSG LLP. is preparing its cash budgets for April, May and June.

Budgeted data are as follows:

Particulars	February	March	April	May	June
Sales (units)	15,000	16,000	16,000	17,000	18,000
Production (units)	16,000	16,000	17,000	18,000	19,000
Direct labour and variable overheads incurred (Rs.)	9,60,000	9,60,000	10,20,000	10,80,000	11,20,000
Fixed overheads incurred (excluding depreciation) (Rs.)	4,00,000	4,00,000	4,00,000	4,00,000	4,00,000

The selling price per unit is Rs.200. The purchase price per kg of raw material is Rs.50. Each unit of finished product requires 2 kg of raw materials which are purchased on credit in the month before they are used in production. Suppliers of raw materials are paid one month after purchase.

All sales are on credit. 80% of customers, by sales value, pay one month after sale and the remainder pays two months after sale.

The direct labour cost, variable overheads and fixed overheads are paid in the month in which they are incurred.

Machinery costing Rs.20,00,000 will be delivered in May and paid for in June.

Depreciation, including that on the new machinery, is as follows:

Machinery and equipment- Rs.70,000 per month

Motor vehicles Rs.16,000 per month

The opening cash balance at 1st April is estimated to be Rs.3,00,000.

**Required:** Prepare a cash budget for each of the three months April, May and June.

(MTP1 N18 (O) - 8M) (ANS.: CLOSING BALANCE: APRIL: RS.3,40,000; MAY: RS. 2,60,000; JUNE: (18,00,000))

(SOLVE PROBLEM NO. 24 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the effect on closing balance if opening cash balance and fixed overheads increases/decreases by Rs.1,00,000?

Note: \_\_\_\_\_

**PROBLEM NO 25: (PRINTED SOLUTION AVAILABLE)** you are given below the Profit & Loss Accounts for two years for a company:

**Profit and Loss Account**

Particulars	Year 1 Rs.	Year 2 Rs.	Particulars	Year 1 Rs.	Year 2 Rs.
To Opening stock	80,00,000	1,00,00,000	By Sales	8,00,00,000	10,00,00,000
To Raw materials	3,00,00,000	4,00,00,000	By Closing stock	1,00,00,000	1,50,00,000
To Stores	1,00,00,000	1,20,00,000	By Misc. Income	10,00,000	10,00,000
To Manufacturing Expenses	1,00,00,000	1,60,00,000			
To Other Expenses	1,00,00,000	1,00,00,000			
To Depreciation	1,00,00,000	1,00,00,000			
To Net Profit	1,30,00,000	1,80,00,000			
	<b>9,10,00,000</b>	<b>11,60,00,000</b>		<b>9,10,00,000</b>	<b>11,60,00,000</b>

Sales are expected to be Rs. 12,00,00,000 in year 3.

As a result, other expenses will increase by Rs. 50,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. How much cash from operations will be available in year 3 for the purpose? Ignore income tax.

(A) (NEW SM, OLD SM)

(ANS.: AVAILABLE CASH FOR SERVICING THE LOAN: RS. 1,90,50,000)

(SOLVE PROBLEM NO. 25 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the effect on cash from operations if closing stock decreased by 50,00,000 while compared to previous year?

Note: \_\_\_\_\_

**PROBLEM NO 26: (PRINTED SOLUTION AVAILABLE)** Consider the balance sheet of Maya Limited at December 31 (in thousands). The company has received a large order and anticipates the need to go to its bank to increase its borrowings. As a result, it has to forecast its cash requirements for January, February and March. Typically the company collects 20 per cent of its sales in the month of sale, 70 per cent in the subsequent month, and 10 per cent in the second month after the sale. All sales are credit sales.

Particulars	(Rs.) in 000's	Particulars	(Rs.) in 000's
Cash	50	Accounts payable	360
Accounts receivable	530	Bank loan	400
Inventories	545	Accruals	212
<b>Current assets</b>	<b>1,125</b>	<b>Current liabilities</b>	<b>972</b>
Net fixed assets	1,836	Long-term debt	450
		Common stock	100
		Retained earnings	1,439
<b>Total assets</b>	<b>2,961</b>	<b>Total liabilities and equity</b>	<b>2,961</b>

Purchases of raw materials are made in the month prior to the sale and amount to 60 per cent of sales in the subsequent month. Payments for these purchases occur in the month after the purchase. Labour costs, including overtime, are expected to be Rs.1,50,000 in January, Rs.2,00,000 in February, and Rs.1,60,000 in March. Selling, administrative, taxes, and other cash expenses are expected to be Rs.1,00,000 per month for January through March. Actual sales in November and December and projected sales for January through April are as follows (in thousands):

	(Rs.)		(Rs.)		(Rs.)
November	500	January	600	March	650
December	600	February	1,000	April	750

On the basis of this information:

- Prepare a cash budget for the months of January, February, and March.
- Determine the amount of additional bank borrowings necessary to maintain a cash balance of Rs. 50,000 at all times.
- Prepare a proforma balance sheet for March 31. (A) (NEW SM - TYK, OLD SM)

(ANS.: A) TOTAL CASH DISBURSEMENTS: JAN: 6,10,000; FEB: 9,00,000; MAR: RS. 6,50,000; B) ADDITIONAL BORROWINGS: JAN: 20,000; FEB: 2,20,000; MARCH: RS. (2,40,000); C) TOTAL OF BALANCE SHEET: RS. 31,41,000  
(SOLVE PROBLEM NO. 26 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on cash balance if payment for the purchases occur in the month of purchase?

Note: \_\_\_\_\_

### MODEL 6.2. CASH MANAGEMENT MODEL: BAUMOL MODEL

It is suggested by W.J.Baumol (1952), this model is the same as the economic order quantity model of the inventory management. This model can be presented as follows:

$$C = \sqrt{\frac{2FT}{r}}$$

- Where,
- C = Cash required each time to restore balance to minimum cash
  - F = Total cash required during the year
  - T = Cost of each transaction between cash and marketable securities
  - r = Rate of interest on marketable securities.

**PROBLEM NO 27:** 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 and also show that the economic lot size can be obtained by the Baumol Model.
- What will be the cash cycle for the firm (in days)?
- What would be the average cash balance for the firm? (C) (N96, OLD PM)

(ANS.: ECONOMIC LOT SIZE: RS. 2,00,000; CASH CYCLE (IN DAYS): 73 DAYS; AVERAGE CASH BALANCE: RS. 1,00,000)  
(SOLVE PROBLEM NO. 27 OF ASSIGNMENT PROBLEMS AS REWORK)

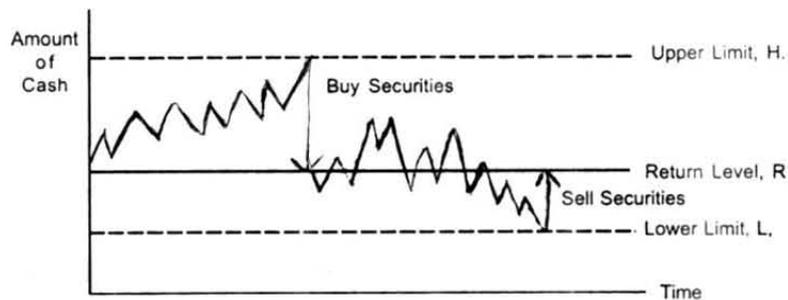
**CONCEPT QUESTION:** What is the inter-link between optimum cash balance and cash operating cycles?

Note: \_\_\_\_\_

### MODEL 6.3: CASH MANAGEMENT MODEL: MILLER ORR MODEL

- The Miller - Orr's Model helps in determining the optimum cash balance when the demand for cash is uncertain.
- In the Miller - Orr's Model, control limits are set for cash balances. These limits consists of upper limit (h), the return point (z), and the lower limit (o)
- When the cash balance touched the upper limit, the marketable securities are purchased for cash equal to (h - z) in order to bring the cash balance back to the normal level (return point).
- When the cash balance touches the lower limit, the marketable securities are sold for cash equal to (z - o) in order to bring the cash balance back to the normal level (return point).

- When the cash balance stays between (h, z) and (z, o), no transaction between cash and marketable security account is made.



Miller-Orr model is more realistic and maintains that the actual cash balance may fluctuate between higher and lower limits. The model may be defined as:

$$Z = \sqrt[3]{\frac{3TV}{4i}} \text{ or } Z = [3TV/4i]^{1/3}$$

Where, T = Transaction cost of conversion  
 V = Variance of daily cash flows,  
 i = Daily % interest rate on investments.  
 L = lower limit  
 R = Return Level = L + Z  
 H = Upper limit = 3Z + L  
 Spread = H - L  
 Average Cash Balance =  $\frac{(4R - L)}{3}$

**PROBLEM NO 28:** The minimum cash balance of X Ltd is Rs. 10,000/-. The variance of daily cash flow is Rs.62,50,000/-. The interest rate is 0.025% per day. The transaction cost for each purchase or sale of securities is Rs.20/-. Calculate: (a) the spread between the upper and lower cash balance limits (b) the upper limit and the return point (c) Direct a decision.

(C) (ANS.: (A) 21,684; (B) 31,684; 17,228)

(SOLVE PROBLEM NO. 28 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on upper & lower limit if cash balance increases/decreases by Rs.5000?

**Note:** \_\_\_\_\_

### **MODEL 6.4. CONCENTRATION BANKING & LOCK BOX APPROACH**

**Concentration Banking:** Concentration Banking is a system of operating through a number of collection centers in different regions instead of a single collection center centralized at the head office.

**Lock-box approach:** Under this arrangement, the company rents the local post-office box and authorizes its bank at each of the locations to pick up remittances in the boxes. Customers are billed with instructions to mail their remittances to the lock boxes. The bank picks up the mail several times a day and deposits the cheques in the company's account.

**Common Purpose:** The purpose of Concentration Banking and Lock-box approach is to minimise the gap between the mailing time from customers to the firm and the time when the funds become available for use.

### **EVALUATION OF LOCK BOX AND CONCENTRATION APPROACH**

<b>STEP 1:</b>	Calculate <u>Average Collection per day</u> as follows: = Annual Credit Sales / 365 days
<b>STEP 2:</b>	Calculate <u>Reduction in Mailing and Processing Time</u> as follows: = Existing Mailing and Processing Time - Mailing and Processing Time after introducing system

<b>STEP 3:</b>	Calculate <u>Annual Interest Saved</u> as follows: = (Average collection per day x Reduction in Mailing and Processing Time) x Rate of interest p.a.
<b>STEP 4:</b>	Calculate <u>Annual Cost</u> of Concentration Banking / Lock Box System.
<b>STEP 5:</b>	Introduce the Proposed system if Annual interest saved (as per step 3) exceeds annual cost (as per step 4), otherwise not.

**PROBLEM NO 29:** Sagar Industries sells its products through widely dispersed distributors in Northern India. It currently takes on an average 8 days for cash receipt cheques to become available to the firm from the day they are mailed. The firm is contemplating the institution of concentration banking to reduce this period. It is estimated that such a system would reduce the collection period of accounts receivable by 3 days. The daily cheque receipts currently average Rs.10,00,000. The concentration banking would cost Rs.1,50,000.

- What reduction in cash balances can Sagar Industries achieve by initiating the Lock Box and Concentration Banking?
- If Sagar Industries has an opportunity cost of 8%, how much is the proposed systems worth on an annual basis?
- Will your answer be different, if it is estimated that a lock-box system can reduce the collection time by 4 days and its annual cost would be Rs.2,00,000
- What is the maximum monthly charge Sagar Industries can pay for the concentration banking and Lock Box system?

(B) (ANS.: A) NET BENEFIT: RS. 30,00,000; B) WORTH: RS.2,40,000; C) LOCK BOX SYSTEM (NET BENEFIT): RS. 1,20,000; D) MAXIMUM MONTHLY CHARGE: UNDER CONCENTRATION BANKING: RS. 20,000, UNDER LOCK BOX SYSTEM: RS. 26,667)

(SOLVE PROBLEM NO. 29 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on opportunity cost if collection period of receivables increases / decreases by 1 day?

Note: \_\_\_\_\_

### **MODEL 7: WORKING CAPITAL LIMITS LIKELY TO BE APPROVED BY BANKS**

The Tandon Committee introduced the concept of MPBF. It has recommended that a part of current assets should be financed by trade credit and other current liabilities. The remaining part of the current assets, which is termed by the group as 'working capital gap', should be partly financed by the owner's funds and long term borrowings and partly by the short term bank credit. The Tandon Committee has suggested three alternative methods for working out the MPBF.

**Method I:** In the first method, the borrower will contribute 25% of the working capital gap; the remaining 75% can be financed from bank borrowings. The minimum or ideal current ratio recommended by the Tandon Committee is 1:1.

$$\text{MPBF} = 0.75 (\text{Current Assets} - \text{Current Liabilities})$$

**Method II:** In second method, borrower will contribute 25% of the total current assets. The remaining of the working capital gap (i.e., the working capital gap less the borrower's contribution) can be bridged from the bank borrowings. The minimum or ideal current ratio recommended by the Tandon Committee is 1.33:1.

$$\text{MPBF} = 0.75 (\text{Current Assets}) - \text{Current Liabilities}$$

**Method III:** In third method, borrower will contribute 100% of core assets, and 25% of the balance of current assets. The remaining of the working capital gap can be met from the borrowings. This method will further strengthen the current ratio. The minimum or ideal current ratio recommended by the Tandon Committee is 1.75:1.

$$\text{MPBF} = 0.75 (\text{Current Assets} - \text{Core Current Assets}) - \text{Current Liabilities}$$

The Tandon Committee recommended that a beginning should be made by placing all borrowers on the first method within a year and then moving to the second and third methods in stages in the light of the assessment of the prevailing circumstances. It also expressed the view that the third method is

ideal as it will provide the largest multiplier of bank finance. The borrowings in excess of what is permissible under the first method should be converted into a working capital term loan and should be repaid over a period of time. The borrowers should be gradually moved to the third method of calculation of MPBF.

**PROBLEM NO 30:** Following is the balance sheet of XYZ Ltd. Calculate the amount of maximum permissible bank finance by all the three methods for working capital as per Tandon Committee norms. You are required to assume the level of core current assets to be Rs.30 lakhs.

You are also required to calculate the current ratios under each method and compare the same with the current ratios as recommended by the Committee, assuming that the bank has graded MPBF.

**Balance Sheet of XYZ Ltd. as on 31<sup>st</sup> March, 2000**

Liabilities	Rs	Assets			Rs
Equity Shares Rs.10 each	200	Fixed Assets			500
Retained earnings	200	<u>Current Assets:</u>			
11% Debentures	300	Inventory			
Public deposits	100	- Raw materials	100		
Trade Creditors	80	- W.I.P.	150		
Bills Payable	100	- Finished goods	75	325	
		Debtors		100	
		Cash/Bank		55	480
	<b>980</b>				<b>980</b>

(B) (ANS.: (I) 1.74:1, 1.83:1, 1.89:1 (II) 1:1, 1.33:1, 1.75:1) (SOLVE PROBLEM NO. 30 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the impact on MPBF if core current assets increases/decreases by Rs.10,00,000?

Note: \_\_\_\_\_

### **MODEL 8: MANAGEMENT OF PAYABLES (CREDITORS)**

#### **WHEN TO AVAIL CASH DISCOUNT:**

When a supplier offers cash discount to buyer for making a prompt payment within specified period, buyer should compare the annual opportunity cost of foregoing cash discount (or the cost of availing credit or implicit rate of interest) with the cost of other sources of credit to decide whether or not cash discount should be availed. The annual opportunity cost of foregoing cash discount can be calculated as follows.

$$\frac{\% \text{ Cash Discount}}{100 - \% \text{ Cash Discount}} \times \frac{365 \text{ days}}{\text{Credit Period} - \text{Discount Period}}$$

**Decision criteria:** Avail cash discount (or do not avail credit) if the annual cost of foregoing cash discount is higher than the cost of other sources of credit, otherwise not.

**PROBLEM NO 31:** ABC Ltd. has been offered credit terms from its major supplier of 2/10, net 45. Hence the company has the choice of paying Rs. 98 per Rs. 100 or to invest Rs. 98 for an additional 35 days and eventually pay the supplier Rs. 100 per Rs. 100. The decision as to whether the discount should be accepted depends on the opportunity cost of investing Rs. 98 for 35 days. What should the company do? (If opportunity cost is 25%).

(Note: Assume No. of days in year 360 days)

(B) (NEW SM, OLD SM, OLD PM)

(ANS.: ANNUALISED CASH DISCOUNT: 23.5% (OR) 20.99%; IT IS BETTER FOR THE COMPANY TO REFUSE THE DISCOUNT, AS RETURN ON CASH RETAINED IS MORE THAN THE SAVING ON ACCOUNT OF DISCOUNT)

(SOLVE PROBLEM NO. 31 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** Will there be any effect on the decision if the opportunity cost is 10%

**PROBLEM NO 32:** 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? (A) (OLD PM) (ANS.: 1.93%)

(SOLVE PROBLEM NO. 32 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be impact on discount rate if credit period increases/decreases by 10 days?

Note: \_\_\_\_\_

**PROBLEM NO 33: (PRINTED SOLUTION AVAILABLE)** The Dolce Company purchases raw materials on terms of 2/10, net 30. A review of the company's records by the owner, Mr. Gupta, revealed that payments are usually made 15 days after purchases are received. When asked why the firm did not take advantage of its discounts, the accountant, Mr. Ram, replied that it cost only 2 per cent for these funds, whereas a bank loan would cost the company 12 per cent.

- What mistake is Ram making?
- What is the real cost of not taking advantage of the discount?
- If the firm could not borrow from the bank and was forced to resort to the use of trade credit funds, what suggestion might be made to Ram that would reduce the annual interest cost?

(A) (NEW SM, OLD SM, RTP M18 (N&O))

(ANS.: A) THESE COSTS ARE CLEARLY NOT COMPARABLE; B) REAL COST OF NOT TAKING ADVANTAGE OF THE DISCOUNT: 149.0%; C) ANNUAL INTEREST COST TO 37.2%) (SOLVE PROBLEM NO. 33 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** In a, b, c above, does the borrowing cost has any relevance in decision making?

Note: \_\_\_\_\_

### MODEL 9: MISCELLANEOUS

**PROBLEM NO 34: (PRINTED SOLUTION AVAILABLE)** A bank is analysing the receivables of J Ltd. 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 J Ltd.'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	14,000	27	48

(A) (MTP M19(N)(Set 1), MTP M17, MTP M18 (O))

(ANS.: SELECTED ACCOUNTS ARE ACCOUNT NOS. 74, 107, 108 AND 116, TOTAL LOAN AMOUNT 48,816)  
(SOLVE PROBLEM NO. 34 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** If the average payment period does not exceed 20 days past the net period, does it have any impact on the bank lending?

**PROBLEM NO 35: (PRINTED SOLUTION AVAILABLE)** The Megatherm Corporation has just acquired a large account. As a result, it needs an additional Rs. 75,000 in working capital immediately. It has been determined that there are three feasible sources of funds:

- Trade credit:** The Company buys about Rs. 50,000 of materials per month on terms of 3/30, net 90. Discounts are taken.
- Bank loan:** The firm's bank will lend Rs.1,00,000 at 13 per cent. A 10 per cent compensating balance will be required, which otherwise would not be maintained by the company.
- A factor will buy the company's receivables (Rs.1,00,000 per month), which have a collection period of 60 days. The factor will advance up to 75 per cent of the face value of the receivables at 12 per cent on an annual basis. The factor will also charge a 2 per cent fee on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad-debts expenses of Rs. 1,500 per month.

On the basis of annual percentage cost, which alternative should the company select? (A) (OLD SM)

(ANS.: (A) 18.81% (B) 14.44% (C) 24,000 (20%)) (SOLVE PROBLEM NO. 35 OF ASSIGNMENT PROBLEMS AS REWORK)

**CONCEPT QUESTION:** What would be the effect on effective cost of factoring, if interest and commission are collected in advance?

Note: \_\_\_\_\_

## PRINTED SOLUTIONS TO SOME SELECTIVE PROBLEMS

**PROBLEM NUMBERS TO WHICH SOLUTIONS ARE PROVIDED: 3, 5, 6, 7, 8, 13, 18, 20, 23, 25, 26, 33, 34, 35**

### PROBLEM NO.3

Statement of Working Capital Requirement for PQ Ltd

Particulars	Amount (Rs.)	Amount (Rs.)
<b>A. Current Assets</b>		
<b>i) Inventories:</b>		
Material (1 month) $\left( \frac{\text{Rs. } 45,00,000}{12 \text{ months}} \times 1 \text{ month} \right)$	3,75,000	
Finished goods (1 month) $\left( \frac{\text{Rs. } 1,35,00,000}{12 \text{ months}} \times 1 \text{ month} \right)$	11,25,000	15,00,000
<b>ii) Receivables (Debtors)</b>		
For Domestic Sales $\left( \frac{\text{Rs. } 1,20,00,000}{12 \text{ months}} \times 1 \text{ month} \right)$	10,00,000	
For Export Sales $\left( \frac{\text{Rs. } 54,00,000}{12 \text{ months}} \times 3 \text{ months} \right)$	13,50,000	23,50,000
<b>iii) Cash in hand &amp; at bank (Rs. 10,00,000 - Rs. 5,00,000)</b>		5,00,000
<b>Total Current Assets</b>		43,50,000
<b>B. Current Liabilities:</b>		
<b>i) Payables (Creditors) for materials (2 months)</b> $\left( \frac{\text{Rs. } 45,00,000}{12 \text{ months}} \times 2 \text{ months} \right)$		7,50,000

ii) Outstanding wages (0.5 months) $\left(\frac{\text{Rs. } 36,00,000}{12 \text{ months}} \times 0.5 \text{ month}\right)$		1,50,000
iii) Outstanding manufacturing expenses $\left(\frac{\text{Rs. } 54,00,000}{12 \text{ months}} \times 1 \text{ month}\right)$		4,50,000
iv) Outstanding administrative expenses $\left(\frac{\text{Rs. } 12,00,000}{12 \text{ months}} \times 1 \text{ month}\right)$		1,00,000
v) Income tax payable (Rs. 15,00,000 ÷ 4)		3,75,000
<b>Total Current Liabilities</b>		<b>18,25,000</b>
<b>Net Working Capital (A - B)</b>		<b>25,25,000</b>
<b>Add: 15% contingency margin</b>		<b>3,78,750</b>
<b>Total Working Capital required</b>		<b>29,03,750</b>

**Working Note:****\*Computation of Factory Cost:**

Particulars	Amount (Rs.)
Material Cost	45,00,000
Labour Cost	36,00,000
Manufacturing Expenses	54,00,000
<b>Factory Cost</b>	<b>1,35,00,000</b>

**PROBLEM NO.5****Calculation of Net Working Capital requirement:**

Particulars	Amount (Rs.)	Amount (Rs.)
<b>A. Current Assets:</b>		
<b>Inventories:</b>		
- 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	
Receivables (Debtors) (Refer to Working note 5)	25,40,769	
Cash and Bank balance	25,000	
<b>Gross Working Capital</b>	<b>50,60,384</b>	<b>50,60,384</b>
<b>B. Current Liabilities:</b>		
Creditors for raw materials (Refer to Working note 6)	7,15,740	
Creditors for wages (Refer to Working note 7)	91,731	
	8,07,471	8,07,471
<b>Net Working Capital (A - B)</b>		<b>42,52,913</b>

**Working Notes:****1. Annual cost of production**

Particulars	Amount (Rs.)
Raw material requirements $\{(1,04,000 \text{ units} \times \text{Rs. } 80) + \text{Rs. } 3,20,000\}$	86,40,000
Direct wages $\{(1,04,000 \text{ units} \times \text{Rs. } 30) + \text{Rs. } 60,000\}$	31,80,000
Overheads (exclusive of depreciation) $\{(1,04,000 \times \text{Rs. } 60) + \text{Rs. } 1,20,000\}$	63,60,000
<b>Gross Factory Cost</b>	<b>1,81,80,000</b>
<b>Less: Closing W.I.P</b>	<b>(5,00,000)</b>
<b>Cost of Goods Produced</b>	<b>1,76,80,000</b>
<b>Less: Closing Stock of Finished Goods (Rs.1,76,80,000 × 8,000/1,04,000)</b>	<b>(13,60,000)</b>
<b>Total Cash Cost of Sales</b>	<b>1,63,20,000</b>

## 2. Work in progress stock

Particulars	Amount (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)	1,20,000
	<b>5,00,000</b>

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:

Particulars	Amount (Rs.)
For Finished goods (1,04,000 × Rs. 80)	83,20,000
For Work in progress (4,000 × Rs. 80)	3,20,000
	<b>86,40,000</b>

$$\text{Raw material stock} = \frac{\text{Rs. } 86,40,000}{52 \text{ weeks}} \times 4 \text{ weeks i.e. Rs. } 6,64,615$$

4. **Finished goods stock:** 8,000 units @ Rs. 170 per unit = Rs. 13,60,000

5. **Debtors for sale:**  $1,63,20,000 \times \frac{8}{52} = \text{Rs. } 25,10,769$

6. **Creditors for raw material:**

Material Consumed (Rs. 83,20,000 + Rs. 3,20,000)	Rs. 86,40,000
<b>Add:</b> Closing stock of raw material	Rs. 6,64,615
	<b>Rs. 93,04,615</b>

$$\text{Credit allowed by suppliers} = \frac{\text{Rs. } 93,04,615 \times 4 \text{ weeks}}{52 \text{ weeks}} = \text{Rs. } 7,15,740$$

7. **Creditors for wages**

$$\text{Outstanding wage payment} = \frac{\text{Rs. } 31,80,000 \times 1.5 \text{ weeks}}{52 \text{ weeks}} = \text{Rs. } 91,731$$

**PROBLEM NO.6**

Statement showing the requirements of Working Capital

Particulars	(Rs.)	(Rs.)
<b>A. Current Assets:</b>		
<b>Inventory:</b>		
Stock of Raw material (Rs. 96,600 × 2/12)	16,100	
Stock of Work-in-progress (As per Working Note)	16,350	
Stock of Finished goods (Rs. 1,46,500 × 10/100)	14,650	
Receivables (Debtors) (Rs. 1,27,080 × 2/12)	21,180	
Cash in Hand	8,000	
<b>Prepaid Expenses:</b>		
Wages & Mfg. Expenses (Rs. 66,250 × 1/12)	5,521	
Administrative expenses (Rs. 14,000 × 1/12)	1,167	
Selling & Distribution Expenses (Rs. 13,000 × 1/12)	1,083	
Advance taxes paid {(70% of Rs. 10,000) × 3/12}	1,750	
<b>Gross Working Capital</b>		<b>85,801</b>

<b>B. Current Liabilities:</b>		
Payables for Raw materials (Rs.1,12,700 × 1.5/12)	14,088	
Provision for Taxation (Net of Advance Tax) (Rs. 10,000 × 30/100)	3,000	
Total Current Liabilities	17,088	17,088
<b>C. Excess of CA over CL</b>		68,713
<b>Add: 10% for unforeseen contingencies</b>		6,871
Net Working Capital requirements		75,584

**Working Notes:****i) Calculation of Stock of Work-in-progress**

Particulars	(Rs.)
Raw Material (Rs. 84,000 × 15%)	12,600
Wages & Mfg. Expenses (Rs. 62,500 × 15% × 40%)	3,750
Total	16,350

**ii) Calculation of Stock of Finished Goods and Cost of Sales**

Particulars	(Rs.)
Direct material Cost [Rs. 84,000 + Rs. 12,600]	96,600
Wages & Mfg. Expenses [Rs. 62,500 + Rs. 3,750]	66,250
Depreciation	0
Gross Factory Cost	1,62,850
Less: Closing W.I.P.	(16,350)
Cost of goods produced	1,46,500
Add: Administrative Expenses	14,000
	1,60,500
Less: Closing stock	14,650
Cost of Goods Sold	1,45,850
Add: Selling and Distribution Expenses	13,000
Total Cash Cost of Sales	1,58,850
Debtors (80% of cash cost of sales)	1,27,080

**iii) Calculation of Credit Purchase:**

Particulars	(Rs.)
Raw material consumed	96,600
Add: Closing Stock	16,100
Less: Opening Stock	-
Purchases	1,12,700

**PROBLEM NO.7****i) M.A. Limited Projected Statement of Profit / Loss (Ignoring Taxation)**

Particulars	Year 1	Year 2
Production (Units)	6,000	9,000
Sales (Units)	5,000	8,500
	(Rs.)	(Rs.)
Sales revenue (A) (Sales unit × Rs. 96)	4,80,000	8,16,000
Cost of production:		

Materials cost (Units produced × Rs. 40)	2,40,000	3,60,000
Direct labour and variable expenses (Units produced × Rs. 20)	1,20,000	1,80,000
Fixed manufacturing expenses (Production Capacity: 12,000 units × Rs. 6)	72,000	72,000
Depreciation (Production Capacity: 12,000 units × Rs. 10)	1,20,000	1,20,000
Fixed administration expenses (Production Capacity: 12,000 units × Rs. 4)	48,000	48,000
Total Costs of Production	6,00,000	7,80,000
Add: Opening stock of finished goods (Year 1: Nil; Year 2: 1,000 units)	---	1,00,000
Cost of Goods available for sale (Year 1: 6,000 units; Year 2: 10,000 units)	6,00,000	8,80,000
Less: Closing stock of finished goods at average cost (year 1: 1000 units, year 2: 1,500 units) (Cost of Production × Closing stock/ units produced)	(1,00,000)	(1,32,000)
Cost of Goods Sold	5,00,000	7,48,000
Add: Selling expenses - Variable (Sales unit × Rs. 4)	20,000	34,000
Add: Selling expenses - Fixed (12,000 units × Rs.1)	12,000	12,000
Cost of Sales: (B)	5,32,000	7,94,000
Profit (+) / Loss (-): (A - B)	(-) 52,000	(+) 22,000

**Working Notes:****1. Calculation of creditors for supply of materials:**

Particulars	Year 1 (Rs.)	Year 2 (Rs.)
Materials consumed during the year	2,40,000	3,60,000
Add: Closing stock (2.25 month's average consumption)	45,000	67,500
	2,85,000	4,27,500
Less: Opening Stock	---	45,000
Purchases during the year	2,85,000	3,82,500
Average purchases per month (Creditors)	23,750	31,875

**2. Creditors for expenses:**

Particulars	Year 1 (Rs.)	Year 2 (Rs.)
Direct labour and variable expenses	1,20,000	1,80,000
Fixed manufacturing expenses	72,000	72,000
Fixed administration expenses	48,000	48,000
Selling expenses (variable + fixed)	32,000	46,000
Total	2,72,000	3,46,000
Average per month	22,667	28,833

**ii) Projected Statement of Working Capital Requirement (Cash Cost Basis)**

	Year 1 (Rs.)	Year 2 (Rs.)
<b>A. Current Assets</b>		
<b>Inventories:</b>		
- Stock of Raw Material (6,000 units × Rs. 40 × 2.25/12); (9,000 units × Rs. 40 × 2.25 /12)	45,000	67,500
- Finished Goods (Refer working note 3)	80,000	1,11,000
Receivables (Debtors) (Refer working note 4)	36,000	56,250

Minimum Cash balance	10,000	10,000
Total Current Assets / Gross working capital (A)	1,71,000	2,44,750
<b>B. Current Liabilities</b>		
Creditors for raw material (Refer working note 1)	23,750	31,875
Creditors for Expenses (Refer working note 2)	22,667	28,833
Total Current Liabilities	46,417	60,708
<b>Net Working Capital (A - B)</b>	<b>1,24,583</b>	<b>1,84,042</b>

**Working Note:****1. Cash Cost of Production:**

	Year 1 (Rs.)	Year 2 (Rs.)
Cost of Production as per projected Statement of P & L	6,00,000	7,80,000
Less: Depreciation	1,20,000	1,20,000
Cash Cost of Production	4,80,000	6,60,000
Add: Opening Stock at Average Cost:	--	80,000
Cash Cost of Goods Available for sale	4,80,000	7,40,000
Less: Closing Stock at Average Cost $\left(\frac{\text{Rs. } 4,80,000 \times 1,000}{6,000}\right)$ ; $\left(\frac{\text{Rs. } 7,40,000 \times 1,500}{10,000}\right)$	(80,000)	(1,11,000)
Cash Cost of Goods Sold	4,00,000	6,29,000

**2. Receivables (Debtors)**

Particulars	Year 1 (Rs.)	Year 2 (Rs.)
Cash Cost of Goods Sold	4,00,000	6,29,000
Add: Variable Expenses @ Rs. 4	20,000	34,000
Add: Total Fixed Selling expenses (12,000 units × Rs.1)	12,000	12,000
Cash Cost of Debtors	4,32,000	6,75,000
Average Debtors	36,000	56,250

**PROBLEM NO.8****Working Note:**

Single shift: No. of units = Sales Revenue / Selling Price = 4,43,200 / 18 = 24,000

**Estimation of cost sheet for single and double shift:**

Particulars	Single shift unit cost	24,000 units	Double shift unit cost	48,000 units
a) Raw material	6	1,44,000	5.40	2,59,200
b) Wages fixed @ 40%	2	48,000	1	48,000
Variable @ 40%	3	72,000	3	1,44,000
c) Overheads fixed @ 40%	4	96,000	2	96,000
Variable @ 40%	1	24,000	1	48,000
d) Cost of production	16	3,84,000	12.40	5,95,200
e) Profit	2	48,000	5.60	2,68,800
f) Sales	18	4,32,000	18	8,64,000

**Estimation of Working capital for single shift and double shift:**

Particulars	Single shift			Double shift		
	No. of units	Cost / unit	Amount	No. of units	Cost / unit	Amount
<b>A. Current Assets:</b>						
i) Stock of R.M	6,000	6	36,000	12,000	5.40	64,800
ii) WIP	2,000	11	22,000	2,000	9.40	18,800
iii) Stock of FG	4,500	16	72,000	9,000	12.40	1,11,600
iv) Debtors (cost)	6,000	16	96,000	12,000	12.40	1,48,800
<b>TOTAL</b>			<b>2,26,000</b>			<b>3,44,000</b>
<b>B. Current Liabilities:</b>						
i) Trade Creditors	4,000	6	24,000	8,000	5.40	43,200
ii) Wages	1,000	5	5,000	2,000	4	8,000
iii) OH	1,000	5	5,000	2,000	3	6,000
<b>TOTAL</b>			<b>34,000</b>			<b>57,200</b>
<b>Working Capital (A - B)</b>			<b>1,92,000</b>			<b>2,86,800</b>

Therefore, additional working capital = W.C required for double shift - W.C required for single shift  
 = 2,86,800 - 1,92,000 = 94,800.

**Note:** Quantity of material in WIP will not change due to double shift working, since work started in the first shift will be completed in the second shift.

### PROBLEM NO.13

#### Step: 1 Rough cost sheet

Particulars	Amount (Rs.)
Opening Raw materials	10,000
<b>Add: Purchases</b>	35,000
<b>Less: Closing stock</b>	(11,000)
Raw materials consumed	34,000
<b>Add: wages &amp; man. Exp</b>	15,000
Gross works cost	49,000
<b>Add: Opening stock of W.I.P</b>	30,000
<b>Less: Closing stock of W.I.P</b>	(30,500)
Net Works cost	48,500
<b>Add: Administrative OHS</b>	15,000
Cost of production	63,500
<b>Add: Opening F.G'S</b>	5,000
<b>Less: Closing F.G'S</b>	(8,500)
Cost of Goods Sold	60,000
<b>Add: Selling and Distribution Expenses</b>	10,000
Cost of Sales	70,000
<b>Add: Profits</b>	30,000
Sales	1,00,000

#### Step: 2 Calculation of Net operating Cycle period

Particulars	Calculation	No of days
i) RMCP	$\frac{(10,000 + 11,000)/2}{34,000} \times 365$	112.72

ii) WIPCP	$\frac{(30,000 + 30,500)/2}{63,500} \times 365$	173.87
iii) FGCP	$\frac{(5,000 + 8,500)/2}{60,000} \times 365$	41.06
iv) DCP	$\frac{(6,500 + 30,000)/2}{1,00,000} \times 365$	66.61
Gross Operating Cycle period		
v) Less CPP	$\frac{(5,000 + 10,000)/2}{35,000} \times 365$	78.20
Net Operating Cycle period		316.06 days

**Step: 3** Calculation of W Cap requirements

Particulars	Amount (Rs.)
<b>A. Current Assets</b>	
i) Raw material	11,000
ii) Work in progress	30,500
iii) Finished Goods	8,500
iv) Debtors	30,000
v) Cash & Bank	20,000
<b>Total Current Assets (A)</b>	<b>1,00,000</b>
<b>B. Current Liabilities</b>	
Creditors	10,000
<b>Total Current Liabilities (B)</b>	<b>10,000</b>
<b>C. Net working capital (A-B)</b>	<b>90,000</b>

**PROBLEM NO.18**

## Statement showing the Evaluation of Debtors Policies

Particulars	Proposed Policy Rs.
<b>A. Expected Profit:</b>	
a) Credit Sales	15,00,000
b) Total Cost	
i) Variable Costs	14,50,000
ii) Recurring Costs	5,000
	<b>14,55,000</b>
c) Bad Debts	15,000
d) Expected Profit [(a) - (b) - (c)]	30,000
<b>B. Opportunity Cost of Investments in Receivables</b>	<b>68,787</b>
<b>C. Net Benefits (A - B)</b>	<b>(38,787)</b>

**Recommendation:** The Proposed Policy should not be adopted since the net benefits under this policy are negative

**Working Note: Calculation of Opportunity Cost of Average Investments**

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection period}}{365} \times \frac{\text{Rate of Return}}{100}$$

Particulars	15%	34%	30%	20%	Total
A. Total Cost	2,18,250	4,94,700	4,36,500	2,91,000	14,40,450
B. Collection period	30/365	60/365	90/365	100/365	

C. Required Rate of Return	24%	24%	24%	24%	
D. Opportunity Cost (A x B x C)	4,305	19,517	25,831	19,134	68,787

**PROBLEM NO.20**

a) In case of customer A, there is no increase in sales even if the credit is given. Hence comparative statement for B & C is given below:

Particulars	Customer B				Customer C			
	0	30	60	90	0	30	60	90
1. Credit period (days)	0	30	60	90	0	30	60	90
2. Sales Units	1,000	1,500	2,000	2,500	-	-	1,000	1,500
	Rs. in lakhs				Rs. in lakhs			
3. Sales Value	90	135	180	225	-	-	90	135
4. Contribution at 20% (A)	18	27	36	45	-	-	18	27
5. Receivables: $\left( \frac{\text{Credit Period} \times \text{Sales}}{360} \right)$	-	11.25	30	56.25	-	-	15	33.75
6. Debtors at cost i.e. @ 80%	-	9	24	45	-	-	12	2.7
7. Cost of carrying debtors at 20% (B)	-	1.8	4.8	9	-	-	2.4	5.4
8. Excess of contributions over cost of carrying debtors (A - B)	18	25.2	31.2	36	-	-	15.6	21.6

The excess of contribution over cost of carrying Debtors is highest in case of credit period of 90 days in respect of both the customers B and C. Hence, credit period of 90 days should be allowed to B and C.

b) Problem:

- Customer A is taking 1,000 Refrigerators whether credit is given or not. Customer C is taking 1,000 Refrigerators at credit for 60 days. Hence B also may demand credit for 60 days compulsorily.
- B will take 2,500 refrigerators at credit for 90 days whereas C would lift 1,500 refrigerators only. In such case B will demand further relaxation in credit period i.e. B may ask for 120 days credit.

**PROBLEM NO.24**

Cash Budget for the months of April, May and June

Particulars	April (Rs.)	May (Rs.)	June (Rs.)
<b>Receipts:</b>			
80% of credit sales	25,60,000	25,60,000	27,20,000
20% of credit sales	6,00,000	6,40,000	6,40,000
Total receipts	31,60,000	32,00,000	33,60,000
<b>Payments:</b>			
Purchases	17,00,000	18,00,000	19,00,000
Labour & Overheads	14,20,000	14,80,000	15,20,000
Machinery			20,00,000
Total payments	31,20,000	32,80,000	54,20,000
Opening balance	3,00,000	3,40,000	2,60,000
Net cash flow	40,000	(80,000)	(20,60,000)
Closing balance	3,40,000	2,60,000	(18,00,000)

**PROBLEM NO.25**

Projected Profit and Loss Account for the year 3

(Rs. in Lakhs)

Particulars	Year 2 Actual	Year 3 Projected	Particulars	Year 2 Actual	Year 3 Projected
To Materials consumed	350	420	By Sales	1,000	1,200
To Stores	120	144	By Misc. Income	10	10
To Mfg. Expenses	160	192			
To Other expenses	100	150			
To Depreciation	100	100			
To Net profit	180	204			
	<b>1,010</b>	<b>1,210</b>		<b>1,010</b>	<b>1,210</b>

Cash Flow:

Particulars	(Rs. in lakhs)
Profit	204
Add: Depreciation	100
	304
Less: Cash required for increase in stock	50
Net cash inflow	254

Available for servicing the loan: 75% of Rs. 2,54,00,000 or Rs. 1,90,50,000

**Working Notes:**

i) Material consumed in year 2: 35% of sales

Likely consumption in year 3 : Rs.  $1,200 \times \frac{35}{100}$  (or) Rs. 420 lakhs

ii) Stores are 12% of sales, as in year 2.

iii) Manufacturing expenses are 16% of sales.

Note: The above also shows how a Projected Profit and Loss account is prepared.

**PROBLEM NO.26**

a)

Cash Budget

(in thousands)

Particulars	Nov. (Rs.)	Dec. (Rs.)	Jan. (Rs.)	Feb. (Rs.)	Mar. (Rs.)	Apr. (Rs.)
Sales	500	600	600	1,000	650	750
Collections, current month's sales			120	200	130	
Collections, previous month's sales			420	420	700	
Collections, previous 2 month's sales			50	60	60	
Total cash receipts			590	680	890	
Purchases		360	600	390	450	
Payment for purchases			360	600	390	
Labour costs			150	200	160	
Other expenses			100	100	100	
Total cash disbursements			610	900	650	
Receipts less disbursements			(20)	(220)	240	

b)

Particulars	Jan. (Rs.)	Feb. (Rs.)	Mar. (Rs.)
Additional borrowings	20	220	(240)
Cumulative borrowings	420	640	400

The amount of financing peaks in February owing to the need to pay for purchases made the previous month and higher labour costs. In March, substantial collections are made on the prior month's billings, causing large net cash inflow sufficient to pay off the additional borrowings.

c)

## Proforma Balance Sheet, March 31 (in thousands)

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Cash	50	Accounts payable	450
Accounts receivable	620	Bank loan	400
Inventories	635	Accruals	212
Current assets	1,305	Current liabilities	1,062
Net fixed assets	1,836	Long-term debt	450
		Common stock	100
		Retained earnings	1,529
Total assets	3,141	Total liabilities and equity	3,141

Accounts receivable = Sales in March x 0.8 + Sales in February x 0.1

Inventories = Rs. 545 + Total purchases January through March - Total sales January through March x 0.6

Accounts payable = Purchases in March

Retained earnings = Rs. 1,439 + Sales - Payment for purchases - Labour costs and - Other expenses, all for January through March

**PROBLEM NO.33**

a) Ram is confusing the percentage cost of using funds for 5 days with the cost of using funds for a year. These costs are clearly not comparable. One must be converted to the time scale of the other.

$$b) \frac{2}{98} \times \frac{365}{5} = 149.0\%$$

c) Assuming that the firm has made the decision not to take the cash discount, it makes no sense to pay before the due date. In this case, payment 30 days after purchases are received rather than

15 would reduce the annual interest cost to  $37.2\% \left( \frac{2}{98} \times \frac{365}{30-10} = 37.24\% \right)$  per cent.

**PROBLEM NO.34**

Analysis of the receivables of J Ltd. by the bank in order to identify acceptable collateral for a short-term loan:

i) The J Ltd.'s credit policy is 2/10 net 30.

As per the Bank policy the average payment period does not exceed 40 days (30 days + 10 days).

A/c number 91,114,123 are eliminated (payment period > 40 days) and A/c number 74,107,108,116

Will be selected. (payment period < 40 days)

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.) (a)	90 % of amount (Rs.)	80% of amount (Rs.)
-------------	------------------	----------------------	---------------------

		(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	20,880
Total loan amount			48,816

**PROBLEM NO.35**

a) Cost of trade credit:

$$\text{Annualised Cash discount} = \frac{d}{1-d} \times \frac{365}{n-p} = \frac{3}{97} \times \frac{365}{90-30} = 18.81\%$$

b) Cost of bank loan: Assuming the compensating balance would not otherwise be maintained, the real cost of not taking advantage of the discount would be

$$\frac{13}{90} = 14.44\%$$

c) Cost of factoring: The factor fee for the year would be

$$2\% \times \text{Rs. } 12,00,000 = \text{Rs. } 24,000$$

The savings affected, however, would be Rs. 18,000, giving a net factoring cost of Rs. 6,000. Borrowing Rs. 75,000 on the receivables would thus cost

$$\frac{12\% \text{ of Rs. } 75,000 + \text{Rs. } 6,000}{\text{Rs. } 75,000} = \frac{\text{Rs. } 9,000 + \text{Rs. } 6,000}{\text{Rs. } 75,000} = 20.00\%$$

Advise: Bank borrowing would be the cheapest source of funds.

**ASSIGNMENT PROBLEMS****MODEL 1: ESTIMATION OF WORKING CAPITAL REQUIREMENT****MODEL 1.1: IN CASE OF EXISTING FIRMS**

**PROBLEM NO 1:** 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 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.

(A) (OLD PM, M05)  
(ANS.: RS. 4,25,00,000)

**PROBLEM NO 2:** On 1<sup>st</sup> January, 2000, the Board of Directors of Dowell Co, Ltd. wishes to know the amount of working capital that will be required to meet the program of activity they have planned for the year. The following information is available:

- Issued and paid-up capital Rs.2,00,000.
- 5% Debentures (secured on assets) Rs. 50,000.
- Fixed assets valued at Rs.1,25,000 on 31.12.2000.
- Production during the previous year was 60,000 units. It is planned that the level of activity should be maintained during the present year.
- The ratios of costs to selling price are - raw materials 60%, direct wages 10%, and overheads 20%.
- Raw materials are expected to remain in stores for an average of two months before these are issued for production.
- Each unit of production is expected to be in process for one month.
- Finished goods will stay in warehouse for approximately three months.
- Creditors allow credit for 2 months from the date of delivery of raw materials.
- Credit allowed to debtors is 3 months from the date of dispatch.
- Selling price per unit is Rs.5.
- There is a regular production and sales cycle.
- Assume Reserves & Surplus of Rs.1,250

(Note: Assuming Investment in Debtors has to be valued at Total cost or Cost of Sales)

Prepare:

- Working capital requirement forecast; and
- An estimated Profit and Loss Account and Balance Sheet at the end of the year.

(A) (ANS.: A. RS. 1,63,750; B. NET PROFIT RS. 27,500; B/S TOTAL 3,08,750)

**PROBLEM NO 3:** Ayush Limited wants to expand its business and has applied for a loan from a commercial bank for its growing financial requirements. The records of the company reveals that the company sells goods in the domestic market at a gross profit of 30% not counting depreciation as part of the cost of goods sold.

The following additional information is also available for you:

Particulars	Amount (Rs.)
Sales-Home at 1 month's credit	1,80,00,000
Sales-Export at 3 months' credit (sale price 15% below home price)	64,00,000
Material used (suppliers extends 2 months credit)	60,00,000
Wages paid 1 month in arrear	45,00,000
Manufacturing Expenses (Cash) paid (1 month in arrear)	72,00,000
Adm. Expenses paid (1 month in arrear)	18,00,000
Income tax payable in 4 installments of which one falls in the next financial year	20,00,000

The company keeps one month's stock of each of raw materials and finished goods and believes in keeping Rs. 20,00,000 available to it including the overdraft limit of Rs. 10,00,000 not yet utilized by the company. Assume a 10% margin for contingencies. Ignore the work-in-progress.

You are required to ascertain the requirement of the working capital of the company.

(Note: Investment in Debtors has to be valued at Sales value and Stock of Finished Goods has to be valued at Factory Cost assuming Admin Overhead are not related to production)

(A)

(ANS.: W.C REQUIREMENT: RS. 38,10,620)

**PROBLEM NO 4:** Infosys Ltd. sells goods at a gross profit of 20%. It includes depreciation as a part of cost of production. The following figures for the 12 months ending 31<sup>st</sup> Dec 1999 are given to enable you to ascertain the requirement of working capital of the company on cash cost basis. In your working, you are required to assume that:

- a) A safety margin of 15% will be maintained;  
 b) Cash is to be held to the extent of 50% of current liabilities;  
 c) There will be no work-in-progress;  
 d) Tax is to be ignored.

Stocks of raw materials and finished goods are kept at one month's requirements. All working notes are to form part of your answer.

Sales at 2 months credit	Rs.27,00,000
Materials consumed (suppliers credit is for 2 months)	6,75,000
Total wages (paid at the beginning of the next month)	5,40,000
Manufacturing expenses outstanding at the end of the year (These expenses are paid one month in arrears)	60,000
Total administrative expenses (paid as above)	1,80,000
Sales promotion expenses paid quarterly in advance	90,000

(Note: Stock of Finished Goods has to be valued at Cost of Production including Admin Overhead are related to production and Investment in Debtors has to be at Cost of Sales or Total cost )

(A) (ANS.: RS. 5,82,188)

### MODEL 1.2: IN CASE OF NEW FIRMS

**PROBLEM NO 5:** Om Limited, 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:** 1,10,000 completed units of production plus 10,000 units of work-in-progress Based on the above activity, estimated cost per unit is:

Raw material	Rs. 100 per unit
Direct wages	Rs. 50 per unit
Overheads (exclusive of depreciation)	Rs. 80 per unit
Total cost	Rs. 230 per unit
Selling price	Rs. 250 per unit

Raw materials in stock: Average 1 month consumption, work-in-progress (assume 40 % completion stage in respect of conversion cost) (materials issued at the start of the processing)

Finished goods in stock	10,000 units
Credit allowed by suppliers	Average 2 months
Credit allowed to debtors receivables	Average 1 month
Lag in payment of wages	Average ½ month

Cash at banks (for smooth operations) is expected to be Rs. 1,00,000

Assume that production is carried on evenly throughout the year and wages and overheads accrue similarly. All sales-are on credit basis only. You are required to calculate the net working capital required.

(Note: Stock of Finished Goods has to be valued at Factory Cost by Assuming Admin Overhead are not related to production)

(ANS.: NET WORKING CAPITAL REQUIRED: RS. 44,32,500)

**PROBLEM NO 6:** MP & Co. a firm has applied for working capital finance from a commercial bank. You are requested by the bank to prepare an estimate of the working capital requirements of the firm. You may add 10 per cent to your estimated figure to account for exigencies. The following is the firm's projected profit and loss account:

Particulars	Amount (Rs.)
Sales	22,47,000

Cost of Goods Sold (COGS) is calculated as follows:

Particulars	Amount (Rs.)
Materials used	8,98,800
Wages and other mfg. expenses	6,68,750
Depreciation	2,51,450
	18,19,000
Less: Stock of Finished Goods (10% product not yet sold)	1,81,900
Cost of goods sold	16,37,100

- The figures given above relate only to the goods that have been finished, and not to work in progress;
- Goods equal to 15 per cent of the year's production (in terms of physical units) are in progress on an average requiring full material but only 40 per cent of other expenses.
- The firm has a policy of keeping two months consumption of material in stock.
- All expenses are paid one month in arrears.
- Suppliers of material grant one and a half months credit;
- Sales are 20 per cent cash while remaining sold on two months credit.
- 70 per cent of the income tax has to be paid in advance in quarterly instalments.

(TN) (ANS.: NET WORKING CAPITAL: RS. 5,31,671)

**PROBLEM NO 7:** Javan Limited is commencing a new project for manufacture of metal component. The following cost information has been ascertained for annual production of 10,000 units which is the full capacity:

Particulars	Cost per Unit (Rs.)
Materials	75
Direct labour and variable expenses	35
Fixed manufacturing expenses	15
Depreciation	10
Fixed administration expenses (Related to factory)	5
	140

The selling price per unit is expected to be Rs. 175 and the selling expenses Rs. 10 per unit, 70% of which is variable. In the first two years of operations, production and sales are expected to be as follows:

Year	Production (No. of units)	Sales (No. of units)
1	7,000	6,000
2	8,000	8,500

To assess the working capital requirements, the following additional information is available:

Stock of materials	2 months' average consumption
Work-in-process	Nil
Debtors	1 month's average sales.
Cash balance	Rs. 25,000
Creditors for supply of materials	1 month's average purchase during the year
Creditors for expenses	1 month's average of all expenses during the year

Prepare, for the 2 years:

- A projected statement of Profit/Loss (Ignoring taxation); and
- A projected statement of working capital requirements (Based on cash cost)

(A) (ANS.: I) Y<sub>1</sub>: RS. 60,857; Y<sub>2</sub>: RS. 1,39,190; II) W.C REQUIREMENTS (CASH COST BASIS): Y<sub>1</sub>: RS. 2,32,662; Y<sub>2</sub>: RS. 1,97

,562)

**MODEL 2: IMPACT OF DOUBLE SHIFT WORKING ON WC REQUIREMENTS**

**PROBLEM NO 8:** M/S PCT Ltd. has been operating its manufacturing facilities till 31.03.2008 on a single shift working with the following cost structure:

Particulars	Per unit Rs.
Cost of Materials	12.00
Wages (40% fixed)	10.00
Overheads (80% fixed)	10.00
Profit	4.00
Selling Price	36.00
Sales during 2007-08 is Rs.8,64,000	
As at 31.03.08 the Company held the following balances :	
	Rs.
Stock of raw materials (at cost)	72,000
Work-in-progress (valued at prime cost)	44,000
Finished goods (valued at total cost)	1,44,000
Sundry debtors	2,16,000

In view of increased market demand, it is proposed to double production by working an extra shift. Raw material suppliers agree to allow 10% discount in view of increase in volume of business. Credit period and selling price continue to remain same. Creditors still allow 2-month credit period. Lag in payment of wages and expenses continue to be half a month.

**Required:** Prepare cost sheet and estimate the working capital requirements for

- Single shift working
- Double shift working

ANS.: ADDITIONAL WORKING CAPITAL REQUIREMENTS: RS. 1,89,600

**MODEL 3: DIFFERENT MODES OF FINANCING WORKING CAPITAL**

**PROBLEM NO 9:** A firm has the following data for the year ending 31<sup>st</sup> March, 2017:

Particulars	Amount (Rs.)
Sales (1,50,000 @ Rs. 20)	30,00,000
Earnings before Interest and Taxes	3,00,000
Fixed Assets	7,50,000

The three possible current assets holdings of the firm are Rs. 7,50,000 Rs. 6,00,000 and Rs. 4,50,000. It is assumed that fixed assets level is constant and profits do not vary with current assets levels. Prepare a statement showing the effect of the three alternative current assets policies.

(A) (ANS.: EFFECT OF ALTERNATIVE WORKING CAPITAL POLICIES: CONSERVATIVE: 1.00; MODERATE: 0.80; AGGRESSIVE: 0.60)

**PROBLEM NO 10:** An engineering company is considering its working capital investment for the year 2019-20. The estimated fixed assets and current liabilities for the next year are Rs. 10 crore and Rs. 8 crores 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	20 Crores	50 Crores	7.5 Crores
Moderate	14 Crores	38.5 Crores	5.775 Crores
Aggressive	10 Crores	30 Crores	4.5 Crores

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. (A)

(ANS: (I) 25, 24.0625, 22.5; (II) 12, 6, 2; (III) 2, 1.4, 1; (IV) FIRM CAN IMPROVE PROFITABILITY BY REDUCING INVESTMENT IN WORKING CAPITAL)

### MODEL 4: OPERATING CYCLE

**PROBLEM NO 11:** XYZ Ltd. has obtained the following data concerning the average working capital cycle for other companies in the same industry:

Raw material stock turnover	20 Days
Credit received	-40 Days
Work-in-progress turnover	15 Days
Finished goods stock turnover	40 Days
Debtor's collection period	60 Days
	<b>95 Days</b>

Using the following data, calculate the current working capital cycle for XYZ Ltd. and briefly comment on it.

(Rs. in '000)

Sales	3,000
Cost of Production	2,100
Purchases	600
Average raw material stock	80
Average work-in-progress	85
Average finished goods stock	180
Average creditors	90
Average debtors	350

(Note: Number of days in year 360 days)

(A) (ANS.: 82 DAYS OR 4 CYCLES)

**PROBLEM NO 12:** The under mentioned facts about a company are available:

- a) Cash turnover rate is 4.5.
- b) Annual cash outflow is Rs.1,75,000, and.
- c) Accounts payable can be stretched by 20 days.

What would be the effect of stretching accounts payable on the minimum operating cash requirement? Assuming the firm can earn 8% on its investment and Number of days in year 360 days, what would be the saving on cost?

(B) (ANS.: (I) SAVINGS - 9,722 (II) OPERATING COST - 778)

**PROBLEM NO 13:** The Trading and Profit and Loss Account of Beta Ltd. for the year ended 31<sup>st</sup> March, 2011 is given below:

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
To Opening Stock:		By Sales (Credit)	20,00,000
Raw Materials	1,80,000	By Closing Stock:	
Work- in- progress	60,000	Raw Materials	2,00,000
Finished Goods	2,60,000	Work-in-progress	1,00,000
	5,00,000		

To Purchases (credit)	11,00,000	Finished Goods	3,00,000	6,00,000
To Wages	3,00,000			
To Production Expenses	2,00,000			
To Gross Profit c/d	5,00,000			
	<b>26,00,000</b>			<b>26,00,000</b>
To Administration Expenses	1,75,000	By Gross Profit b/d		5,00,000
To Selling Expenses	75,000			
To Net Profit	2,50,000			
	<b>5,00,000</b>			<b>5,00,000</b>

The opening and closing balances of debtors were Rs.1,50,000 and Rs.2,00,000 respectively whereas opening and closing creditors were Rs.2,00,000 and Rs.2,40,000 respectively. You are required to ascertain the working capital requirement by operating cycle method. (A) (OLD PM)

(ANS.: WORKING CAPITAL REQUIRED: RS.5,28,541)

## MODEL 5: MANAGEMENT OF RECEIVABLES

### MODEL 5.1: EVALUATION OF CREDIT POLICY

**PROBLEM NO 14:** Z Ltd wishes to increase its credit period from "net 40" to "net 60". It expects sales to increase from Rs. 400 lakhs to Rs. 520 lakhs and the average collection period to increase from 40 days to 60 days. The bad-debt loss ratio and collection costs ratio will remain at 4% and 5% respectively. The company's variable costs ratio is 80%, tax rate is 40% and the after tax required rate of return is 25%. Advise X Ltd based on (i) variable cost valuation (ii) sales value valuation. (Assume 360 days in a year)

(A) (ANS.: (i) NET BENEFIT: RS. 17.51 LAKHS, RS. 16.99 LAKHS; (ii) NET BENEFIT: RS. 15.29 LAKHS, RS. 12.65 LAKHS)

**PROBLEM NO 15:** 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:

Particulars	Current Position	Option I	Option II	Option III
Sales (Rs. in lakhs)	200	210	220	250
Credit period (in months)	1	1 ½	2	3
Bad debts (% of sales)	2	2 ½	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.

(Note: Number of days in year 360 days and Investment in Debtors has to be valued at Sales value.)

(A) (OLD PM) (ANS.: NET GAIN: OPTION I - 0.73 LAKHS, OPTION II - 1.10 LAKHS, OPTION III - 0.53 LAKHS)

**PROBLEM NO 16:** MN Ltd. has a current turnover of Rs. 30,00,000 p.a. Cost of Sale is 80% of turnover and Bad Debts are 2% of turnover, Cost of Sales includes 70% variable cost and 30% Fixed Cost, while company's required rate of return is 15%. MN Ltd. currently allows 15 days credit to its customer, but it is considering increase this to 45 days credit in order to increase turnover. It has been estimated that this change in policy will increase turnover by 20%, while Bad Debts will increase by 1%. It is not expected that the policy change will result in an increase in fixed cost and creditors and stock will be unchanged. Should MN Ltd. introduce the proposed policy? (Assume 1 year = 360 days)

(A) (N18 (N) - 10M) (ANS.: INCREASE IN BENEFIT: RS.1,77,000)

**PROBLEM NO 17:** The credit manager of XYZ Ltd is reappraising the company's credit policy. The company sells the products on terms of net30. 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 5 years. the experience was as under.

Classification	Default as a Percentage of sales	Avg. Collection period in days for non-defaulting accounts
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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.

(A) (OLD PM) (ANS.: NET BENEFITS: 8.34, 6.45, (1.48), (12.96))

**PROBLEM NO 18:** John Players are regular customers of Karthikeya Ltd., Chennai and have approached the sellers for extension of a credit facility for enabling them to purchase goods from Karthikeya Ltd. On an analysis of past performance and on the basis of information supplied, the following pattern of payment schedule emerges in regard to Slow Payers:

	Pattern of Payment Schedule
At the end of 30 days	20% of the bill
At the end of 60 days	30% of the bill
At the end of 90 days	35% of the bill
At the end of 100 days	13% of the bill
Non-recovery	2% of the bill

John Players want to enter into a firm commitment for purchase of goods of Rs. 30 lakhs in 2018, deliveries to be made in equal quantities on the first day of each quarter in the calendar year. The price per unit of commodity is Rs. 200 on which a profit of Rs. 20 per unit is expected to be made. It is anticipated by Karthikeya Ltd. that taking up of this contract would mean an extra recurring expenditure of Rs. 25,000 per annum. If the opportunity cost of funds in the hands of Karthikeya Ltd. is 20% per annum, would you as the finance manager of the seller recommend the grant of credit to John Players? Workings should form part of your answer. Assume year of 360 days.

(A) (ANS.: NET BENEFITS: RS. 1,11,298)

**PROBLEM NO 19:** A new customer with 10% risk of non-payment desires to establish business connections with you. He would require 1.5 month of credit and is likely to increase your sales by Rs.1,20,000 p.a. Cost of sales amounted to 85% of sales. The tax rate is 30%. Should you accept the offer if the required rate of return is 40% (after tax)?

(A) (OLD PM) (ANS.: Rs.(900), do not accept the offer)

**PROBLEM NO 20:** Mini Limited, manufacturer of refrigerators is considering the liberalization of existing credit terms to three of their large customers P, Q and R. The credit period and likely quantity of refrigerators that will be sold to the customers in addition to other sales are as follows:

#### Quantity sold (No. of refrigerators)

Credit Period (Days)	P	Q	R
0	2,000	2,000	-
30	2,000	3,000	-
60	2,000	4,000	2,000
90	2,000	5,000	3,000

The selling price per refrigerator is Rs. 18,000. The expected contribution is 20% of the selling price. The cost of carrying receivable averages 20% per annum.

You are required:

- Compute the credit period to be allowed to each customer.
- Demonstrate the other problems the company might face in allowing the credit period as determined in a) above? (Assume 1 year = 360 days).

(ANS.: A) CREDIT PERIOD OF 90 DAYS SHOULD BE ALLOWED TO Q AND R; B) Q ALSO MAY DEMAND CREDIT FOR 60 DAYS COMPULSORILY, Q MAY ASK FOR 150 DAYS CREDIT)

#### MODEL 5.2: EVALUATION OF CASH DISCOUNT

**PROBLEM NO 21:** Zeta Limited has a current sales of Rs. 7,20,000. It is considering revising its credit policy. The proposed terms of credit will be "2/10, net 30" against the present policy of "net 30". As a result, Zeta Limited's sales are expected to increase by Rs. 20,000 and the average collection

period will reduce from 30 days to 20 days. It is also expected that 50 percent of the customers will take the discounts and pay on the 10th day and rest of the customers will pay on the 30th day. Bad debt losses will remain at 2 percent of sales. The variable cost ratio is 70 percent. Its corporate tax rate is 50 percent and opportunity cost of investment in receivables is 10 percent. Advise whether Zeta Limited should change its credit period?

(Note: Number of days in year 365 days and Investment in Debtors should be valued at Variable cost.)

(A) (N15 - 4M) (ANS.: NET BENEFIT: 404)

### MODEL 5.3: FACTORING

**PROBLEM NO 22:** A company wants to use a factor. The following information is relevant. Should the company enter into a factoring agreement?

- The current average collection period for the company's debts is 80 days and 0.5% of debtors default. The factor will pay over money due after 60 days, and it will suffer the loss of bad debts.
- The annual charge for factoring is 2% of turnover, payable annually in arrears. Administration cost savings will total Rs. 1,00,000 p.a.
- Annual sales, all on credit, are Rs. 100 lakhs. Variable costs total 80% of sales price. The company's cost of borrowing is 15% p.a.

(A) (M18 (O) - 8M) (ANS.: NET BENEFIT - 15,753)

**PROBLEM NO 23:** A company is considering the use of factoring to manage its trade receivables. It currently has a balance outstanding on trade receivables of Rs.36,00,000 and annual sales revenue of Rs.2,19,00,000. It anticipates that this level of sales revenue and trade receivables will continue for at least the next year. It estimates that the use of the factoring, company will result in a reduction in credit control costs of Rs.5,00,000 per annum.

The factoring company will charge a fee of 2.5% of invoiced sales. It will give an advance of 90% of invoiced sales and charge interest at a rate of 12% per annum.

The company currently finances its accounts receivables with a bank overdraft at an interest rate of 15% per annum.

**Required:**

- Calculate the annual cost of factoring net of credit control cost savings.
- Calculate whether there is a financial benefit from using the factor.

(Assume that there are no bad debts and all sales are on credit) (MTP1 N18 (O), Similar : MTP M19(N) - Set 2)  
(ANS.: I) NET COST OF FACTORING: RS. 4,36,300; II) THE NET COST OF FACTORING IS LOWER THAN THE BANK OVERDRAFT FINANCE BY RS. 49,700 I.E. RS.4,86,000 - RS.4,36,300, THEREFORE, THE COMPANY SHOULD GO FOR FACTORING.)

### MODEL 6: CASH MANAGEMENT

#### MODEL 6.1: CASH BUDGET

**PROBLEM NO 24:** Prepare monthly cash budget for six months beginning from April 2017 on the basis of the following information:

**Sales data:**

2017	Amount (Rs.)	2017	Amount (Rs.)
January	1,00,000	June	80,000
February	1,20,000	July	1,00,000
March	1,40,000	August	80,000
April	80,000	September	60,000
May	60,000	October	1,00,000

- Wages and salaries are estimated to be payable as follows:

2017	Amount (Rs.)	2017	Amount (Rs.)
April	9,000	July	10,000
May	8,000	August	9,000
June	10,000	September	9,000

- ii) Of the sales, 80% is on credit and 20% for cash. 75% of the credit sales are collected within one month and the balance in two months. There are no bad debt losses.
- iii) Purchases amount to 80% of sales and are made on credit and paid for in the month preceding the sales.
- iv) The firm has 10% debentures of Rs.1,20,000. Interest on these has to be paid quarterly in January, April and so on.
- v) The firm is to make an advance payment of tax of Rs.5,000 in July, 2017.
- vi) The firm had a cash balance of Rs.20,000 on April 1, 2017, which is the minimum desired level of cash balance. Any cash surplus/deficit above/below this level is made up by temporary investments/liquidation of temporary investments or temporary borrowings at the end of each month (interest on these to be ignored).

(C) (NEW SM, OLD SM)

(ANS.: TOTAL EFFECT OF INVESTMENT: APR: RS. (64,000), MAY: RS. (16,000), JUNE: RS. 22,000, JULY: RS. 2,000, AUG: RS. (35,000), SEPT: RS. 9,000) (SOLVE PROBLEM NO. 33,35 OF ASSIGNMENT PROBLEMS AS REWORK)

**PROBLEM NO 25:** You are given below the Profit & Loss Accounts for two years for a company:

### Profit and Loss Account

Particulars	Year 1 Rs.	Year 2 Rs.	Particulars	Year 1 Rs.	Year 2 Rs.
To Opening stock	40,00,000	50,00,000	By Sales	4,00,00,000	5,00,00,000
To Raw materials	1,50,00,000	2,00,00,000	By Closing stock	50,00,000	75,00,000
To Stores	50,00,000	60,00,000	By Misc. Income	5,00,000	5,00,000
To Manufacturing Expenses	50,00,000	80,00,000			
To Other Expenses	50,00,000	50,00,000			
To Depreciation	50,00,000	50,00,000			
To Net Profit	65,00,000	90,00,000			
	<b>4,55,00,000</b>	<b>5,80,00,000</b>		<b>4,55,00,000</b>	<b>5,80,00,000</b>

Sales are expected to be Rs. 6,00,00,000 in year 3.

As a result, other expenses will increase by Rs. 25,00,000 besides other charges. Only raw materials are in stock. Assume sales and purchases are in cash terms and the closing stock is expected to go up by the same amount as between year 1 and 2. You may assume that no dividend is being paid. The Company can use 75% of the cash generated to service a loan. How much cash from operations will be available in year 3 for the purpose? Ignore income tax.

(ANS.: AVAILABLE CASH FOR SERVICING THE LOAN: RS. 95,25,000)

**PROBLEM NO 26:** Consider the balance sheet of Rohan Limited at December 31 (in thousands). The company has received a large order and anticipates the need to go to its bank to increase its borrowings. As a result, it has to forecast its cash requirements for January, February and March. Typically, the company collects 20 percent of its sales in the month of sale, 70 percent in the subsequent month, and 10 percent in the second month after the sale. All sales are credit sales.

Particulars	(Rs.) in 000's	Particulars	(Rs.) in 000's
Cash	100	Accounts payable	720
Accounts receivable	1060	Bank loan	800
Inventories	1090	Accruals	424
<b>Current assets</b>	<b>2250</b>	<b>Current liabilities</b>	<b>1944</b>
Net fixed assets	3672	Long-term debt	900
		Common stock	200
		Retained earnings	2878
<b>Total assets</b>	<b>5922</b>	<b>Total liabilities and equity</b>	<b>5922</b>

Purchases of raw materials are made in the month prior to the sale and amount to 60 percent of sales in the subsequent month. Payments for these purchases occur in the month after the purchase.

Labour costs, including overtime, are expected to be Rs. 3,00,000 in January, Rs. 4,00,000 in February, and Rs. 3,20,000 in March. Selling, administrative, taxes, and other cash expenses are expected to be Rs. 2,00,000 per month for January through March. Actual sales in November and December and projected sales for January through April are as follows (in thousands):

	(Rs.)		(Rs.)		(Rs.)
November	1000	January	1200	March	1300
December	1200	February	2000	April	1500

On the basis of this information:

- Prepare a cash budget for the months of January, February, and March.
- Determine the amount of additional bank borrowings necessary to maintain a cash balance of Rs. 1,00,000 at all times.
- Prepare a proforma balance sheet for March 31.

(ANS.: A) RECEIPTS LESS DISBURSEMENTS: JAN: (40,000); FEB: (4,40,000); MAR: RS. 4,80,000; B) ADDITIONAL BORROWINGS: JAN: 40,000; FEB: 4,40,000; MARCH: RS. (4,80,000); C) TOTAL OF BALANCE SHEET: RS. 62,82,000

### MODEL 6.2: CASH MANAGEMENT MODEL: BAUMOL MODEL

**PROBLEM NO 27:** Ravana Industries projects that annual cash usage of Rs.3.75 million will occur uniformly throughout the forthcoming year. Ravana plans to meet these demands for cash by periodically selling marketable securities from its portfolio. The firm's marketable securities are invested to earn 12%, and the cost per transaction of converting funds to cash is Rs.40.

- Use the Baumol model to determine the optimal transaction size for transfers from marketable securities to cash.
- What will be Ravana's average cash balance?
- How many transfers per year will be required?

(C) (ANS.: (A) 50,000 (B) 25,000 (C) 75 TRANSACTIONS)

### MODEL 6.3: CASH MANAGEMENT MODEL: MILLER ORR MODEL

**PROBLEM NO 28:** Rama East India Ltd. has a standard deviation of monthly net cash flows of Rs.200. It's transaction cost of converting cash into marketable securities is Rs.10 and the interest is 1% per month. The minimum cash balance required by the firm is Rs.100. Set out the Upper, Lower and Return limit for the firm. Also find out the average cash balance. Apply M O Model.

(B) (ANS.: UPPER LIMIT - 3010.39, LOWER LIMIT - 100, RETURN LIMIT - 1070.13, AVERAGE CASH BALANCE - 1393.5)

### MODEL 6.4: CONCENTRATION BANKING & LOCK BOX APPROACH

**PROBLEM NO 29:** Z Ltd currently has a centralized billing system. Payments are made by all customers to the central billing location. It requires, on the average, 4 days of customers' mailed payments to reach the central location; an additional 1.5 days are required to process payments before a deposit can be made. The firm has a daily average collection of Rs. 500,000/-. The Company has recently investigated the possibility of initiating a lock box system. It has estimated that with such a system, customers mailed payments would reach the receipt location 2.5 days sooner. Further, the processing time could be reduced by 1 additional day, because each lock-box bank would pick up mailed deposits twice daily. Determine the reduction in cash balances that can be achieved through the use of a lock box system. Determine the opportunity cost of the present system assuming a 5% return on short term instruments. If the annual cost of the lock box system will be Rs. 75,000, should such a system be initiated?

(C) (ANS.: NET BENEFIT - RS. 12,500)

### MODEL 7: WORKING CAPITAL LIMITS LIKELY TO BE APPROVED BY BANKS

**PROBLEM NO 30:** From the following data, calculate the maximum permissible bank finance under the three methods suggested by the Tandon Committee:

You are also required to calculate the current ratios under each method and compare the same with the current ratios as recommended by the Committee, assuming that the bank has granted MPBF.

Current Assets	Lakhs	Current Liabilities	Lakhs
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Raw material	180	Creditors	120
Work-in-progress	60	Other current liabilities	40
Finished goods	100	Bank borrowing	250
Receivables	150		
Other current assets	20		
	<b>510</b>		<b>410</b>

The total Core Current Assets (CCA) is Rs.200 lakhs.

(C) (NEW SM)

(ANS.: METHOD: I - RS. 262.50 LAKHS; II - RS. 222.50 LAKHS; III - RS. 72.50 LAKHS)

### **MODEL 8: MANAGEMENT OF PAYABLES (CREDITORS)**

**PROBLEM NO 31:** A Ltd. is in the manufacturing business and it acquires raw material from X Ltd. on a regular basis. As per the terms of agreement the payment must be made within 40 days of purchase. However, A Ltd. has a choice of paying Rs. 98.50 per Rs. 100 it owes to X Ltd. on or before 10th day of purchase.

**Required:**

EXAMINE whether A Ltd. should accept the offer of discount assuming average billing of A Ltd. with X Ltd. is Rs. 10,00,000 and an alternative investment yield a return of 15% and company pays the invoice.

(RTP M18) (ANS.: IF DISCOUNT IS A) ACCEPTED: RS. 9,85,000; B) NOT ACCEPTED: RS. 9,87,856)

**PROBLEM NO 32:** A firm is considering offering 60-day credit to its customers. The firm likes to charge them an annualized rate of 20%. 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?

(A) (OLD PM) (ANS.: 3.19%)

**PROBLEM NO 33:** A Company purchases raw materials on terms of 3/15, net 60. A review of the company's records by the owner, Ms. Gowri, revealed that payments are usually made 25 days after purchases are received. When asked why the firm did not take advantage of its discounts, the accountant, Ms. Riya, replied that it cost only 3 per cent for these funds, whereas a bank loan would cost the company 15 percent.

- What mistake is Riya making?
- What is the real cost of not taking advantage of the discount?
- If the firm could not borrow from the bank and was forced to resort to the use of trade credit funds, what suggestion might be made to Riya that would reduce the annual interest cost?

(ANS.: B) REAL COST OF NOT TAKING ADVANTAGE OF THE DISCOUNT: 112.88%; C) ANNUAL INTEREST COST TO 25%

### **MODEL 9: MISCELLANEOUS**

**PROBLEM NO 34:** A bank is analysing the receivables of T Ltd. in order to identify acceptable collateral for a short-term loan. The company's credit policy is 2/20 net 40. 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 T Ltd.'s receivables has been prepared. How much will the bank lend on pledge of receivables, if the bank uses a 10 percent allowance for cash discount and returns?

Account	Amount Rs.	Days Outstanding in days	Average Payment Period historically
37	50,000	30	35
46	10,000	50	70
53	30,000	20	30
57	5,500	10	15
92	40,000	40	55
96	30,000	16	20
108	22,000	30	52

(ANS.: SELECTED ACCOUNTS ARE ACCOUNT NOS. 37, 53, 57 AND 96, TOTAL LOAN AMOUNT RS. 83,160)

**PROBLEM NO 35:** The Gagan Corporation has just acquired a large account. As a result, it needs an additional Rs. 1,50,000 in working capital immediately. It has been determined that there are three feasible sources of funds:

- Trade credit:** The Company buys about Rs. 1,00,000 of materials per month on terms of 3/30, net 90. Discounts are taken.
- Bank loan:** The firm's bank will lend Rs. 2,00,000 at 13 per cent. A 10 per cent compensating balance will be required, which otherwise would not be maintained by the company.
- A factor will buy the company's receivables (Rs. 2,00,000 per month), which have a collection period of 60 days. The factor will advance up to 75 percent of the face value of the receivables at 12 percent on an annual basis. The factor will also charge a 2 percent fee on all receivables purchased. It has been estimated that the factor's services will save the company a credit department expense and bad-debts expenses of Rs. 3,000 per month.

On the basis of annual percentage cost, which alternative should the company select?

(ANS.: (A) 18.81% (B) 14.44% (C) 48,000 (20%))

### ADDITIONAL PROBLEMS FOR SELF PRACTICE

**PROBLEM NO 1:** From the following information of XYZ Ltd, Calculate Net operating cycle period & Number of Operating cycles in a year.

Raw material inventory consumed during the year	6,00,000
Average stock of raw material	50,000
Work-in-progress inventory	5,00,000
Average work-in-progress inventory	30,000
Finished goods inventory	8,00,000
Average finished goods stock held	40,000
Average collection period from debtors	45 days
Average credit period availed	30 days
No. of days in a year	360 days

(C) (NEW SM, OLD SM) (ANS.: NET OPERATING CYCLE PERIOD = 85 DAYS, NO. OF OPERATING CYCLES = 4.23 TIMES)

**PROBLEM NO 2:** A firm has current sales of Rs.2,56,48,750/-. The firm has unutilized 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 sales. The Firms corporate tax is 35%.and it requires an after tax return of 15% on its investment. Should the firm change its credit period? (A) (OLD PM) (ANS. INCREMENTAL BENEFIT IS RS.1,88,518/-)

**PROBLEM NO 3:** PQR Ltd. having an annual sale of Rs. 30 lakhs is re-considering its present collection policy. At present, the average collection period is 50 days and the bad debt losses are 5% of sales. The company is incurring an expenditure of Rs 30,000 on account of collection of receivables. Cost of funds is 10 percent.

The alternative policies are as under:

Particulars	Alternative I	Alternative II
Average Collection Period	40 days	30 days
Bad Debt Losses	4% of sales	3% of sales
Collection Expenses	Rs. 60,000	Rs. 95,000

Evaluate the alternatives on the basis of incremental approach and state which alternative is more beneficial.

(A) (NEW SM - TYK, OLD SM) (ANS.: INCREMENTAL NET BENEFIT: I: RS. 8,333; II: RS. 11,667; ALTERNATIVE II IS MORE VIABLE)

**PROBLEM NO 4:** A Ltd. has 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. (A) (OLD PM, RTP M17) (ANS.: NET COST - 9,27,200, EFFECTIVE RATE OF INTEREST = 13.79%)

**PROBLEM NO 5:** A firm maintains a separate account for cash disbursement. Total disbursement are Rs. 1,05,000 per month or Rs. 12,60,000 per year. Administrative and transaction cost of transferring cash to disbursement account is Rs. 20 per transfer. Marketable securities yield is 8% per annum. Determine the optimum cash balance according to William J. Baumol model.

(C) (NEW SM, OLD SM) (ANS.: OPTIMUM CASH BALANCE: RS. 25,100)

**PROBLEM NO 6:** The field officer of the Garuda Corporation has sold a quantity of silver ingots for Rs. 15,000. Garuda wants to transfer this amount to its deposit account in Devalog as economically as possible. Two means of transfer are being considered.

- A normal cheque which costs 50 paise and takes three days.
- An electronic transfer, costing Rs.7.50, where by funds are immediately available in Devalog.

Garuda earns 14.5% annual interest on funds in its deposit a/c. Which transfer method should be used? (A) (ANS.: (A) 18.37 (B) 7.5)

**PROBLEM NO 7:** Misha Limited presently gives terms of net 30 days. It has Rs. 6 crores in sales, and its average collection period is 45 days. To stimulate demand, the company may give terms of net 60 days. If it does instigate these terms, sales are expected to be 75 days, with no difference in payment habits between old and new customers. Variable costs are Rs. 0.80 for every Rs.1.00 of sales, and the company's required rate of return on investment in receivables is 20 per cent. Should the company extend its credit period? (Assume a 360 days year). (A) (OLD SM)

(ANS: INCREMENTAL CARRYING COST IS LESS THAN THE INCREMENTAL PROFITABILITY, THE COMPANY SHOULD LENGTHEN ITS CREDIT PERIOD FROM 30 TO 60 DAYS)

**PROBLEM NO 8:** From the information and the assumption that the cash balance in hand on 1<sup>st</sup> January 2017 is Rs. 72,500 prepare a cash budget.

Assume that 50 per cent of total sales are cash sales. Assets are to be acquired in the months of February and April. Therefore, provisions should be made for the payment of Rs. 8,000 and Rs. 25,000 for the same. An application has been made to the bank for the grant of a loan of Rs. 30,000 and it is hoped that the loan amount will be received in the month of May. It is anticipated that a dividend of Rs. 35,000 will be paid in June. Debtors are allowed one month's credit. Creditors for materials purchased and overheads grant one month's credit. Sales commission at 3 per cent on sales is paid to the salesman each month.

Month	Sales (Rs.)	Materials Purchases (Rs.)	Salaries & Wages (Rs.)	Production Overheads (Rs.)	Office and Selling Overheads (Rs.)
January	72,000	25,000	10,000	6,000	5,500
February	97,000	31,000	12,100	6,300	6,700
March	86,000	25,500	10,600	6,000	7,500
April	88,600	30,600	25,000	6,500	8,900
May	1,02,500	37,000	22,000	8,000	11,000
June	1,08,700	38,800	23,000	8,200	11,500

(C) (NEW SM, OLD SM) (ANS.: CL. BAL: JAN: RS. 96,340; FEB: RS.1,21,330; MAR: RS.1,55,650; APR: RS.1,51,292; MAY: RS.2,05,767; JUNE: RS.1,94,106)

**PROBLEM NO 9:** The following information relates to Zeta Limited, a publishing company:

The selling price of a book is Rs.15, and sales are made on credit through a book club and invoiced on the last day of the month.

Variable costs of production per book are materials (Rs.5), labour (Rs.4), and overhead (Rs.2)

The sales manager has forecasted the following volumes:

Particulars	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
No. of Books	1,000	1,000	1,000	1,250	1,500	2,000	1,900	2,200	2,200	2,300

Customers are expected to pay as follows:

One month after the sale 40%

Two months after the sale 60%

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The company produces the books two months before they are sold and the creditors for materials are paid two months after production.

Variable overheads are paid in the month following production and are expected to increase by 25% in April; 75% of wages are paid in the month of production and 25% in the following month. A wage increase of 12.5% will take place on 1<sup>st</sup> March.

The company is going through a restructuring and will sell one of its freehold properties in May for Rs. 25,000, but it is also planning to buy a new printing press in May for Rs. 10,000. Depreciation is currently Rs. 1,000 per month, and will rise to Rs. 1,500 after the purchase of the new machine.

The company's corporation tax (of Rs. 10,000) is due for payment in March.

The company presently has a cash balance at bank on 31 December 2010, of Rs.1, 500.

You are required to prepare a cash budget for the six months from January to June.

*(B) (NEW SIM, OLD SIM) (ANS.: CUMULATIVE CASH FLOWS: JAN: 3,250, FEB: 1,500, MAR: (11,912), APR: (15,024), MAY: 576, JUNE: 3,239)*

**THE END**

MASTER MINDS