Chapter 11 Working Capital Management

Management of Working Capital is also an important part of financial manager. The main objective of the Working Capital Management is managing the Current Asset and Current Liabilities effectively and maintaining adequate amount of both Current Asset and Current Liabilities. Simply it is called Administration of Current Asset and Current Liabilities of the business concern.

Management of key components of working capital like cash, inventories and receivables assumes paramount importance due to the fact the major potion of working capital gets blocked in these assets.

Meaning

Working capital management is an act of planning, organizing and controlling the components of working capital like cash, bank balance inventory, receivables, payables, overdraft and short-term loans.

Definition

According to **Smith K.V,** "Working capital management is concerned with the problems that arise in attempting to manage the current asset, current liabilities and the inter-relationship that exist between them".

According to **Weston and Brigham,** "Working capital generally stands for excess of current assets over current liabilities. Working capital management therefore refers to all aspects of the administration of both current assets and current liabilities".

INVENTORY MANAGEMENT

Introduction

Inventories constitute the most significant part of current assets of the business concern. It is also essential for smooth running of the business activities.

A proper planning of purchasing of raw material, handling, storing and recording is to be considered as a part of inventory management. Inventory management means, management of raw materials and related items. Inventory management considers what to purchase, how to purchase, how much to purchase, from where to purchase, where to store and when to use for production etc.

Meaning

The dictionary meaning of the inventory is stock of goods or a list of goods. In accounting language, inventory means stock of finished goods. In a manufacturing point of view, inventory includes, raw material, work in process, stores, etc.

Kinds of Inventories

Inventories can be classified into five major categories.

A. *Raw Material*

It is basic and important part of inventories. These are goods which have not yet been committed to production in a manufacturing business concern.

B. *Work in Progress*

These include those materials which have been committed to production process but have not yet been completed.

C. *Consumables*

These are the materials which are needed to smooth running of the manufacturing process.

D. *Finished Goods*

These are the final output of the production process of the business concern. It is ready for consumers.

E. *Spares*

It is also a part of inventories, which includes small spares and parts.

Objectives of Inventory Management

Inventory occupy 30–80 % of the total current assets of the business concern. It is also very essential part not only in the field of Financial Management but also it is closely associated with production management. Hence, in any working capital decision regarding the inventories, it will affect both financial and production function of the concern. Hence, efficient management of inventories is an essential part of any kind of manufacturing process concern.

The major objectives of the inventory management are as follows:

- To efficient and smooth production process.
- To maintain optimum inventory to maximize the profitability.
- To meet the seasonal demand of the products.

- To avoid price increase in future.
- To ensure the level and site of inventories required.
- To plan when to purchase and where to purchase
- To avoid both over stock and under stock of inventory.

Techniques of Inventory Management

Inventory management consists of effective control and administration of inventories. Inventory control refers to a system which ensures supply of required quantity and quality of inventories at the required time and at the same time prevent unnecessary investment in inventories. It needs the following important techniques.

Inventory management techniques may be classified into various types:

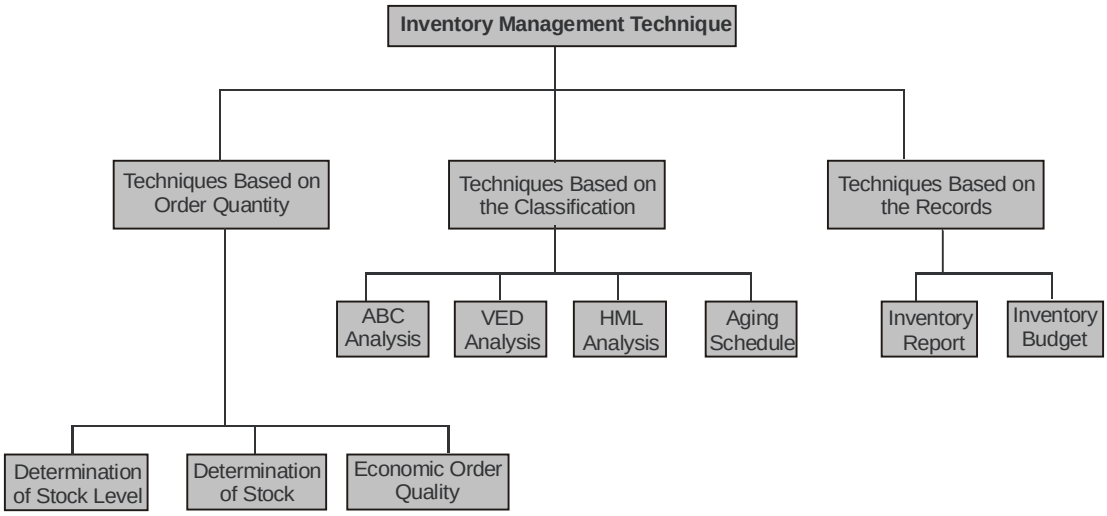

Fig. 11.1 *Inventory Management Techniques*

A. Techniques based on the order quantity of Inventories

Order quantity of inventories can be determined with the help of the following techniques:

Stock Level

Stock level is the level of stock which is maintained by the business concern at all times. Therefore, the business concern must maintain optimum level of stock to smooth running of the business process. Different level of stock can be determined based on the volume of the stock.

Minimum Level

The business concern must maintain minimum level of stock at all times. If the stocks are less than the minimum level, then the work will stop due to shortage of material.

Re-order Level

Re-ordering level is fixed between minimum level and maximum level. Re-order level is the level when the business concern makes fresh order at this level.

$$\text{Re-order level} = \text{maximum consumption} \times \text{maximum Re-order period.}$$

Maximum Level

It is the maximum limit of the quantity of inventories, the business concern must maintain. If the quantity exceeds maximum level limit then it will be overstocking.

$$\text{Maximum level} = \text{Re-order level} + \text{Re-order quantity} - (\text{Minimum consumption} \times \text{Minimum delivery period})$$

Danger Level

It is the level below the minimum level. It leads to stoppage of the production process.

$$\text{Danger level} = \text{Average consumption} \times \text{Maximum re-order period for emergency purchase}$$

Average Stock Level

It is calculated such as,

$$\text{Average stock level} = \text{Minimum stock level} + \frac{1}{2} \text{ of re-order quantity maximum level}$$

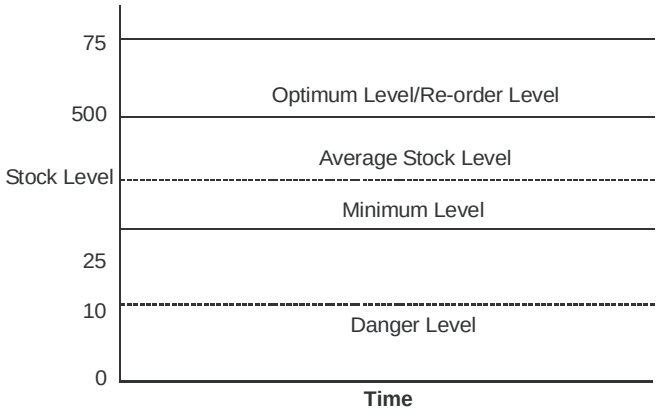

Fig. 11.2 *Determining the Stock Level*

Lead Time

Lead time is the time normally taken in receiving delivery after placing orders with suppliers. The time taken in processing the order and then executing it is known as lead time.

Safety Stock

Safety stock implies extra inventories that can be drawn down when actual lead time and/or usage rates are greater than expected. Safety stocks are determined by opportunity cost and carrying cost of inventories. If the business concerns maintain low level of safety stock, it will lead to larger opportunity cost and the larger quantity of safety stock involves higher carrying costs.

Economic Order Quantity (EOQ)

EOQ refers to the level of inventory at which the total cost of inventory comprising ordering cost and carrying cost. Determining an optimum level involves two types of cost such as ordering cost and carrying cost. The EOQ is that inventory level that minimizes the total of ordering of carrying cost.

EOQ can be calculated with the help of the mathematical formula:

$$EOQ = \sqrt{2ab/c}$$

Where,

a = Annual usage of inventories (units)

b = Buying cost per order

c = Carrying cost per unit

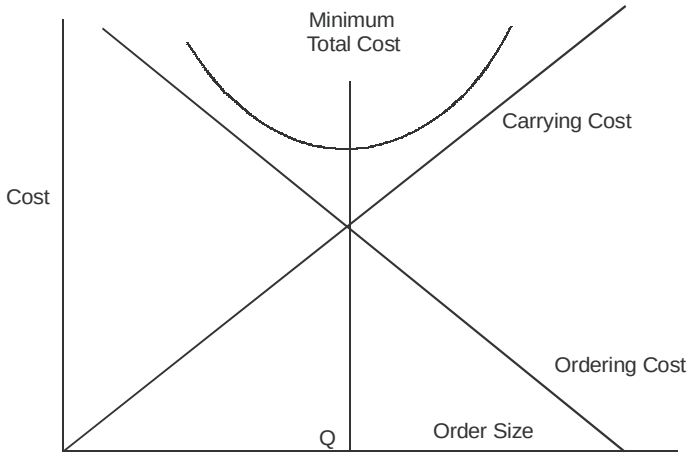

Fig. 11.3 *Economic Order Quantity*

Exercise 1

(a) Find out the economic order quantity and the number of orders per year from the following information:

Annual consumption: 36,000 units

Purchase price per units: Rs. 54

Ordering cost per order: Rs. 150

Inventory carrying cost is 20% of the average inventory.

Solution

$$\text{Inventory} = \sqrt{\frac{2AO}{C}}$$

A = 36,000 units

O = Rs. 150

C = 20% of $54 \times 10 \times 8$

$$\sqrt{2 \times 36{,}000 \times 150} = 1{,}000 \text{ units}$$

EOQ = 1,000 units

Exercise 2

From the following information calculate, (1) Re-order level (2) Maximum level (3) Minimum level (4) Average level

Normal usage: 100 units per week

Maximum usage: 150 units per week

Minimum usage: 50 units per week

Re-order quantity (EOQ) 500: units

Log in time: 5 to 7 weeks

Solution

(1) Re-order Level

= Maximum consumption × Maximum Re-order period

= $150 \times 7 = 1050$ units

(2) Maximum Level

= Re-order level + Re-order quantity

–(Minimum consumption × Minimum delivery period)

= 1050 + 500 – (50 × 5) = 1300 units

(3) Minimum Level

= Re-order level – (Normal consumption × Normal delivery period)

= 1050 – (100 × 6) = 450 units

(4) Average Level

$$= \frac{\text{Maximum level} + \text{Minimum level}}{2}$$

$$= \frac{1300 + 450}{2} = 875 \text{ units.}$$

TECHNIQUES BASED ON THE CLASSIFICATION OF INVENTORIES

A-B-C analysis

It is the inventory management techniques that divide inventory into three categories based on the value and volume of the inventories; 10 % of the inventory's item contributs to 70 % of value of consumption and this category is known as A category. About 20 % of the inventory item contributes about 20 % of value of consumption and this category is called category B and 70 % of inventory item contributes only 10 % of value of consumption and this category is called C category.

Inventory Breakdown Between Value and Volume

Category	Volume (%)	Value (%)
A	10	70
B	20	20
C	70	10
Total	100	100

ABC analysis can be explained with the help of the following Graphical presentation.

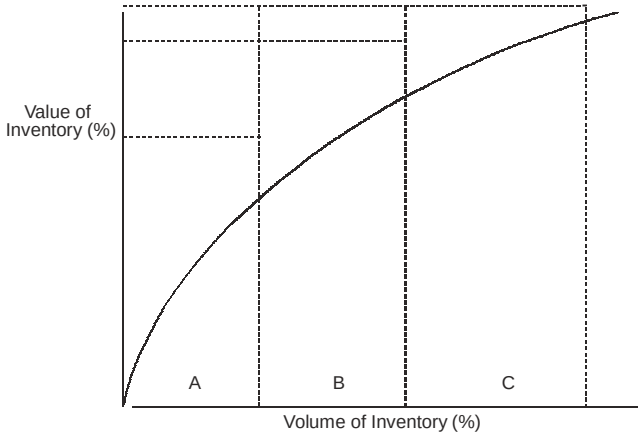

Fig. 11.4 *ABC Analysis*

Aging Schedule of Inventories

Inventories are classified according to the period of their holding and also this method helps to identify the movement of the inventories. Hence, it is also called as, FNSD analysis—

where,

F = Fast moving inventories

N = Normal moving inventories

S = Slow moving inventories

D = Dead moving inventories

This analysis is mainly calculated for the purpose of taking disposal decision of the inventories.

VED Analysis

This technique is ideally suited for spare parts in the inventory management like ABC analysis. Inventories are classified into three categories on the basis of usage of the inventories.

V = Vital item of inventories

E = Essential item of inventories

D = Desirable item of inventories

HML Analysis

Under this analysis, inventories are classified into three categories on the basis of the value of the inventories.

H = High value of inventories

M = Medium value of inventories

L = Low value of inventories

TECHNIQUES ON THE BASIS OF RECORDS

A. Inventory budget

It is a kind of functional budget which facilitates the estimated inventory required for the business concern during a particular period. This budget is prepared based on the past experience.

B. Inventory reports

Preparation of periodical inventory reports provides information regarding the order level, quantity to be procured and all other information related to inventories. On the basis of these reports, Management takes necessary decision regarding inventory control and Management in the business concern.

Valuation of Inventories

Inventories are valued at different methods depending upon the situation and nature of manufacturing process. Some of the major methods of inventory valuation are mentioned as follows:

1. First in First Out Method (FIFO)
2. Last in First Out Method (LIFO)
3. Highest in First Out Method (HIFO)
4. Nearest in First Out Method (NIFO)
5. Average Price Method

6. Base Stock Method
7. Standard Price Method
8. Market Price Method

Exercise 3

From the particulars given below write up the stores ledger card :

1988 January 1, Opening stock 1,000 units at Rs. 26 each.

5 Purchased	500 units at Rs. 24.50 each.
7 Issued	750 units.
10 Purchased	1,500 units at Rs. 24 each.
12 Issued	1,100 units.
15 Purchased	1,000 units at Rs. 25 each.
17 Issued	500 units.
18 Issued	300 units.
25 Purchased	1,500 units at Rs. 26 each.
29 Issued	1,500 units.

Adopt the FIFO and LIFO method of issue and ascertain the value of the closing stock.

CASH MANAGEMENT

Business concern needs cash to make payments for acquisition of resources and services for the normal conduct of business. Cash is one of the important and key parts of the current assets.

Cash is the money which a business concern can disburse immediately without any restriction. The term cash includes coins, currency, cheques held by the business concern and balance in its bank accounts. Management of cash consists of cash inflow and outflows, cash flow within the concern and cash balance held by the concern etc.

Motives for Holding Cash

1. **Transaction motive**

   It is a motive for holding cash or near cash to meet routine cash requirements to finance transaction in the normal course of business. Cash is needed to make purchases of raw materials, pay expenses, taxes, dividends etc.

2. **Precautionary motive**

   It is the motive for holding cash or near cash as a cushion to meet unexpected contingencies. Cash is needed to meet the unexpected situation like, floods strikes etc.

(A) First in First out Method FIFO Method

Date	Particulars Or Reference	Receipts			Issues			Balance		
		Qty. Units	Rate Rs. P.	Amount Rs.	Qty. Units	Rate Rs. P.	Amount Rs.	Qty. Units	Rate Rs. P.	Amount Rs.
1998										
Jan. 1	Balance									
	B/d							1,000	26.00	26,000
5	G.R.N. No.	500	24.50	12,250				1,000	26.00	26,000
								500	24.50	12,250
7	M.R. No.				750	26.00	19,500	250	26.00	6,500
								500	24.50	12,250
10	G.R.N. No.	1,500	24.00	36,000				250	26.00	6,500
								500	24.50	12,250
								1,500	24.00	36,000
					250	26.00	6,500			
					500	24.50	12,250			
					350	24.00	8,400	1,150	24.00	27,600
12	M.R. No.				1,100					
15	G.R.N No.	1,000	25.00	25,000				1,150	24.00	27,600
								1,000	25.00	25,000
17	M.R No.				500	24.00	12,000	650	24.00	15,600
								1,000	25.00	25,000
18	M.R. No.				300	24.00	7,200	350	24.00	8,400
								1,000	25.00	25,000
25	G.R.N. No.	1,500	26.00	39,000				350	24.00	8,400
								1,000	25.00	25,000
								1,500	26	39,000
					350	24.00	8,400			
					1,000	25.00	25,000			
					150	26.00	3,900	1,350	26.00	35,100
29	M.R. No				1,500					

Closing stock 1,350 units at Rs. 26 each = Rs. 35,100

Note : G.R.N. No. = Goods Received Note Number.

M.R. No. = Material Requisition Number.

(B) Last in first out method (LIFO)

Date	Particulars Or Reference	Receipts			Issues			Balance		
		Qty. Units	Rate Rs. P.	Amount Rs.	Qty. Units	Rate Rs. P.	Amount Rs.	Qty. Units	Rate Rs. P.	Amount Rs.
1998										
Jan. 1	Balance									
	B/d							1,000	26.00	26,000
5	G.R.N. No.	500	24.50	12,250				1,000	26.00	26,000
								500	24.50	12,250
7	M.R. No.				750	26.00	19,500	250	26.00	6,500
								500	24.50	12,250
10	G.R.N. No	1,500	24.00	36,000				250	26.00	6,500
								500	24.50	12,250
								1,500	24.00	36,000
					250	26.00	6,500			
					500	24.50	12,250			
					350	24.00	8,400	1,150	24.00	27,600
12	M.R. No				1,100					
15	G.R.N. No	1,000	25.00	25,000				1,150	24.00	27,600
								1,000	25.00	25,000
17	M.R. No.				500	24.00	12,000	650	24.00	15,600
								1,000	25.00	25,000
18	M.R. No.				300	24.00	7,200	350	24.00	8,400
								1,000	25.00	25,000
25	G.R.N. No.	1,500	26.00	39,000				350	24.00	8,400
								1,000	25.00	25,000
								1,500	26.00	39,000
29	M.R. No.				1,500	26.00	39,000	750	26.00	19,500
								400	24.00	9,600
								200	25.00	5,000

Closing Stock = 1,350 units, valued at Rs. 34,100 $(750 \times 26 + 400 \times 24 + 200 \times 25)$

Note : G.R.N. No. = Goods Received Note Number; M.R. No. = Material Requisition Number.

3. **Speculative motive**

   It is the motive for holding cash to quickly take advantage of opportunities typically outside the normal course of business. Certain amount of cash is needed to meet an opportunity to purchase raw materials at a reduced price or make purchase at favorable prices.

4. **Compensating motive**

   It is a motive for holding cash to compensate banks for providing certain services or loans. Banks provide variety of services to the business concern, such as clearance of cheque, transfer of funds etc.

Cash Management Techniques

Managing cash flow constitutes two important parts:

A. Speedy Cash Collections.
B. Slowing Disbursements.

Speedy Cash Collections

Business concern must concentrate in the field of Speedy Cash Collections from customers. For that, the concern prepares systematic plan and refined techniques. These techniques aim at, the customer who should be encouraged to pay as quickly as possible and the payment from customer without delay. Speedy Cash Collection business concern applies some of the important techniques as follows:

Prompt Payment by Customers

Business concern should encourage the customer to pay promptly with the help of offering discounts, special offer etc. It helps to reduce the delaying payment of customers and the firm can avoid delays from the customers. The firms may use some of the techniques for prompt payments like billing devices, self address cover with stamp etc.

Early Conversion of Payments into Cash

Business concern should take careful action regarding the quick conversion of the payment into cash. For this purpose, the firms may use some of the techniques like postal float, processing float, bank float and deposit float.

Concentration Banking

It is a collection procedure in which payments are made to regionally dispersed collection centers, and deposited in local banks for quick clearing. It is a system of decentralized billing and multiple collection points.

Lock Box System

It is a collection procedure in which payers send their payment or cheques to a nearby post box that is cleared by the firm's bank. Several times that the bank deposit the cheque

in the firms account. Under the lock box system, business concerns hire a post office lock box at important collection centers where the customers remit payments. The local banks are authorized to open the box and pick up the remittances received from the customers. As a result, there is some extra savings in mailing time compared to concentration bank.

Slowing Disbursement

An effective cash management is not only in the part of speedy collection of its cash and receivables but also it should concentrate to slowing their disbursement of cash to the customers or suppliers. Slowing disbursement of cash is not the meaning of delaying the payment or avoiding the payment. Slowing disbursement of cash is possible with the help of the following methods:

1. **Avoiding the early payment of cash**
   The firm should pay its payable only on the last day of the payment. If the firm avoids early payment of cash, the firm can retain the cash with it and that can be used for other purpose.
2. **Centralised disbursement system**
   Decentralized collection system will provide the speedy cash collections. Hence centralized disbursement of cash system takes time for collection from our accounts as well as we can pay on the date.

Cash Management Models

Cash management models analyse methods which provide certain framework as to how the cash management is conducted in the firm. Cash management models are the development of the theoretical concepts into analytical approaches with the mathematical applications. There are three cash management models which are very popular in the field of finance.

1. Baumol model

The basic objective of the Baumol model is to determine the minimum cost amount of cash conversion and the lost opportunity cost.

It is a model that provides for cost efficient transactional balances and assumes that the demand for cash can be predicated with certainty and determines the optimal conversion size.

Total conversion cost per period can be calculated with the help of the following formula:

$$t = \frac{Tb}{C}$$

where,

T = Total transaction cash needs for the period

b = Cost per conversion

C = Value of marketable securities

Opportunity cost can be calculated with the help of the following formula;

$$i = \frac{C}{2}$$

where,

i = interest rate earned

C/2 = Average cash balance

Optimal cash conversion can be calculated with the help of the following formula;

$$C = \sqrt{\frac{2bT}{i}}$$

where,

C = Optimal conversion amount

b = Cost of conversion into cash per lot or transaction

T = Projected cash requirement

i = interest rate earned

2. Miller-Orr model

This model was suggested by Miller Orr. This model is to determine the optimum cash balance level which minimises the cost of management of cash. Miller-Orr Model can be calculated with the help of the following formula;

$$C = \frac{bE\,(N)}{t} + iE\,(M)$$

where,

C = Total cost of cash management

b = fixed cost per conversion

E(M) = expected average daily cash balance

E (N) = expected number of conversion

t = Number of days in the period

i = lost opportunity cost

3. Orgler's model

Orgler model provides for integration of cash management with production and other aspects of the business concern. Multiple linear programming is used to determine the optimal cash management.

Orgler's model is formulated, based on the set of objectives of the firm and specifing the set of constrains of the firm.

RECEIVABLE MANAGEMENT

The term receivable is defined as debt owed to the concern by customers arising from sale of goods or services in the ordinary course of business. Receivables are also one of the major parts of the current assets of the business concerns. It arises only due to credit sales to customers, hence, it is also known as Account Receivables or Bills Receivables.

Management of account receivable is defined as the process of making decision resulting to the investment of funds in these assets which will result in maximizing the overall return on the investment of the firm.

The objective of receivable management is to promote sales and profit until that point is reached where the return on investment in further funding receivables is less than the cost of funds raised to finance that additional credit.

The costs associated with the extension of credit and accounts receivables are identified as follows:

A. Collection Cost
B. Capital Cost
C. Administrative Cost
D. Default Cost.

Collection Cost

This cost incurred in collecting the receivables from the customers to whom credit sales have been made.

Capital Cost

This is the cost on the use of additional capital to support credit sales which alternatively could have been employed elsewhere.

Administrative Cost

This is an additional administrative cost for maintaining account receivable in the form of salaries to the staff kept for maintaining accounting records relating to customers, cost of investigation etc.

Default Cost

Default costs are the over dues that cannot be recovered. Business concern may not be able to recover the over dues because of the inability of the customers.

Factors Considering the Receivable Size

Receivables size of the business concern depends upon various factors. Some of the important factors are as follows:

1. Sales Level

Sales level is one of the important factors which determines the size of receivable of the firm. If the firm wants to increase the sales level, they have to liberalise their credit policy and terms and conditions. When the firms maintain more sales, there will be a possibility of large size of receivable.

2. Credit Policy

Credit policy is the determination of credit standards and analysis. It may vary from firm to firm or even some times product to product in the same industry. Liberal credit policy leads to increase the sales volume and also increases the size of receivable. Stringent credit policy reduces the size of the receivable.

3. Credit Terms

Credit terms specify the repayment terms required of credit receivables, depend upon the credit terms, size of the receivables may increase or decrease. Hence, credit term is one of the factors which affects the size of receivable.

4. Credit Period

It is the time for which trade credit is extended to customer in the case of credit sales. Normally it is expressed in terms of 'Net days'.

5. Cash Discount

Cash discount is the incentive to the customers to make early payment of the due date. A special discount will be provided to the customer for his payment before the due date.

6. Management of Receivable

It is also one of the factors which affects the size of receivable in the firm. When the management involves systematic approaches to the receivable, the firm can reduce the size of receivable.

Exercise 4

The board of directors of Aravind mills limited request you to prepare a statement showing the working capital requirements for a level of activity of 30,000 units of output for the year. The cost structure for the company's product for the above mentioned activity level is given below.

	Cost per Unit (Rs.)
Raw materials	20
Direct labour	5
Overheads	15
Total	40
Profit	10
	Selling price 50

(a) Past experience indicates that raw materials are held in stock, on an average for 2 months.

(b) Work in progress (100% complete in regard to materials and 50% for labour and overheads) will be half a month's production.

(c) Finished goods are in stock on an average for 1 month.

(d) Credit allowed to suppliers: 1 month.

(e) Credit allowed to debtors: 2 months.

(f) A minimum cash balance of Rs 25,000 is expected to be maintained.

Prepare a statement of working capital requirements.

Solution

Output per annum	=	30,000 units
Output per annum	=	12% of 30,000 = 2,500 units
Raw materials p. m. Rs. 20 × 2500	=	50,000
Labour p. m. Rs. 5 × 2,500	=	12,500
Overheads p. m. Rs. 15 × 2,500	=	37,500
		1,00,000

Statement of Working Capital Requirements

Particulars	Rs.	Rs.
Current assets		
Stock of raw materials (2 months) 50,000 x 2		1,00,000
Work-in-progress (1/2 months)		
Raw materials = 50,000 x ½	25,000	
Labour = 12,500 x ½ x 50/100	3,125	
Overheads = 37,500 x ½ x 50/100	9,375	
		37,500
Stock of finished goods (1 month) 1, 00,000 x 1		1,00,000
Debtors (2 month) 1,00,000 x 2		2,00,000
Cash balance required		25,000
		4,62,500
Less: current liability		
Creditors (1 month) 50,000 x 1		50,000
(Working capital required)		4,12,500

Exercise 5

Prepare an estimate of working capital requirement from the following information of a trading concern.

Projected annual sales	10,000 units
Selling price	Rs. 10 per unit

Percentage of net profit on sales	20 %
Average credit period allowed to customers	8 Weeks
Average credit period allowed by suppliers	4 Weeks
Average stock holding in terms of sales requirements	12 Weeks
Allow 10 % for contingencies	

Solution

Statement of Working Capital Requirements

Current Assets	Rs.
Debtors (8 weeks) $\frac{80,000 \times 8}{52}$ (at cost)	12,307
Stock (12 weeks) $\frac{80,000 \times 12}{52}$	18,462
	30,770
Less: Current Liability	
Credits (4 weeks) $\frac{80,000 \times 4}{52}$	6,154
	24,616
Add 10% for contingencies	2,462
Working Capital Required	**27,078**

Working Notes

Sales = 10000 × 10 = Rs. 1,00,000

Profit 20 % of Rs. 1,00,000 = Rs. 20,000

Cost of Sales = Rs.1,00,000 – 20,000 = Rs. 80,000

As it is a trading concern, cost of sales is assumed to be the purchases.

Exercise 6

Prepare an estimate of working capital requirement from the following informations of a trading concern.

Projected annual sales	Rs. 6,50,000
Percentage of net profit on sales	25 %
Average credit period allowed to debtors	10 Weeks
Average credit period allowed by creditors	4 Weeks
Average stock holding in terms of sales requirements	8 Weeks
Allow 20 % for contingencies	

(M.Com., M.S. University Nov. 2001)

Solution

Statement of Working Capital Requirements

		Rs.
Current Assets		
	Debtors (10 weeks) (at cost) $\frac{5,20,000 \times 10}{52}$	1,00,000
	Stock (8 weeks) $\frac{5,20,000 \times 8}{52}$	80,000
		1,80,000
Less:	Current Liability	
	Credits (4 weeks) $\frac{5,20,000 \times 4}{52}$	40,000
		1,40,000
	Add 20% for contingencies	28,000
	(Working Capital Required)	**1,68,000**

Working Notes

Sales = Rs. 6,50,000

Profit 25/125 of Rs. 6,50,000 = Rs. 1,30,000

Cost of Sales = Rs. 6,50,000 – 1,30,000 = Rs. 5,20,000

As it is a trading concern, cost of sales is assumed to be the purchases.

Exercise 7

A Performa cost sheet of a company provides the following particulars:

Elements of cost	
Material	35 %
Direct Labours	25 %
Overheads	20 %

Further particulars available are:

(i) It is proposed to maintain a level of activity of 2,50,000 units.

(ii) Selling price is Rs. 10/- per unit

(iii) Raw materials are to remain in stores for an average period of one month.

(iv) Finished foods are required to be in stock for an average period of one month.

(v) Credit allowed to debtors is 3 months.

(vi) Credit allowed by suppliers is 2 months.

You are required to prepare a statement of working capital requirements, a forecost profit and loss account and balance sheet of the company assuring that

Share Capital	Rs. 12,00,000
10 % Debentures	Rs. 3,00,000
Fixed Assets	Rs. 11,00,000

Solution

Statement of Working Capital

Particulars	Rs.	Rs.
Current Assets		
Stock of Raw Materials (1 Month)		
(5,00,000 x 35% x 1/12)		72,917
Work in process (1/2 months)		
Materials (25,00,000 x 35% x 1/24)	36,458	
Labour (25,00,000 x 25% x 1/24)	26,041	
Overheads (25,00,000 x 20% x 1/24)	20,833	83,332
Stock of finished goods (one month)		
Materials (25,00,000 x 35% x 1/12)	72,917	
Labour (25,00,000 x 25% x 1/12)	52,083	
Overheads (25,00,000 x 20% x 1/12)	41,667	1,66,667
Debtors (2 months) At cost		
Materials (25,00,000 x 35% x 3/12)	2,18,750	
Labour (25,00,000 x 25% x 3/12)	1,56,250	
Overheads (5,00,000 x 20% x 3/12)	1,25,000	5,00,000
		8,22,916
Less: Current liability		
Credits (2 Months) for raw materials		
25,00,000 x 35% x 2/12		1,45,833
Net working capital required		**6,77,083**

Forecast Profit and Loss Account

Dr.			Cr.
To Materials		By cost of goods sold	20,00,000
(25,00,000 x 35%)	8,75,000		
To Wages			
(25,00,000 x 25%)	6,25,000		
To Overheads			
(25,00,000 x 20%)	5,00,000		
	20,00,000		20,00,000
To Cost of goods sold	20,00,000	By Sales	25,00,000
To Gross profit	5,00,000		
	25,00,000		25,00,000
To Interest on			
debentures	30,000	By Gross profit	5,00,000
To Net profit	4,70,000		
	5,00,000		5,00,000

Forecast Balance Sheet

Liabilities	Rs.	Assets	Rs.
Share capital	12,00,000	Fixed Assets	11,00,000
Net profit	4,70,000	**Stock**	
10% debentures	3,00,000	Raw material	72,917
Credits	1,45,833	Work-in-process	38,458
		Finished goods	1,66,667
		Debtors	5,00,000
		Cash and Bank Balance	2,37,791
	21,15,833		21,15,833

Exercise 8

Selva and Co. desires to purchase a business and has consulted you and one point on which you are to advise them is the average amount of working capital which will be required in the first year's working.

You have given the following estimates and instructed to add 10% to your computed figure to allow for contingencies.

		Figures for the year
(i)	Amount blocked up for stocks:	
	Stocks of finished product	3,000
	Stocks of stores, materials, etc.,	5,000
(ii)	Average credit given:	
	Inland sales 4 weeks credit	26,000
	Export sales—$1\frac{1}{2}$ weeks credit	65,000
(iii)	Lag in payment of wages and other outputs	
	Wages—$1\frac{1}{2}$ weeks	2,40,000
	Stocks of materials, etc.—$1\frac{1}{2}$ month	36,000
	Rent, Royalties, etc.—4 months	8,000
	Clerical staff—$1\frac{1}{2}$ month	60,000
	Manager—$\frac{1}{2}$ month	4,000
	Miscellaneous expenses—$1\frac{1}{2}$ month	36,000
(iv)	Payment in advance	
	Sundry Expenses (paid quarterly in advance)	6,000
(v)	Undrawn profit on the average throughout the year	9,000

State your calculations for the average amount of working capital required.

Solution

Statement of Working Capital

Particulars	Rs.
Current Assets	
Stock of finished products	3,000
Stock of stores material, etc.	5,000
Sundry debtors	
(a) Inland (4 weeks) 2,60,000 × 4/52	20,000
(b) Export Sales ($1\frac{1}{2}$ weeks) 65,000 × $\frac{1.5}{12}$	1,875
	21,875
Payments in advance 6,000 × ¼	1,500
	31,375
Less: Lag in payment of wages ($1\frac{1}{2}$ weeks) 24,000 × $\frac{1.5}{12}$	6,923
Stock, Materials etc. ($1\frac{1}{2}$ months) 8000 × $\frac{6}{12}$	4,500
Rent, Royalties, etc. (6 months) 8000 × $\frac{61}{12}$	4,000
Clerical staff ($1\frac{1}{2}$ month) 60,000 × $\frac{1.5}{12}$	7,500
Manager ($\frac{1}{2}$ month) 4000 × $\frac{.5}{12}$	167
Miscellaneous Expenses ($1\frac{1}{2}$ months) 36,000 × $\frac{1.5}{12}$	4,500
	27,590
Net Working Capital	3,785
Add: 10% Margin for Contingencies	379
Net working capital required	**4,164**

Exercise 9

A performa cost sheet of a company provides the following particulars:

Elements of Cost	**Amt. Per Unit (Rs.)**
Raw Materials	140
Direct Labours	60
Overheads	70
Total Cost	270
Profit	30
Selling Price	300

Further particulars available are:

Raw materials are in stock on an average for one month. Materials are in process on an average for half a month. Finished goods are in stock on an average for one month.

Credit allowed by suppliers is one month – credit allowed to customers is two months. Lag in payment of wages is $1\frac{1}{2}$ weeks. Lag in payment of overhead expenses is one month. One fourth of the output is sold against cash. Cash in hand and at bank is expected to be Rs. 50,000.

You are required to prepare a statement showing the working capital needed to finance, a level of activity of 2,40,000 units of production. You may assume that production is carried on evenly throughout the year; wages and overhead accrue similarly and a time period of 4 weeks is equivalent to a month.

Note: Year $= 4 \times 12 = 48$ weeks

Solution

Statement of Working Capital

Particulars	Rs.	Rs.
Current Assets		
(i) Stock of raw materials (4 weeks) 2,40,000 × $\frac{140}{48}$ = 7,00,000 × 4		28,00,000
(ii) Work in process (2 weeks)		
Raw materials 7,00,000 × 2	14,00,000	
Direct labour 2,40,000 × $\frac{60}{48}$, 3,00,000 × 2	6,00,000	
Overheads 2,40,000 × $\frac{70}{48}$	7,00,000	
350000 × 2		27,00,000
(iii) Stock of finished good (4 weeks)		
Raw Materials 7,00,000× 4	28,00,000	
Direct Labour 30,000 × 4	1,20,000	
Overheads 3,50,000 × 4	14,00,000	
		54,00,000
(iv) Sundry Debtors (8 weeks)		
Raw Materials 7,00,000 × 8 × $\frac{3}{4}$	42,00,000	
Direct Labour 3,00,000 × 8 × $\frac{3}{4}$	18,00,000	
Overheads 3,50,000 × 8 × $\frac{3}{4}$	21,00,000	81,00,000
Cash in hand and at Bank		50,000
		1,90,50,000
(–) Current Liabilities		
(i) Sundry creditors (4 weeks) 7,00,000 × 4	28,00,000	
(ii) Wages Outstanding ($1\frac{1}{2}$ weeks) 3,00,000 × $\frac{3}{2}$	4,50,000	
(iii) Lag in payment of overhead (4 weeks) 3,50,000 × 4	14,00,000	46,50,000
Net Working Capital required		**1,44,00,000**

Exercise 10

Mr. Siva wishes to commerce a new trading business and gives the following informations.

(i) The total estimated sales in a year will be Rs. 20,00,000.

(ii) His expenses are estimated fixed Expenses of Rs. 3,000 per month plus variable expenses equal to 10% of his turnover.

(iii) He expects to fix a sales price for each product which will be $33\frac{1}{3}\%$ in excess of his cost of purchase.

(iv) He expects to turnover his stock six times in a year.

(v) The sales and purchases will be evenly spread throughout the year. All sales will be for cash but he expects one month's credit for purchases.

Calculate

(i) His estimated profit for the year.

(ii) His average working capital requirements.

Solution

(i) Estimated profit of Mr. Siva for the year

Sales	20,00,000
(–) Gross Profit (20,00,000 × $33\frac{1}{3}/133\frac{1}{3}$)	5,00,000
Cost of goods sold	15,00,000
Gross Profit	5,00,000
(–) Expenses	
Fixed (3,000 × 12)	36,000
Variable 20,00,000 × 10/100	2,00,000
	2,36,000
Net Profit	2,64,000

(ii) Statement of working capital

Particulars	Rs.
Current Assets	
Stock	
Turnover of stock is 6 times	2,50,000
$\text{Stock Turnover} = \frac{\text{Cost of goods sold}}{\text{Average stock at cost}}$	
$6 = \frac{15,00,000}{\text{Average stock at cost}}$	
6 × Average stock at cost = 15,00,000	
$\text{Average stock at cost} = \frac{15,00,000}{6} = 2,50,000$	
Cash	
To meet fixed expenses = 3,000	
To meet variable expenses	
$20,00,000 \times \frac{10}{100} \times \frac{1}{12} = 16,667$	19,667
Debtors	–
(as all sales are for cash only)	2,69,667
Less: Current Liabilities:	
Creditors (1 months)	
$15,00,000 \times \frac{1}{12}$	1,25,000
Working capital required	**1,44,667**

Exercise 11

From the informations given below, you are required to prepare a projected balance sheet, profit and loss account and then an estimate of working capital requirements.

(a) Issued share capital 5,00,000
6% debentures 2,50,000
Fixed Assets at cost 2,50,000

(b) The expected ratios to selling price are
Raw materials 45%
Labour 20%
Overheads 15%
Profit 20%

(c) Raw materials are kept in store for an average of $1\frac{1}{2}$ months.

(d) Finished goods remain in stock for an average period of 2 months.

(e) Production during the previous year was 2,40,000 units and it is planned to maintain the rate in the current year also.

(f) Each unit of production is expected to lag in process for half a month.

(g) Credit allowed to customers is two months and given by suppliers is one month.

(h) Selling price is Rs. 6 per unit.

(i) There is a regular production and sales cycle.

(j) Calculation of debtors may be made at selling price.

Solution

	Rs.
(i) Calculation of sales	
Total Sales = 2,40,000 × 6	14,40,000
(ii) Calculation of Amount blocked in inventories.	
(a) Stock of Raw Material	
$1,44,000 \times \frac{45}{100} \times \frac{1.5}{12}$	81,000
(b) Stock of finished goods at cost (Material + Labour + Overheads)	
$1,44,000 \times \frac{80}{100} \times \frac{2}{12}$	1,92,000

(c) Work-in progress at cost
(Material + Labour + Overheads)

$$144000 \times \frac{80}{100} \times \frac{.5}{12}$$ 48,000

(iii) Calculation of Amount locked up in Debtors
Total sales 14,40,000

$$\text{Debtors} = 14,40,000 \times \frac{2}{12}$$ 2,40,000

(at selling price, as given)

(iv) Calculations of creditors
(For Raw Materials)

$$\text{Total Purchases} = 14,40,000 \times \frac{45}{100}$$ 6,48,000

$$\text{Creditors} = 6,48,000 \times \frac{1}{12}$$ 54,000

Projected profit and loss account

To Cost of Goods sold :		By Sales	14,40,000
To Raw Materials	6,48,000		
To Labour	2,88,000		
To Overheads	2,16,000		
To Gross Profit	2,88,000		
	14,40,000		14,40,000
To Interest on Debentures	15,000	By Gross Profit	2,88,000
To Net Profit	2,73,000		
	2,88,000		2,88,000

Projected balance sheet

Liability	Rs.	Assets	Rs.	Rs.
Share Capital	5,00,000	Fixed Assets (at cost)		2,50,000
6% Debentures	2,50,000	Current Assets		
Profit and Loss A/c	2,73,000	Stock	81,000	
Creditors	54,000	Work in Process	48,000	
		Finished Goods	1,92,000	
		Debtors	2,40,000	
				5,61,000
		Cash and Bank (Balance for)		2,66,000
	10,77,000			10,77,000

Exercise 12

V.S.M. Ltd. is engaged in large scale retail business. From the following informations you are required to forecast their working capital requirements.

Projected Annual Sales Rs. 130 lakhs

Percentage of net profit on cost of sales 25%

Average credit period allowed to debtors 8 weeks.

Average credit period allowed by creditors 4 weeks.

Average stock carrying 8 weeks (in terms of sales requirements).

Add : 10% to computed figures to allow for contingencies.

(MBA/MK Uni. May 2005)

Solution

Sales	1,30,00,000
Gross profit 25% of sales	32,50,000
Cost of goods sold	97,50,000

Statement showing working capital

Particulars	Rs.
Current Assets	
(i) Debtors (97,50,000 x $\frac{8}{52}$)	15,00,000
(ii) Stock (97,50,000 x $\frac{8}{52}$)	15,00,000
Total current assets	30,00,000
(–) Current Liabilities	
Creditors (97,50,000 x $\frac{4}{52}$)	7,50,000
Net working capital	22,50,000
Add: Contingencies 10%	2,25,000
Net Working Capital Required	24,75,000

Exercise 13

Prepare an estimate of working capital requirements.

(i) Projected annual sales—80,000 units.

(ii) Selling price Rs. 8 per unit.

(iii) Percentage of profit 20%.

(iv) Credit allowed to debtors—10 weeks.

(v) Credit allowed to suppliers—8 weeks.

(vi) Average stock holding (in terms of sales)—10 weeks.

(vii) Allow 20% for contingencies.

(MFM/Bharathidasan AP, 2002)

Solution

Sales	80,000 Units
Selling Price	Rs. 8
Total sales in	Rs. 6,40,000
Sales	Rs. 6,40,000
Profit 20% of sales	1,28,000
Cost of Goods Sold	5,12,000

Statement of Working Capital

Particulars	Rs.
Current Assets	
i. Debtors (5,12,000 x $\frac{10}{52}$)	98,462
ii. Stock (5,12,000 x $\frac{10}{52}$)	98,462
Total Current Assets	1,96,924
Less: Current Liabilities	
Creditors (5,12,000 x $\frac{8}{52}$)	78,769
Net Working Capital	1,18,155
Add : Contingencies 20%	23,631
Net Working Capital Required	**1,41,786**

Cash Management

Exercise 14

A Company expects to have Rs. 37500 cash in hand on 1st April, and requires you to prepare an estimate of cash position during the three months.

April, May and June the following information is supplied to you:

Month	Sales Rs.	Purchases Rs.	Wages Rs.	Factory Expenses Rs.	Office Expenses Rs.	Selling Expenses Rs.
Feb	75,000	45,000	9,000	7,500	6,000	4,500
March	84,000	48,000	9,750	8,250	6,000	4,500
April	90,000	52,500	10,500	9,000	6,000	5,250
May	1,20,000	60,000	13,500	11,250	6,000	6,570
June	1,35,000	60,000	14,250	14,000	7,000	7,000

Other Information:

(i) Period of credit allowed suppliers 2 months.

(ii) 20% of sales for cash and period of credit allowed to customers for credit is one month.

(iii) Delay in payment of all expenses:1 month.

(iv) Income tax of Rs. 57,500 is due to be paid on June 15th.

(v) The company is to pay dividend to shareholders and bonus to workers of Rs. 15,000 and Rs. 22,500 respectively in the month of April.

(vi) A plant has been ordered to be received and paid in May. It will cost Rs. 1,20,000.

(Periyar University M.Com., Nov. 2005)

Cash Budgets of April, May, June

Particulars	April	May	June
Opening Balance b/d	37,500	10,950	
Sales (i) Cash 20%	18,000	24,000	27,000
(ii) Credit sales (One month)	67,200	72,000	96,000
Total Receipts (A)	**1,22,700**	**1,06,950**	**1,23,000**
Payments :			
Purchase	45,000	48,000	52,500
Wages	10,500	13,500	14,250
Factory Expenses	8,250	9,000	11,250
Office Expenses	6,000	6,000	6,000
Selling Expenses	4,500	5,250	6,570
Income Tax	–	–	57,500
Dividend to Shareholders	15,000	–	–
Bonus to workers	22,500	–	–
Plant Cost	–	1,20,000	–
Total Payments (B)	1,11,750	2,01,750	1,48,070
Balance c/d (A-B)	10,950	(–)94,800	(–)25,070
Bank Overdraft	–	(+)94,800	(+)25,070

Assumed that the company has arranged overdraft facility.

Receivable Management

Exercise 15

A Company's collection period pattern is as follows:

- 10 % of sales in the same month
- 20 % of sales in the second month
- 40 % of sales in the third month
- 30 % of sales in the fourth month

The sales of the company for the first three quarters of the year are as follows:

Month	Quarter I	Quarter II	Quarter III
First	15,000	7,00	22,500
Second	15,000	15,000	15,000
Third	15,000	22,500	7,500
	45,000	45,000	45,000

Working Days 90 90 90

You are required to calculate the average age of receivables and comment upon the results.

(MFM/Bharathidasan University AP 2001)

Solution

The collection period of the company's policy indicates that the outstanding receivables at the end of each month will consist of 90% of the month's sales, 70% of the previous month's sales and 30% of the sales made two months earlier.

Statement of Accounts receivable and their age.

Sales	I Quarter	II Quarter	III Quarter
30% 1st Month	4,500	2,250	6,750
70% 2nd Month	10,500	10,500	10,500
90% 3rd Month	13,500	20,250	6,700
	28,500	33,000	24,000

$$\text{Average of receivable is} = \frac{\text{Accounts receivable (Debtors)}}{\text{Sales}} \times \text{No. of working days}$$

$$= \frac{28,500}{45,000} \times 90 \qquad \frac{33,000}{45,000} \times 90 \qquad \frac{24,000}{45,000} \times 90$$

= 57 Days 66 Days 48 Days

The average age of receivable is affected because of sales is fluctuation.

MODEL QUESTIONS

1. Discuss the objectives of inventories.
2. Explain various inventory control techniques.
3. What are the techniques of classification of inventory?
4. Explain the motives of holding cash.
5. Discuss the cash management techniques.
6. What is receivable management? Explain it.
7. S Ltd. is engaged in large-scale retail business. From the following particulars you are required to calculate the working capital requirement.

   Project annual sales Rs. 208 lakhs

   % of net profit on cost of sales $33\frac{1}{3}\%$

Average credit period allowed to Drs. 6 weeks
Average credit period allowed to Crs. 3 weeks
Average stock (in term of sales) 6 weeks
Add 10% to allow for contingencies.

(**Ans.** 29.7 lakhs)

8. The following details relating to Mr. Santosh want to start trading business. You are required to calculate.
(a) Estimate profit.
(b) Working capital requirements.

Estimate annual sales	–	Rs. 12,00,000
Expected profit on purchase	–	$33\frac{1}{3}\%$

Fixed expenders Rs. 3,000 pm. of which
Depreciation amounts to Rs. 600 and variable
Expenders chargeable to PLL a/c equal 8% of sales.

Stock term over	–	6 times

Sales and purchases will occur evenly throughout the year
Creditors allowed 1 month credit
Debtors allowed 2 months credit
30% of cash sales.

(**Ans.** (a)Net Profit Rs. 1,68,000 (b) Working capital Rs. 32,25,400)

9. Calculate the working capital from the following particulars:

		Rs.
(a)	Annual Expenses:	
	Wages	52,000
	Stores and Material	9,600
	Office Salaries	12,480
	Rent	2,000
	Other Expenses	9,600
(b)	Average amount of stock to be maintained:	
	Stock of finished goods	1,000
	Stock of materials and stores	1,600
	Expenses paid in advance:	
	Quarterly advance	1,600 p.a.
(c)	Annual Sales	
	Home Market	62,400
	Foreign Market	15,600

(d) Lag in payment of expenses:

Wages	$1\frac{1}{2}$ weeks
Stores and Material	$1\frac{1}{2}$ months
Office Salaries	$1\frac{1}{2}$ months
Rent	6 months
Other Expenses	$1\frac{1}{2}$ months

(e) Credit allowed to customers :

Home Market	6 weeks
Foreign Market	$1\frac{1}{2}$ weeks

(M.Com. Rajasthan)
(**Ans.** 5,230)

10. Arvind Ltd. supplies the following informations for calculating the working capital firm levels of activity of Rs. 2,40,000 units. The cost structure particulars are:

	Cost Per Unit
	Rs.
Raw materials	30
Direct labour	10
over-heads	20
Total	60
Profit	15
Selling price	75

(a) Raw materials are in store on average for 1 month.

(b) Work in process (100% complete in regard to materials and 50% for labour and overheads for half a month's production.

(c) Finished goods remain in godown on average for a month.

(d) Suppliers one month to customers 2 months (calculation of customers may be made on selling price).

(e) Minimum cash balance required is Rs, 30,000.

(f) The production is evenly throughout the year.

(**Ans.** Rs. 46,80,000)

11. The Board of Directors of Nanak Engineering Company Private Ltd. request you to prepare a statement showing the working Capital Requirements for a level of activity of Rs. 1,56,000 units of production.

The following informations are available for your calculations:

(A)

	Per unit (Rs.)
Raw Materials	90
Direct Labour	40
Overheads	75
	205
Profit	60
Selling price per unit	265

(B)

(i) Raw materials are in stock, on average one month.
(ii) Materials are in process, on average 2 weeks.
(iii) Finished goods are in stock, on average one month.
(iv) Credit allowed by suppliers, one month.
(v) Time lag in payment from debtors, 2 months.
(vi) Lag in payment of wages, $1\frac{1}{2}$ weeks.
(vii) Lag in payment of overheads is one month.

20% of the output is sold against cash. Cash in hand and at bank is expected to be Rs. 60,000. It is to be assumed that production is carried on evenly throughout the year; wages and overheads accrue similarly and a time period of 4 weeks is equivalent to a month. **(C.A. Final)**

(**Ans.** 66,06,000)

12. A company Ltd. supplies the following cost sheet:

Element of cost

Raw material	—	45%
Labour	—	15%
Overheads	—	25%

The following further particulars are available.

(i) Raw materials remain in shares 5 weeks.
(ii) Cash in processing 4 weeks.
(iii) Finished goods in own house 6 weeks.
(iv) Credit period to customers 8 weeks supplie 4 weeks.
(v) Lag in payment wages 2 weeks.
(vi) Selling price per unit Rs. 60.

You are required to prepare the working capital requirements adding 15% for contribution in all levels of activity of 1,04,000 units of production made during the period.

(**Ans.** Rs. 20,17,100)

Note: Debtors, calculate on the basis of cost.

13. On 1 April the director of XYZ Ltd. wants to know the amount of working capital required for the fourth coming year. Prepare a working capital and for cost the Balance sheet.

Issued share capital	—	Rs. 3,00,000
6% Debentures (floating charge on assets)	—	Rs. 1,00,000
Fixed assets	—	Rs. 1,50,000
Production during the previous year	—	72,000 units

Same level should continue during the current year.

The following is the cost sheet:

Raw materials	—	40%.
Directs	—	15%
Overheads	—	25%

Raw materials are to remain in stock for 1 month, within process half a month, finished goods in warehouse for two months.

Credit allowed to debtors 2 months and creditors 1 month.

Selling price Rs. 8.

Work-in-process may be assumed to be 100%.

Complete in materials, one 50% complete in direct ways and overheads.

(**Ans.** W/C Rs. 1,72,800; NP 1,09,200; B/S 4,00,000; Rs. 58,000 cash/bank balancing figure)