



MATERIALS

Meaning of the Word 'Material'

Material refers to all commodities that are consumed in the process of manufacture. Material can be defined “anything that can be stored, stacked or stockpiled”

It continues an important part of the cost of production of commodity. They account for nearly 60% of the cost of production of large number of organizations.

Types of Materials

The materials can be categorized into two:

- (a) **Direct Materials:** The materials which can be identified with the individual units, are known as direct materials'. These materials form part of the finished product. All costs, which are incurred to obtain direct material, are known as 'direct material cost.' Leather used in the manufacture of shoes and yarn required for production of cloth are examples of direct materials.
- (b) **Indirect Materials:** Indirect materials do not form part of the finished products. Indirect material cannot be accurately allocated to a particular unit of product. Examples of such materials are: consumable stores, cotton waste and lubricating oils, required for the maintenance of machines, etc.

Objectives of Material Control

The following are the main objectives of material control.

- (a) All types of raw materials should be available through out. This ensures uninterrupted production schedule.
- (b) There should be no under-stocking, which generally hampers the production process.
- (c) There should be no over-stocking, which makes the capital dearer.

- (d) The purchaser is able make a valuable contribution to reduction in cost by purchasing raw materials at the most favourable prices.
- (e) Purchase of material should be of the right quality consistent with the standards prescribed in respect of the finished goods.
- (f) Proper storage conditions should be provided to different types of raw material in order to minimize the loss of material.
- (g) There should be a system to give complete and up to date accounting information about the availability of material.

Procedures for Materials Procurement and Use

Although production process and material requirements vary, the cycle of **procurement and use of material** usually involves the following steps:

- (1) **Engineering and planning:** Determine the design of the product, the material specification and the requirements at each stage of operations. Engineering and planning not only determine the maximum and minimum quantities to run and the bill of materials for given products and quantities but also cooperate in developing standards where applicable.
- (2) **The production budget:** Provides the master plan from which details concerning material requirements are eventually developed.
- (3) **The purchase requisition:** Informs the purchasing agent concerning the quantity and type of materials needed.
- (4) **The purchase order:** Contracts for appropriate to be delivered at specified dates to assure uninterrupted operations.
- (5) **The receiving report:** Certifies quantities received and may report results of inspection and testing for quality.
- (6) **The materials requisition:** Notifies the storeroom or warehouse to deliver specified time or is the authorization for the storeroom to issue material to departments.
- (7) **The materials ledger cards:** Record the receipt and the issuance of each class of materials provide a perpetual inventory record.

Purchase of supplies, services and repairs: The procedure followed in purchasing productive materials should apply to all departments and division of a business. Purchase requisitions, purchase orders, and receiving reports are appropriate for accounting department supplies and equipment, the company cafeteria, the first aid unit, the treasurers office, the building service department and the public relations, personnel, sales and engineering department, as well as all other departments. If for example, the accounting department needs new forms printed, a requisition should be sent to the purchasing department in the usual manner, and a purchase order should be prepared and sent to the printer.

In the case of magazine subscriptions, trade and professional association's memberships for company officials, and similar services, the official or department head may send in a requisition in a usual manner. A requisition, an order, and an invoice for all goods and services purchased are necessity in properly controlling purchases.

Repair contracts on an annual basis for typewriters, calculators, electronic data processing (EDP) equipment, and some types of factory equipment may be requisitioned and ordered in the usual manner. In order cases, a department head or other employee may telephone for service and shortly thereafter may have a machine repaired and back in operation. In such cases, the purchasing agent issues a so-called blanket purchase order that amounts to approval of all repair and service costs of a specific type without knowing the actual amount charged. When the repair bill is received, the invoice clerk checks the amount of the bill with the head of the department where the repairs took place and then approves the invoices for payment.

Purchase Requisition Form

The purchase requisition originates with (1) stores or where house clerk who observes that quantity on hand is at a set ordering minimum, (2) a materials ledger clerk who may be responsible for notifying the purchasing agent when to buy, (3) a works manager who foresees the need for special materials or unusual quantities (4) a research or engineering department employee who needs materials or supplies of a special nature, or (5) a computer that has been programmed to produce replenishment advice for the purchasing department. For standard material, little information other than the stock number may be needed, and the purchasing agent uses judgment concerning where to buy and the quantity to order. For other purchase requests, it may be necessary to give meticulous description, blueprints, catalog numbers, weights, standards, brand names, exact quantities to order, and suggested price. Below is an example of the purchase requisition:

Example/Sample of purchase requisition form

Purchase Requisition

No. 07615

Mo / Day / Yr

To Purchasing Department				
Deliver to _____		Date Required _____		
		Dept No _____		
		Acct. No _____		
Suggested				
Supplier _____				
Qty	Item No.	Description	Unit price	Amount
Budget Control				
Allowance for		Balance	Ordered	
Period _____		Available _____	By _____	
		Amt This	Approved	
Purchase _____		By _____		
Remaining				
Balance _____				

One copy remain with the originating employee, and the original is sent to the purchasing department for execution of the request.

RECEIVING MATERIALS

The function of the receiving department is to: unload and unpack incoming materials; check quantities received against the shippers packing list; identify goods received with description on the purchase order; prepare a receiving report; notify the purchasing department of description discovered; arrange for inspection when necessary; notify the traffic department and the purchasing department of any damage in transit; and route accepted materials to the appropriate factory location.

Invoice approval is an important step in materials control procedure, since it certifies that the goods have been received as ordered and the payment can be made. The invoice approval information is often built into a rubber stamp and each invoice is stamped.

The voucher data are entered first in the purchases journal and are posted to the subsidiary records. They are then entered in the cash payments journal according to the due date for payment. The original voucher and two copies are sent to the treasurer for issuance of the cheque. The treasurer mails the cheque with the original voucher to the vendor, files a voucher copy and returns one voucher copy to the accounting department for the vendors file. Purchase transaction entered in the purchases journal affect the control accounts and the subsidiary records as shown in the chart below:

General Ledger Control

Transaction	General Ledger Control		Subsidiary Records
	Debit	Credit	
Materials purchased for stock	Materials	Accounts payable	Entry in the received section in the materials ledger card
Materials purchased for a particular job or department	Work in process	Accounts payable	Entry in the direct material section of the production or the job order
Materials and supplies purchased for factory overhead purposes	Materials	Accounts payable	Entry in the received section of the material ledger card
Supplies purchased for marketing and administrative office	Material Marketing expense control	Accounts payable Administrative expenses Control	Entry in the received section of the materials ledger card or in the proper columns of the marketing or administrative expenses analysis sheets
Purchase of service or repairs	Factory Overhead Marketing expenses control Administrative expenses control	Accounts payable	Entry in the proper account columns of the expenses analysis sheet
Purchase of equipment	Equipment	Accounts payable	Entry on the equipment ledger card

CORRECTING INVOICES

When the purchase order, receiving report and invoice are compared, various adjustment may be needed as a result of the circumstances described below.

- (1) Some of the materials ordered are not received and are not entered in the invoice. In this case no adjustment is necessary, and the invoice may be approved for immediate payment. On the purchase order the invoice clerk will make a notation of the quantity received in place of the quantity ordered. If the vendor is out of stock or otherwise unable to deliver specified merchandise, and immediate ordering from other sources may be necessary.
- (2) Items ordered are not received but are entered in the invoice. In this situation the shortage is noted in the invoice and is deducted from the total before payment is approved. A letter to the vendor explaining the shortage is usually in order.
- (3) The seller ships a quantity larger than called for in the purchase order. The purchaser may keep the entire shipment and add the excess to the invoice, if not already invoiced; or the excess may be returned or held, pending instruction from the seller. Some companies issue a supplementary purchase order that authorizes the invoice clerk to pay the over shipment.
- (4) Materials of a wrong size and quality, defective parts, and damaged items are received. If the items are returned, a correction in the invoice should be made before payment is approved. It may be advantageous to keep damaged or defective shipments if the seller makes adequate price concessions, or the items may be held subject to the seller's instructions.
- (5) It may be expedient for a purchase to pay transportation charges, even though delivered prices are quoted and purchases are not made on the basis. The amount paid by the purchaser is deducted on the invoice, and the paid freight bill is attached to the invoice as evidence of payment.

Electronic Data Processing System (EDP System) for Materials Received and Issued:

In an electronic data processing system (EDP System), the computer to a great extent replaces the clerk. Upon receipt of the invoice (the source document), the accounts payable clerk enters the account distribution on the invoice. The data are then directly inputted from the invoice to the computer data bank via a terminal device. The data are edited, audited, and merged with the purchase order and the receiving order data, both of which have been stored in the purchase order number. Quantities, monetary values, due dates, terms, and unit prices are matched. When in agreement, the cost data are entered in the accounts payable computer file with a date for later payment.

COST OF ACQUIRING MATERIALS/MATERIALS ACQUISITION COST

A guiding principle in accounting for the cost of materials is that all costs incurred in entering a unit of materials into factory production should be included.

Acquisition costs: such as the vendor's invoice price and transportation charges, are visible costs of the purchased goods. Less obvious costs of materials entering factory operations are costs of purchasing, receiving, unpacking, inspecting, insuring, storing, and general and cost accounting.

Applied acquisition costs: If it is decided that the materials cost should include incoming freight charges and other acquisition costs, and applied rate might be added to each invoice and to each item instead of charging these costs directly to factory overhead.

Stores Records

The records of stores may be maintained in three forms

- (1) Bin Cards
- (2) Stock Control Cards
- (3) Stores Ledger

The first two forms of accounts are records of quantities received, issued and those in balance but the third one is an account of their cost also. Usually, the account is kept in the forms, the quantitative in the stores and quantitative cum financial in the cost department.

Bin Cards and Stock Control Cards

These are essential similar, being only quantitative records of stores. The latter contains further information as regards stock on order. Bin cards are kept attached to the bins or receptacles or quite near thereto so that these also assist in the identification of the stock. The stock control cards, on the other hand are kept in cabinets or trays or loose binders.

Swadeshi Company Limited										
BIN CARD										
Bin Card No.					Bin Card No.					
Name of the Article.....					Maximum Quantity.....					
Code No.					Minimum Quantity.....					
Store Ledger Folio.....					Ordering Quantity.....					
Receipts		Issues		Balance				Goods on Order		
Date	Goods Received Note No.	Quantity	Stores Requisition Note No.	Quantity	Quantity	Date of Cheking	Remark	No. of Date of Order	Quantity	Date of Goods Received

ADVANTAGES OF BIN CARDS

- (1) There would be less chances of mistakes being made as entries would be made at the same time as goods are received or issued by the person actually handling the materials.
- (2) Control over stock can be more effective, in as much as comparison, of the actual quantity in hand at any time with the book balance is possible.

Stores Ledger

A modern stores ledger is a collection of cards or loose leaves specially ruled for maintaining a record of both quantity and cost of stores received, issued and those in stock. It being a subsidiary ledger to maintain the main cost ledger, it is maintained by a Cost Accountant. It is posted from the Goods Received Note and the Materials Requisition.

Issuing and Costing Materials into Production

To control the quantity and cost of materials, supplies, and services requires a systematic and efficient system of purchasing, recording and storing. Equally necessary is a systematic and efficient procedure for issuing materials and supplies.

Materials Ledger Card – Perpetual Inventory

As purchased materials go through the systematic verification of quantities, prices, physical condition, and other checks, the crux of the accounting procedure is to establish a perpetual inventory—maintaining for each type of materials, a record showing quantities and prices of materials received, issued and on hand.

Materials ledger cards or stock ledger sheets constitutes a subsidiary materials ledger controlled by the materials are inventory accounts in the general ledger or in the factory ledger.

Stock Ledger Cards commonly show the account number, description or type of material, location, unit measurement, and maximum and minimum quantities to carry. These cards are the materials ledger with new cards prepared and old ones discarded as changes occur in the types of materials carried in stock. The ledger card arrangement is basically the familiar debit, credit, and balance columns under the description of received, issued, and balance. Following is an example of material ledger card.

Example/Sample of materials ledger cards

Piece or Part No. Reorder
 Point _____
 Discription Reorder
 Quantity _____
 Maximum Quantity _____

Received				Issue			Balance			
Date	Res. No.	Qty	Amount	Date	Res. No.	Qty	Amount	Qty	Unit cost	Amount

MATERIALS COSTING METHODS

- First-In-First-Out (FIFO) Costing Methods
- Average Costing Methods
- Last-In-First-Out (LIFO) Costing Method

- Other Materials Costing Methods—Month end average cost, last purchase price or market price at date of issue and standard cost.

First-In-Out (FIFO)

This methods assumes that the goods purchased first or manufactured first are issued/sold first. That is the goods issued or sold currently are those which represent the earliest purchases amongst the goods held in inventory. This would mean that the goods which remain in stock after the sales, are those which represent the most recent purchases.

Last-In First-Out (LIFO)

This methods is just the opposite if FIFO methods. This method assumes that the goods issued or sold out of the inventory are the ones most recently purchased manufactured. Therefore the goods held in stock represent the earlier purchases productions.

Weighted Average Method (WAM)

This method assumes that all inventory available are best represented by a weighted average cost. The average cost of goods held in inventory is recalculated every time a fresh purchase is made and goods issued or sold out of inventory are priced at such average price till such time as the next lot is purchased.

Illustration 1

The following transaction took place in respect of a material.

Date	Receipt Quantity (Units)	Rate (₹)	Issue Quantity (Units)
02/03/2008	200	2.00	-
10/03/2008	300	2.40	-
15/03/2008	-	-	250
18/03/2008	250	2.60	-
20/03/2008	-	-	300

Prepare a Stock register as per:

- (a) Simple Average Method (b) Weighted Average Method.

Solution

(ICWA, Adapted)

Stock Register (Simple Average Method)

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
02/03/2008	200	2.00	400	-	-	-	200	-	400
10/03/2008	300	2.40	720	-	-	-	500	-	1,120
15/03/2008	-	-	-	250	2.20	550	250	-	570
18/03/2008	250	2.60	650	-	-	-	500	-	1,120
20/03/2008	-	-	-	300	2.50	750	200	-	470

Stock Register (Weighted Average Method)

Date	Receipts			Issues			Balance		
	Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
02/03/2008	200	2.00	400	-	-	-	200	2.00	400
10/03/2008	300	2.40	720	-	-	-	500	2.24	1,120
15/03/2008	-	-	-	250	2.24	560	250	2.24	560
18/03/2008	250	2.60	650	-	-	-	500	2.42	1,120
20/03/2008	-	-	-	300	2.42	726	200	2.42	484

Illustration 2

Following purchases were made of pipe 6".

Receipts		Issues		
04/06/2008	20 pipes	@` 15.00 each	20/06/2008	25 pipes
17/06/2008	30 pipes	@` 14.00 each	05/07/2008	40 pipes
02/07/2008	40 pipes	@` 14.50 each	31/07/2008	45 pipes
30/07/2008	30 pipes	@` 13.00 each		

On 28th July, 2008

2 pipes issued on 20/06/2008 were received back, out of which one pipe was found damaged on 28th July, 2008 and had to be discarded.

Stock Register (LIFO Basis)

Date	Particulars	Receipts			Issues			Balance		
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
04/06/2008	Receipts	20	15	300	-	-	-	20	15	300
17/06/2008	Receipts	30	14	420	-	-	-	20	15	300
		-	-	-	-	-	-	30	14	420
								50	-	720
								20	15	300
20/03/2008	Issue	-	-	-	25	14	350	5	14	70
								25	-	370
								20	15	300
								5	14	70
02/03/2008	Receipts	40	14.50	580	-	-	-	40	14.50	580
								65	-	950
05/07/2008	Issue				40	14.50	580	20	15	300
								5	14	70
								25	-	370
								20	15	300
28/07/2008	Returned	2	14	28				5	14	70
								2	14	28

						27	-	398
28/07/2008	Damaged		1	14	14	20	15	300
	pipe Discarded							
						4	14	56
						2	14	28
						26	-	384
						20	15	300
30/07/2008	Receipts	30	13	390		4	14	56
						2	14	28
						30	13	390
						56	-	774
31/07/2008	Issue		30	13	390			
			2	14	28			
			4	14	56	11	15	165
			9	15	135			
			45	-	609			

Illustration 3

Mr. Ever-Ready closes his books on 31st Dec. every year. In 2007, stock taking was completed on 26th Dec. and the value of it come to ` 1,46,000. The following transactions took place between 27th December and 31st December, 2007.

- (a) Purchases made during this period amounted to ` 5 000
- (b) Sales-dring this period amounted to ` 1 800
- (c) Sales Return during the above period ` 250
- (d) Purchase Returns during the above period ` 500
- (e) The above purchases include goods worth ` 1,500 which were not actually delivered but the invoice was received and entries made in the purchase book
- (f) The average ratio of the gross profit to turnover is 28%.

[CA (Intes), Adapted]

Solution

Computation of the value of stock on 31st December, 2007.

Particular	`	`	`
Stock on 26th December,2007			1,46,000
Add:			
(a) Purchase after 26th December 2007	5,000		
Less: Goods not received	1,500	3,500	

(b) Sales Return at cost	250		
Less: Profit 28%	70	180	
			3,680
Less:			1,49,680
(a) Cost of goods sold sales	1800		
Less: Profit 28%	504	1,296	
(b) Purchase Returns	500		1,796
Value of Stock on 31st December, 2007			1,47,884

Illustration 4

From the following data you are required to compile a valued stock card in respect of material 'Mikytoya' for the month of April 2007 and value the closing stock by:

- (a) Weighted average method (b) First In First Out method
- April 1 Opening stock 100 units @ ` 15 per unit
- April 4 Received 90 units under GRN no. 301 @ ` 16 per unit
- April 7 Issued 80 units under Issue note no. 501
- April 11 Received 200 units under GRN no. 302 @ ` 17 per unit
- April 14 Issued 150 units under Issue note no 502
- April 21 Received 20 units under GRN no. 303 @ ` 25 per unit
- April 25 Issued 100 units under Issue note no 503
- April 27 Received 50 units under GRN no. 304 ` 16 per unit

Solution**Stock Card (Weighted Average Method)**

Date April 1997	Doc. Ref.	Receipts			Issues			Balance		
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
1								100	15	1,500
4	GRN 301	90	16	1,440				190	15.47	2,940
7	IN 501				80	15.47	1,238	110	15.47	1,702
11	GRN 302	200	17	3,400				310	16.46	5,102
14	IN 502				150	16.46	2,496	160	16.46	2,633
21	GRN 303	20	25	500				180	17.41	3,133
25	IN 503				100	17.41	1,741	80	17.40	1,392
27	GRN 304	50	16	800				130	16.86	2,192
		360		6,140	330		5,448			

FIFO Method

Date April 1997	Doc. Ref.	Receipts			Issues			Balance		
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
1								100	15	1,500
4	GRN 301	90	16	1440				100	15	1,500
								90	16	1,440
								190		2,940
7	IN 501				80	15	1200	20	15	300
								90	16	1,140
								110		1,740
								20	15	300
								90	16	1,140
11	GRN 302	200	17	3400				200	17	1,440
								310		5,140
14	IN 502				20	15	300	160	17	2,720
					90	16	1,440			
					40	17	680			
					150		2,420	160	17	2,720
21	GRN 303	20	25	500				20	25	500
								180		3,220
25	IN 503				100	17	1700	60	17	1,020
								20	25	500
								80		1,520
27	GRN 304	50	16	800				60	17	1,020
								20	25	500
								50	16	800
								130		2,320
			360	6,140	330		5,320			

Illustration 5

From the data given below, answer the following:

- What is the simple average price of the four week's receipts of material A?
- What is the weighted average price of the four week's receipts of material B?
- What is the value of the balance of material A in stock at the close of the fourth week if issues are priced on LIFO basis?
- What is the value of the stock at the end of fourth week with respect to material B if they are priced on FIFO basis?

Raw Materials

Weeks	Received		Issued		Kgs.	
	A Kgs.	B `	A Kgs.	B `	Kgs.	Kgs.
1st	250	1,000	1,250	1,690	175	1,500
2nd	300	1,260	1,400	1,960	250	1,200
3rd	200	880	750	1,050	300	1,300
4th	250	960	1,600	2,400	300	1,100
Stores Opening Stock: A - B -	200 kgs 2,000 kgs	` 720 ` 2,900				

Solution

(LIFO Method)

Material: A										
Date Weeks	Doc. Ref.	Receipts			Issues			Balance		
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
I		250	4.0	100	175	4.0	700	200	3.6	720
								200	3.6	720
								250	4.0	1000
								450		1720
								200	3.6	720
								75	4.0	300
							275		1020	
II		300	4.2	1260	250	4.2	1050	200	3.6	720
								75	4.0	300
								300	4.2	1260
								575		2280
								200	3.6	720
								75	4.0	300
								50	4.2	210
								325		1230
								200	3.6	720
75	4.0	300								
III		200	4.4	880	200	4.4	880	50	4.2	210
								200	4.4	880
								525		2110
								200	3.6	720

					50	4.2	210	25	4.0	100
					50	4.0	200			
					300		1290	225		820
IV		250	3.84	960				200	3.6	720
								25	4.0	100
								250	3.84	960
								475		1,780
					250	3.84	960			
					25	4.0	100			
					25	3.6	90	175	3.6	630
					300		1150			
		1000	-	4,100	1,025	-	4190			

(a) Simple Average Price Material "A" = $\frac{4 + 4.2 + 4.4 + 3.84}{4} = 4.11$

(b) Weighted Average Price Material "A" = $\frac{\text{Totalvalue}}{\text{Total Quantity}} = \frac{4100}{1000} = 4.1$

(c) Value of Stock FIFO (Material "A") Basis: $175 \times 3.84 = 672$

Material B (FIFO Basis)										
Date Weeks	Doc. Ref.	Receipts			Issues			Balance		
		Qty	Rate	Amt	Qty	Rate	Amt	Qty	Rate	Amt
I		1250	1.352	1690				2000	1.45	2900
								2000	1.45	2900
								1250	1.352	1690
								3250		4590
								500	1.45	725
								1500	1.45	2175
								1250	1.352	1690
								1750		2415
II		1400	1.4	1960				500	1.45	725
								700	1.352	946
								1200		1671
								1250	1.352	1690
								1400	1.4	1960
								3150		4375
								550	1.325	729
								1950		2704
			550	1.352	744					
			1400	1.4	1960					

III		750	1.4		1050			750	1.4	1050
								2700		3754
					550	1.352	744	650	1.4	910
					750	1.4	1050	750	1.4	1050
					1300		1794	1400		1960
IV		1600	1.5	2400				650	1.4	910
								750	1.4	1050
								1600	1.5	2400
								3000		4360
					650	1.4	910	300	1.4	420
					450	1.4	630	1600	1.5	2400
					1100		1540	1900		2820
		5000	-	7100	5100	-	7180			

$$\text{SimpleAverageMethod} = \frac{1.352 + 1.4 + 1.4 + 1.5}{4} = 1.413$$

$$\text{WeightedAverageMethod} = \frac{\text{Totalvalue}}{\text{TotalQuantity}} = \frac{7100}{5000} = 1.42$$

NEED FOR MATERIALS CONTROL

One of the first step in the installation of **cost and management accounting system** is planning the proper control of materials and supplies from the time orders are placed with supplier until they have been consumed in the plant and office operation or have been sold as merchandise.

Materials represent an important asset and is the largest single item of cost in almost every business; accordingly the success or failure of a concern may depend largely upon efficient material purchasing, storage, accounting, utilization and control.

Where materials are not properly controlled, excess stock of some items are likely to occur with a result unnecessary tying up of capital and loss through deterioration and obsolescence. Shortage of other materials may arise at the time when they are urgently needed and production will then be delayed.

The purchasing of materials is highly specialized function. By ordering the right quantity and quality of materials at the most favorable price, and by ensuring that it arrives at the right time, the efficient buyer is able to make a valuable contribution to the success of a business. The **efficient material control** cuts out losses and form of waste that otherwise tend to pass unnoticed. Theft, misappropriation, deterioration, breakage and additional storage costs can be reduced to a minimum by proper controls, and much avoidable idle time in the factory will be reduced if materials are available to meet the demands of the production staff. Finally and most important to the cost accountant, it is impossible to produce reliable costing information if the records of materials issued are unsatisfactory, because a cost statement cannot be more accurate than the information on which it is based.

REQUIREMENTS OF A SYSTEM OF MATERIAL CONTROL

The important requirements or essentials of adequate satisfactory system of materials control are as follows.

- (1) Proper Coordination
- (2) Competent Purchasing Agent
- (3) Use of Standard Forms
- (4) Control by Budgeting Materials and Equipment
- (5) Storage Location
- (6) Operation of Perpetual Inventory
- (7) Standards or Level to be Fixed
- (8) Storage Control and Issue
- (9) Internal Check
- (10) Development of Controlling Accounts and Subsidiary Records
- (11) Regular Reports

Proper Coordination

Proper coordination of all department involved, in material purchasing, receiving, testing, approving, storage, issue and accounting is essential.

Competent Purchasing Agent

Centralization of purchasing in a purchasing department under the direct and authority of a competent trained purchasing agent is also considered essential.

Use of standard Forms

The use of standard form for orders, requisition etc., upon which written and signed instructions are given are essential for proper control of materials.

Control by Budgeting Materials and Equipment

Use of materials, supplies and equipment budgets so that the economy in purchasing and use of material can be realized, is important factor for adequate control of materials.

STORAGE LOCATION

Storage of all materials and supplies should be in a designated location properly safe guarded under supervision and proper planning should be there for storing and issuing of materials.

Operation of Perpetual Inventory

Operation of proper perpetual inventory system should be used so that it is possible to determine at any time the amount and value of each kind of materials in stock. It also enables the comparison of book inventory with the result of physical counting.

Standards or level to be fixed

A minimum quantity of each item of materials below which point the inventory is not allowed to drop, and a maximum quantity, above which stock is not carried should be fixed. In the same manner ordering level and economic order quantity may be determined.

Storage Control and Issue

The proper operation of a system of stores control and issue is introduced so that there will be delivery of materials upon requisition to departments in the right amount at the time they are needed.

Internal Check

The operation of internal check should be introduced to ensure that transactions involving material and equipment are checked by reliable and independent officials.

Development of Controlling Accounts and Subsidiar Records

Controlling accounts and subsidiary records reveal summary of detailed materials costs at each stage of materials receipt and consumption from the storeroom to finished goods.

Regular Reports

Regular report and information should be provided for the management in connection with the purchase of materials, issues from stock, inventory balances, obsolete stock, goods returned to vendors and spoiled or defective units.

STOCK CONTROL

Definition and Explanation

The materials purchased by a concern may be classified as stock items which are taken into store and held until required, or as direct deliveries to the point of consumption. The control of those materials which are stock items is known as stock control.

The function of stock control is to obtain the maximum stock turnover consistent with the maintenance of sufficient stocks to meet all requirements. Stock turnover is the ratio by which the cost of the materials used per annum bears to the average stock of raw materials. Discussion with regard to the quantity of materials stocked are reached after many considerations such as:

- The availability of capital for the provisions of stocks.
- The storage space available.
- The cost of storage.
- Risk of loss due to fall in prices, deterioration, obsolescence, theft etc.
- Economic order quantities.
- Delivery delays.

For effective control of materials, it is important to decide upon different levels of materials. These levels are maximum limit or level, minimum limit or level and re-order level or ordering point or ordering

level. Maximum, minimum and re-order levels are not static. They must be varied to suit the changing circumstances. Thus, alteration will take place if the usage of certain materials is increased or decreased. If the re-order period changes, or if, in the light of a review of capital available, it is decided that the overall inventory must be increased or decreased.

RE-ORDER LEVEL OR ORDERING POINT OR ORDERING LEVEL

Definition and explanation

This is that level of materials at which a new order of supply of materials is to be placed. In other words, at this level a purchase requisition is made out. This level is fixed somewhere between maximum and minimum levels. Order points are based on usage during time necessary to requisition an order, and receive materials, plus an allowance for protection against stock out.

The order point is reached when inventory on hand and quantities due in are equal to the lead time usage quantity plus the safety stock quantity.

Formula of Re-order Level or Ordering point

The following two formulas are used for the calculation of re-order level or point.

[Ordering point or re-order level = Maximum daily or weekly or monthly usage x Lead time]

The above formula is used when usage and lead time is known with certainty therefore, no safety stock is provided. When safety stock is provided then the following formula will be applicable:

[Ordering point or re-order level = Maximum daily or weekly or monthly usage x Lead time + Safety stock]

Examples: 1

Minimum daily requirement	800 units
Time required to receive emergency supplies	4 days
Minimum daily requirement	600 unit
Time required for refresh supplies	One month (30 days)

Calculate ordering point or re-order level

Calculation

Ordering point = Ordering point or re-order level = Maximum daily or weekly or monthly × Lead time

$$= 800 \times 30$$

$$= 24,000 \text{ units}$$

Example: 2

Two types of materials are used as follows:

Minimum usage	20 units per week each
Maximum usage	40 units per week each
Normal usage	60 units per week each
Re-order period or lead time	
Material A	3 to 5 weeks
Material B	2 to 4 weeks

Calculate re-order point for two types of materials

Calculation

Ordering point re-order level = Maximum daily or weekly or monthly usage ×

$$A: 60 \times 5 = 300 \text{ units}$$

$$B: 60 \times 4 = 240 \text{ units}$$

- (1) For Apex company the average daily usage of a materials is 100 units, lead time for procuring materials is 100 units. Lead time for procuring materials is 20 days and the average number of units per order is 2000 units. What is the record level for the company?

MINIMUM LIMIT OR MINIMUM LEVEL OF STOCK

Definition and Explanation

The Minimum level or minimum stock is that level of stock below which stock should not be allowed to fall. In case of any item falling below this level, there is danger of stopping of production and, therefore, the management should give top priority to the acquisition of new supplies.

Formula

Minimum level or minimum limit can be calculated by the following formula:

[Minimum limit or level = Re-order level or ordering point – Average or normal usage x Normal re-order period]

Or the formula can be written as :

[Minimum limit or level = Re-order level or ordering point – Average usage for Normal period]

Example

Normal usage	100 units per day
Maximum Usage	130 units per day
Minimum Usage	70 units per day
Re-order period	25 to 30 days

Calculate : Minimum limit or level

To calculate minimum limit of materials we must calculate re-order point or re-order level first.

Calculation

Ordering point or re-order level = Maximum daily or weekly or monthly usage x Maximum re-order

$$= 130 \times 30$$

$$= 3,900 \text{ units}$$

Minimum limit or level = Re-order level or ordering point – Average or normal usage x Normal re-order period

$$= 3900 - (100 \times 27.5)$$

$$1150 \text{ units}$$

$$(925 + 30)/2$$

DANGER LEVEL OF MATERIALS OR INVENTORY STOCK

Definition and Explanation

Some enterprise also calculate **danger level**. When this level of stock is reached, then emergency steps are taken by the management to acquire material supplies.

When danger level is reached, the try is made to purchase materials from the nearest possible source or place so that the workers and plant and machinery may not remain idle due to shortage of material supplies.

Formula

Danger level can be calculated by the help of the following formula

$$[\text{Danger level} = \text{Average daily requirement} \times \text{Time required to get emergency supply}]$$

Example

Normal usage or average requirement	700 units per day
Maximum usage	800 units per day
Minimum Usage	600 units per day
Re-order period	25 to 30 days
Time required to receive emergency supplies	4 Days

Calculate danger level.

Calculation

Danger level = Average daily requirement x Time requirement to get emergency supply

$$= 700 \times 4$$

$$= 2800 \text{ units}$$

STOCK LEVELS

Setting of various stock levels is one of the techniques of inventory control. The main purpose of setting various stock levels is to avoid the situation of understocking and overstocking. These levels are not permanent but need revision according to the changes in the factors which determine these levels.

Maximum Stock Level

- (1) Meaning Maximum Stock Level is that level of stock above which the stock in hand should not normally be allowed to exceed. It is the largest quantity of a particular material which may be held in the store at any time.
- (2) Objective The objective of fixing the maximum stock level is to avoid the costs of over-stocking such as - Cost of storage, cost of investment in stock, Cost of insurance, risk of obsolescence etc.
- (3) Factors This level is fixed after considering the following factors:
- (a) Re-order Level
 - (b) Re-order Quantity
 - (c) Minimum Rate of Consumption
 - (d) Minimum Re-order Period
 - (e) Availability of Working Capital
 - (f) Availability of Storage space
 - (g) Extra Cost of Storage
 - (h) Extra Cost of Insurance
 - (i) Risk of obsolescence and deterioration
 - (j) Supply of Imported Materials
 - (i) Price Fluctuations
- (4) Formula Maximum Stock level is computed with the help of following formula:
 Maximum Level = Re-order Level + Re-order Quantity
 - (Minimum Rate of Consumption × Minimum Re-order Period)

Average Stock Level

- (1) Meaning Average Stock Level indicates the average stock held by the organisation.
- (2) Formula This level of stock may be computed by using any one of the following formula:
 Average Inventory Level = Minimum Level + 1/2 Re-order Quantity
 OR

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

DEFINITION AND EXPLANATION

Economic order quantity (EOQ): Is that size of the order which gives maximum economy in purchasing any material and ultimately contributes towards maintaining the materials at the optimum level and at the minimum cost

In other words, the **Economic order quantity (EOQ)** is the amount of inventory to be ordered at one time for purposes of minimizing annual inventory cost.

The quantity to order at a given time must be determined by balancing two factors: (1) the cost of possessing or carrying materials and (2) the cost of acquiring or ordering materials. Purchasing larger quantities may decrease the unit cost of acquisition, but this saving may not be more than offset by the cost of carrying materials in stock for a longer period of time.

THE CARRYING COST OF INVENTORY MAY INCLUDE

- Interest on investment of working capital
- Property tax and insurance
- Storage cost, handling cost
- Deterioration and shrinkage of stocks
- Obsolescence of stocks.

FORMULA OF ECONOMIC ORDER QUANTITY (EOQ)

The different formulas have been developed for the calculation of economic order quantity (EOQ). The following formula is usually used for the calculation of EOQ.

$$\sqrt{\frac{2 * A * C_p}{C_h}}$$

- A = Demand for the year
- C_p = Cost to place a single order
- C_h = Cost to hold one unit inventory for a year
- * = X

Example

Pam runs a mall order business for gym equipment. Annual demand for the Trico Flexers is 16,000. The annual holding cost per unit is ` 2.50 and the cost to place an order is ` 50.

Calculate economic order quantity (EOQ)

Calculation

$$\sqrt{\frac{2 * 16,000 * \$50}{\$2.50}} = 800 \text{ units per order}$$

Underlying Assumption of Economic order Quantity:

- (1) The ordering cost is constant
- (2) The rate of demand is constant
- (3) The lead time is fixed
- (4) The replenishment is made instantaneously, the whole batch is delivered at once.

Illustration 6

Data relating to slotted angles in a steel furniture manufacturing unit is as follows:

- | | |
|-----------------------------|-----------------|
| (i) Annual consumption | 12 tonnes. |
| (ii) Unit cost | ₹ 100 per kilo. |
| (iii) Storage/carrying cost | 12% |
| (iv) Procurement cost | ₹ 20 per order. |

Calculate

- (a) E.O.Q. per order in kilos.
- (b) Annual procurement cost.
- (c) Annual carrying cost.

Solution

where

A = Annual consumption

O = Ordering cost per order

P = Unit cost

i = Carrying cost in percentage

$$EOQ = \frac{2 \times 12,000 \times 20}{100 \times \frac{12}{100}}$$

$$= \sqrt{\frac{4,80,000}{12}}$$

$$= \sqrt{40,000}$$

EOQ = 200 units (kgs.) per order

Note: 1 Ton = 1,000 kgs.

Annual Requirement	Size of Order	Number of Order	Procurement Cost	Holding Cost	Combined Cost
(1)	(2)	(3)	$(3) \times 20 = (4)$	$(2) \times \frac{1}{2} \times 100 \times \frac{12}{100} = (5)$	$(4) + (5) = (6)$
12,000	50	240	4,800	300	5,100
12,000	100	120	2,400	600	3,000
12,000	200	60	1,200	1,200	2,400
12,000	400	30	600	2,400	3,000
12,000	500	24	480	3,000	3,480

Illustration 7

Data relating to slotted angles in a steel furniture manufacturing unit is as follows:

Half yearly demand 1,000 units.

Ordering cost ₹ 62.50 per order.

Inventory carrying cost ₹ 2 per unit.

Calculate

- EOQ per order in units.
 - Annual procurement cost.
 - Annual carrying cost.
- from the above data.

Solution

where

A = Annual requirement

O = Ordering cost per unit

C = Carrying cost per unit

$$EOQ = \sqrt{\frac{2 \times 1,000 \times 2 \times 62.50}{2}}$$

$$EOQ = \sqrt{\frac{2,50,000}{2}}$$

$$= \sqrt{1,25,000}$$

$$EOQ = 353.55 \text{ units per order}$$

Illustration 8

From the following information calculate the EOQ of a particular component:

Annual Demand	1,250 units
Ordering Cost	₹ 40 per order
Inventory Carrying Cost	Re. 1 per unit
EOQ	= 316.00 units per order

Illustration 9

From the following information calculate the EOQ of a particular component:

Annual Demand	2,500 units
Ordering Cost	₹ 200 per order
Inventory Carrying Cost	₹ 0.50 per unit

Solution

$$\begin{aligned}
 \text{EOQ} &= \sqrt{\frac{2AO}{C}} \\
 &= \sqrt{\frac{2 \times 2,500 \times 200}{0.50}} \\
 &= \sqrt{\frac{40,00,000}{0.50}} \\
 &= \sqrt{80,00,000} \\
 &= 2,828.43 \text{ units per order}
 \end{aligned}$$

QUESTIONS FOR SELF-PRACTICE

(I) Theoretical Questions

- (1) (a) What is Materials Control?
 (b) State its main objectives.
 (c) Explain its important requirements.
- (2) Explain the concept of 'ABC Analysis' as a technique of inventory control.
- (3) Explain and state the factors to be considered in fixing the following:
 - (a) Minimum Level
 - (b) Maximum Level
 - (c) Re-order Level

- (4) Give the meaning and specimen of each of the following in a system of Stores Accounting
 - (a) Purchase Requisition
 - (b) Material Requisition
 - (c) Material Transfer Note
 - (d) Material Returned Note
 - (e) Bill of Materials
 - (f) Bin Card
 - (g) Stores Ledger
- (5)
 - (a) What is FIFO Method? Give illustrations,
 - (b) What are its advantages?
 - (c) What are its disadvantages?
 - (d) What are its implications in the periods of rising and falling prices?
- (6)
 - (a) What is LIFO Method? Give Illustration,
 - (b) What are its advantages?
 - (c) What are its disadvantages?
 - (d) What are its implications in the periods of falling price?
- (7) Compare the FIFO and LIFO methods of stock valuation with special reference to their effect on pricing of issues of goods, valuation of closing stock and profits during a period of rising prices.
- (8)
 - (a) What is Weighted Average Price Method? Give Illustration.
 - (b) What are its advantages?
 - (c) What are its disadvantages?
- (9) Write short notes on the following.
 - (a) Base Stock Method
 - (b) Replacement Price Method
 - (c) Specific Price Method
 - (d) Standard Cost Method
- (10) State how you would treat the following in cost records :
 - (a) Pricing of materials returned to stores and
 - (b) Pricing of materials returned to suppliers.
 - (c) Shortage of Materials during physical verification
- (11) Enumerate the factors which influence the selection of a particular method of pricing the issues of materials from stores.

- (12) How would you deal the following in Cost Accounts :
- (i) Carriage inwards on raw materials.
 - (ii) Cost of handling materials.
- (13) What do you mean by Waste, Scrap, Spoilage and Defectives? How are these treated in Cost Accounts?
- (14) Distinguish between the following:
- (a) Purchase Requisition and Purchase Order
 - (b) Purchase Requisition and Material Requisition
 - (c) Material Requisition and Bill of Materials
 - (d) Material Requisition and Material Transfer Note
 - (e) Material Transfer Note and Material Returned Note
 - (f) Bin Card and Stores Control Card
 - (g) Bin Card and Stores Ledger
 - (h) Perpetual Inventory System and Continous Stock Taking
 - (i) Material Control and Inventory Control
 - (j) Re-order Level and Re-order Quantity
 - (k) FIFO and LIFO
 - (l) Simple Average Method and Weighted Average Method
 - (m) Waste and Scrap
 - (n) Spoilage and Defectives
- (15) Write short notes on the following :
- (a) ABC Analysis
 - (b) Economic Order Quantity
 - (c) Perpetual Inventory System
 - (d) Continous Stock Taking
 - (e) Re-order Level
 - (f) Re-order Quantity
 - (g) Maximum Level
 - (h) Minimum Level
 - (i) Stores Turnover

(II) Practical Questions**Economic Order Quantity**

- (1) Calculate the economic order quantity and the number of orders to be placed in a year in each of the following cases:

	Case (a)	Case (b)	Case (c)	Case (d)
Annual Consumption	1,00,000 units	1,60,000	3600 units	5,20,000
Cost of placing an order	50	200	40	100
Annual Carrying Cost	8%	25%	5%	6.5%
Price per unit of material	20	40	64	200

[Ans: (a) 2500 units, 40, (b) 400 units, 10 (c) 300 units, 12 (d) 200 units 13]

- (2) Calculate the economic order quantity and the numbers of orders to be placed in a year in each of the following cases:

	Case (a)	Case (b)	Case (c)	Case (d)
Quarterly Consumption	5,00,000	1000 units	57,600	650 units
Ordering Cost per order	50	200	40	100
Semi-Annual Carrying Cost 4%	12.5%	2.5%	3.25%	
Price per unit of material	20	40	64	200

[Ans: (a) 2500 units, 40 (b) 400 units, 10 (c) 300 units, 12 (d) 200 units, 13]

[Hint. Calculate Annual Consumption and Annual Carrying Cost]

- (3) Calculate Economic Order Quantity from the following information:

Annual Consumption	1,00,000 units
Carrying Cost	8 of Average Stock
Per unit Cost	20
Ordering Cost	50 per order

[Ans: 2500 units]

- (4) What do you understand by Economic Order Quantity? Find out the EOQ from the following: Annual usage 1,60,000 @ 40 per unit: Cost of placing and receiving one order 200: Annual carrying cost: 25 of inventory value.

[Ans: 400 units]

- (5) A company manufactures a product having monthly demand of 2,000 units. For one unit of finished product 2 kgs of a particular raw material item is needed. The purchase price of the material is 20 per kg. The ordering cost is 120 per order and the holding cost is 10 per annum. Calculate:

- Economic Order Quantity (EOQ), and
- Annual cost of purchasing and storage of the raw material at that quantity.

[Ans: (i) 2400 kg. (ii) 4,806]

- (6) P Ltd. is engaged in the manufacture of Industrial Pumps of standard description. The company used about 75,000 valves per year for its production and the usage is fairly constant at 6,250 valves per month. The valves cost ₹ 1.50 per unit when bought in quantities and the carrying cost is estimated to be 20% a average inventory investment on the annual basis. The cost to place an order and process the delivery ₹ 18. It takes 45 days to receive delivery from the date of an order and a safety stock of 3,200 valves is desired.

You are required to determine:

- (i) The most economical order quantity; and
- (ii) The reorder point

[Ans: EOQ-3000 units, ROL - 12, 575 unit]

- (7) YPS Ltd. has received an offer of quantity discounts on its order of materials as under:

Price per tonne (₹)	Tonnes Nos.
1,200	Less than 500
1,180	500 and less than 1,000
1,160	1,000 and less than 2,000
1,140	2,000 and less than 3,000
1,120	3,000 and above

The annual requirement for the materials is 5,000 tonnes. The ordering cost per order is ₹ 1,200 and the carrying cost is estimated at 20% per annum. You are required to compute the most Economic Order Quantity presenting the relevant information in a tabular form.

[Ans: EOQ-1000 Tonne]

- (8) The purchase department of your organisation has received an offer of quantity discounts on its orders of materials as under:

Price per tonne (₹)	Tonnes
1,400	Less than 500
1,380	500 and less than 1,000
1,360	1,000 and less than 2,000
1,340	2,000 and less than 3,000
1,320	3,000 and above.

The annual requirement of the material is 5,000 tonnes. The delivery cost per order is ₹ 1,200 and the annual stock holding cost is estimated at 20 percent of the average inventory. The purchase Department wants you to consider the following purchase options and advise which among them will be the most economical ordering quantity, presenting the relevant information in a tabular form. The purchase quantity options to be considered are 400 tonnes, 500 tonnes, 1,000 tonnes, 2,000 tonnes and 3,000 tonnes.

[Ans: 1,000 tonnes]

Stock levels

- (9) The following data pertain to material X:

Supply period	4 to 8 months
Consumption rate:	Maximum 600 unite per month
Minimum	100 units per month
Normal	300 units per month
Yearly	3,600 units

Storage costs are 5 cf stock value.

Ordering Costs are B 400 per order.

Price per 3,600 units unit of materials ` 64.

Calculate

- (i) Re-order level;
 (iii) Maximum stock level; and
- (10) In manufacturing its product Z. a company uses two types of raw materials A and B in respect of which the following information is supplied:

One unit of Z requires 10 kg. of A and 4 kg. of B materials. Price per kg. of A material is ` 10 and that of B ` 20 Reoder quantities of A and B materials are 10,000 kg. and 5,000 kg. Re-order quantities of A and B materials are 8,000 kg. and 4,750 kg. respectively. Weekly production varies from 175 units to 225 units fveraging 200 units. Delivery period of A material is 1 to 3 weeks and B material 3 to 5 weeks.

Compute (i) Minimum Stock level of A.

(ii) Maximum Stock level of B.

- (11) X Ltd provides the following information in respect of material 'X':

Supply period	:	5 to 15 days
Rate of Consumption		
Average	:	15 units per day
Maximum	:	20 units per day
Yearly	:	5,000 units

Ordering costs are ` 20 per order

Purchase price per unit is ` 50

Storage costs are 10 of unit value

Compute (i) Reorder level (ii) Minimum Level (iii) Maximum Level

[Ans: (i) 300 units (ii) 150 units (iii) 450 units Hint Re-order Quantity 200 units]

- (12) From the following information, calculate (a) Economic order quantity and (b) Total Annual Carrying and Ordering cost at that quantity (c) Re-order level, (d) Minimum level, (e) Maximum level, (f) Average Stock (g) Danger level

Rate of Usage: 5 kg. per unit of finished product. Weekly production of finished product varies from 50 units to 150 units

Purchase price of input unit ₹ 20.

Annual carrying cost 6.5

Ordering cost per order ₹ 100

Lead time : 3 weeks to 7 weeks, For emergency purchase 2 weeks.

[Ans: (a) 2,000 units (b) ₹ 2,600 (c) 5,250 units (d) 2,750 units (e) 6,500 units (f) 4,625 units or 3,750 units (g) 1,000 units]

Preparation of Stores Ledger

- (13) From the following information prepare Stores Ledger Account per FIFO method:

Jan.	1	Opening Stock	200 pieces	@ ₹ 2 each
	5	Purchases	1000 pieces	@ ₹ 2.20 each
	10	Purchases	150 pieces	@ ₹ 2.40 each
	20	Purchases	180 pieces	@ ₹ 2.50 each
	2	Issues	150 pieces	
	7	Issues	100 pieces	
	12	Issues	100 pieces	
	28	Issues	200 pieces	

[Ans: Stock 80 units @ ₹ 2.50]

- (14) Prepare Stores Ledger as per First In First Out Method of Pricing of Issue of Materials:

			Units	Rate
April	1	Opening balance	1,000	₹ 5
	3	Received	5,000	₹ 6
	4	Issued	3,000	
	6	Issued	2,000	
	8	Received	3,000	
	9	Issued	2000	₹ 5

The weekly physical stock taking on April 7, showed as shortage of 100 units.

[Ans: Stock 1,900 units @ ₹ 5 of ₹ 9,500]

(15) Prepare a Store Ledger Account on the basis of LIFO method.

Jan	1	Opening Stock	220 units @ ` 9.00 each
	4	Purchased	540 units @ ` 9.10 each
	5	Issued	280 units
	10	Purchased	180 units @ ` 8.90 each
	16	Issued	160 units
	18	Purchased	340 units @ ` 10.20 each
	25	Issued	200 units

[Ans: Stock 640 units for ` 5,952]

(16) The following are the figures about the receipt and issue of materials in Z Ltd. during January:

Jan.	1	Received	500 units @ ` 2.00 each
	18	Received	350 units @ ` 2.10 each
	19	Issued	600 units
	24	Received	600 units @ ` 2.20 each
	25	Issued	450 units
	26	Received	500 units @ ` 2.30 each
	29	Issued	510 units

(17) From the following receipts and issues of material during the month of January, prepare stores ledger account according to LIFO method:

Jan.	1	Received	250 units @ ` 10 per unit.
	5	Received	250 units @ ` 11 per unit.
	8	Issued	300 units.
	10	Received	400 units @ ` 12 per unit.
	13	Issued	250 units.
	20	Received	100 units @ ` 11 per unit.
	28	Issued	400 units.

On 1st January, stocking hand was 200 units valued @ ` 9 per unit.

[Ans: Stock 200 units @ ` 9 and 300 @ ` 10, Total ` 4 800]

(18) Prepare Stores Ledger from the following using Weighted Average method of Pricing:

Feb	1.	Opening Stock 200 units costing ` 2,000			
		Receipts		Issues	
	3	300 units @ ` 12	Feb	2	100 units
	5	100 units @ ` 16		4	200 units
	8	200 units @ ` 13		7	200 units
	9	100 units			

The physical verification on 6th February, revealed a shortage of 10 units.

[Ans: Stock 290 units @ ` 13]

(19) The following transactions took place in respect of a material item:

Date		Receipts Quantity (units)	Issue Rate (₹)
March	2	200	2.00
	10	300	2.40
	15	250	
	18	250	2.60
	20	200	

Prepare a priced Ledger Sheet, pricing the issues at-

- (a) Simple average rate:
(b) Weighted average rate.

[Ans: Stock (a) 300 units or ₹ 720, (b) 300 units of ₹ 726]

(20) The Stores Ledger of a manufacturing company recorded for material R-17 for April the following information:

Date		Receipts		Issues	
		Qty. (Units)	Value (₹)	Qty. (Units)	Value (₹)
April	4	100	160		
	6	40	120		
	12			70	140
	16	50	100		
	20	40	240		
	26			90	270

- (a) State the method of pricing that was employed in the Stores Ledger, and
(b) Complete the Stores Ledger as per the method followed.

[Ans: (a) Weighted Average Method (b) Stock 70 units @ ₹ 726 @ 3]

(III) [A] Objective Questions

(I) State with Reasons Whether the Following Statements are True or False.

- Purchase order is an order to Stores Department to issue materials.
- EOQ is that quantity which is most economical to order.
- EOQ is also called as re-order quantity.
- Investment in inventory should be optimised by maintaining low stock levels.
- Direct materials is the materials which can be directly related to the cost centre.
- The stock in hand may exceed the maximum stock level.

- (7) Stock levels are fixed up for inventory control.
- (8) In no case, material should go below minimum level.
- (9) The objective of scientific purchasing is to procure materials of good quality.

[Ans. True: (2, 3, 4, 5, 7). False: (1, 6, 8, 9)]

(II) Match the Following

Group A

- (1) Scientific Purchasing
- (2) Purchase Order
- (3) Delivery Note
- (4) Maximum Level
- (5) Minimum Level

Group B

- (i) A request to supply
- (ii) Purchasing materials of good quality
- (iii) Acknowledgement of goods delivery
- (iv) The level fixed beyond the stock cannot be stored
- (v) The level below which inventory is not allowed to go

[Ans: (1 - ii), (2 - i), (3 - iii), (4 - iv), (5 - v)]

(III) Multiple choice questions. Select the right answer.

- (1) The most important element of cost is
 - (i) Material
 - (ii) Labour
 - (iii) Overheads
- (2) The function of Purchase Department is
 - (i) Purchase of materials
 - (ii) Sale of scrap
 - (iii) Production of goods
- (3) Purchase order is a
 - (i) Request to the supplier to supply materials
 - (ii) Request to the supplier to verify the stock
 - (iii) Acknowledgement of goods
- (4) Goods received note is normally prepared in
 - (i) Six copies
 - (ii) Five copies
 - (iii) Four copies
- (5) Stock levels are fixed to
 - (i) Control inventory
 - (ii) Purchase material
 - (iii) Control cost of scrap

- (6) Maximum level indicates
 - (i) Maximum inventory to be kept
 - (ii) Minimum inventory to be kept
 - (iii) Average inventory to be kept
- (7) EOQ is
 - (i) Economical size of order
 - (ii) Economical size of production
 - (iii) Economical size of production
- (8) EOQ is also known as
 - (i) Economic size of order
 - (ii) Economic order to be placed
 - (iii) Maximum level of stock to be fixed
- (9) Minimum inventory level is
 - (i) Minimum stock to be maintained
 - (ii) Maximum stock to be maintained
 - (iii) Average stock to be maintained

[Ans. (1 - i), (2 - i), (3 - i), (4 - i), (5 - i), (6 - i), (7 - i), (8 - i), (9 - i)]

(III) [B] Objective Questions

(I) State whether the following statements are true or false.

- (1) FIFO Method of pricing of materials results in higher profits.
- (2) Valuation of closing stock is the same under FIFO and LIFO Method.
- (3) Bin Card is the same as stores ledger.
- (4) LIFO and Market Price Method are not same.
- (5) If a company wants to maximise net income, it would select FIFO Method.
- (6) LIFO Method of pricing issues is useful during the period of inflation.
- (7) Weighted Average Method of pricing issues involves adding different prices and dividing by the number of such prices.
- (8) Under FIFO Method, materials purchased first are deemed to be issued last.
- (9) Under LIFO Method, materials purchased last are deemed to be issued first.

[Ans. True: (1,4, 5, 6, 9). False: (2, 3, 7, 8)]

(II) Match the Following**Group A**

- (1) FIFO
- (2) LIFO
- (3) Weighted Average
- (4) Stores Ledger
- (5) FIFO

Group B

- (i) Last In First Out
- (ii) Average of the prices
- (iii) Movement of materials
- (iv) First In First Out
- (v) Cost is understated
- (vi) Shows real income in times of rising prices

[Ans. (1 - iv), (2 - i), (3 - ii), (4 - iii), (5 - vi)]

(III) Multiple Choice Questions. Select the Right Answer.

- (1) Issue of materials during a period of time is priced at the latest purchase cost under
 - (i) FIFO
 - (ii) LIFO
 - (iii) Simple Average
 - (iv) Weighted Average
- (2) Stores Department maintains a record in which a separate folio is maintained for each item
 - (i) Stores Ledger
 - (ii) Bin Card
 - (iii) Stock Register
 - (iv) Bill of Materials
- (3) In times of rising prices, the pricing of issues will be at a more recent current market prices in
 - (i) FIFO
 - (ii) Weighted Average
 - (iii) LIFO
 - (iv) Simple Average
- (4) The inventory is valued at the most recent market prices and it is near to the valuation based on replacement cost in
 - (i) FIFO
 - (ii) LIFO
 - (iii) Weighted Average
 - (iv) Base Stock Method
- (5) According to the method of pricing, issues are close to current economic values
 - (i) UFO
 - (ii) FIFO
 - (iii) Highest In First Out Price
 - (iv) Weighted Average Price

- (6) In the method of pricing, cost lag behind the current economic values
- (i) LIFO
 - (ii) FIFO
 - (iii) Replacement Price
 - (iv) Weighted Average Price
- (7) When price fluctuate widely, the method that will smooth out the effect fluctuations is
- (i) Simple Average
 - (ii) Weighted Average
 - (iii) FIFO
 - (iv) LIFO
- (8) In the method, the charge to production is not at actual cost
- (i) Weighted Average
 - (ii) Standard Price
 - (iii) Replacement Price
 - (iv) All of these

[Ans: (1 – ii), (2 – i), (3 – iii), (4 – i), (5 – i), (6 – ii), (7 – ii), (8 – iv)]

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