

[This question paper contains 4 printed pages.]

Your Roll No.

3197

J

MEM (PE)

Paper—ME.606

MATERIALS MANAGEMENT

Time : 3 Hours

Maximum Marks : 100

(Write your Roll No. on the top immediately
on receipt of this question paper.)

Attempt any five questions.

Assume suitable missing data, if any.

1. (a) Material Manager is presently processing four items
with the following details : 6

Item	Annual Demand (Units)	Unit Price (Rs./unit)	No. of Orders/Year
1	8,000	5	3
2	5,000	8	2
3	900	10	3
4	500	4	4

Use exchange curve to examine if his procedure is rational. Outline the strategies available for rationalization if required.

[P.T.O]

- (b) Briefly describe the optimal strategies for management of slow moving expensive consumable spares. 7
- (c) Show that under estimation is costlier than over-estimation by parameter estimation. 7
2. (a) Explain how the sales can be increased by the use of computers in stores departments. 6
- (b) What are the advantages and disadvantages of centralized material management system ? 6
- (c) The purchase manager of a distillery company is considering three sources of supply for oak barrels. The first supplier offer any quantity of barrels at Rs. 150 each. The second supplier offers barrels in lots of 150 or more at Rs. 125 per barrel. The third supplier offers barrels in lots of 250 on more at Rs. 100 each. The distillery uses 1500 barrels a year at a constant rate. Carrying costs are 40 percent and it costs the purchasing agent Rs. 400 to place an order. Calculate the total annual cost for the order placed to the probable supplier and find out the supplier to whom orders should be placed. 8
3. (a) A hardware store processes and sells hardware items. The following information is available : 8
- | | |
|----------------------|--------------------------------|
| Expected annual sale | 10,000 units |
| Ordering cost | Rs. 800 per order |
| Holding cost | 10% of average inventory value |

The item can be purchased in the following schedule :

<i>Lot size</i>	<i>Unit price (Rs.)</i>
1—999	22.00
1000—1499	20.00
1500—1999	19.00
2000 and above	18.50

Determine the order size.

- (b) Define "Material Handling". Explain why material handling is very important in foundry ? 6
- (c) Explain the duties and rights of seller and buyer. 6
4. (a) Describe in detail about the various characteristics of a good management information system. 7
- (b) What are the reasons for longer lead times when purchasing internationally ? 7
- (c) What are the indicators of low material productivity ? 6
5. (a) What is the need and rationale of physical inventory verification ? 6
- (b) Explain MRP. Under what conditions MRP system is useful in an industry? 6
- (c) Derive the expression of purchasing an expensive spare while importing an equipment with salvage value. 8

6. (a) Explain lot size model with Planned Backlogging and calculate optimum system cost, economic lot size, stock level and backlogging level. 10

- (b) Consider the following data :

Unit cost	Rs. 100
Order cost	Rs. 160
Inventory carrying cost	Rs. 20
Back order cost	Rs. 10
Annual demand	1,000 units

Compute the following :

- (i) Minimum cost order quantity
 - (ii) Time between orders
 - (iii) Maximum number of back orders
 - (iv) Maximum inventory level
 - (v) Overall annual cost. 10
7. Write short notes on any *four* of the following : 20
- (a) EOQ under budget constraint
 - (b) Types and kinds of inventory
 - (c) Inventory management of perishable commodities
 - (d) Waste management system
 - (e) Colour coding of ABC categories.