



INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Post Graduate Diploma in Materials Management

Dec 2012

Graduate Diploma in Materials Management

PAPER No. 10

INVENTORY MANAGEMENT

Date : 13.12.2012

Max. Marks :100

Time : 10.00a.m. to 1.00 p.m.

Duration : 3 Hrs.

Instructions:

1. The question paper is in three parts A, B & C.
 2. Part A is compulsory. Each question carries one mark. Total : 32 Marks
 3. In Part B, answer 3 questions out of 5. Each question carries 16 marks.Total : 48 Marks
 4. Part C is a case study with sub questions and it is compulsory. It carries 20 marks.
 5. Use of calculator is allowed wherever necessary.
 6. Graph sheets can be used wherever necessary.
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PART – A

1 x 32 = 32 Marks

Q1. State TRUE or FALSE

1. Ordering cost per PO is the total cost incurred for ordering divided by the total value of materials ordered
2. Materials awaiting shipping is called as Work In Progress inventory
3. Inventory carrying cost is the cost of materials including storage cost
4. MRO inventory stands for Maintenance, repair and operating supplies
5. Economic order quantity is the purchase of materials at lowest cost
6. Fixed time ordering system is the system of review and ordering at fixed time periods
7. Stock verification is an important activity in warehousing operations
8. Reorder point is the sum of safety stock + consumption during lead time of procurement

Q2. Fill in the Blanks

1. _____ is the tool to promote the use of minimum number of parts for maximum number of purposes
2. _____ Schedule is one of the pre-requisite inputs for making MRP work

3. _____ are such that the demand cannot be calculated accurately from the production schedule
4. _____ is the method of classification based on the stock value of the items
5. _____ can be expanded as Manufacturing Resource Planning
6. In ABC classification of materials "A" accounts for approx. _____ of the value of consumption
7. VMI inventory helps to _____ the supply chain
8. _____ stock helps to smoothen the consumption variations

Q3. Expand the following abbreviations (1 mark each) - 8 Marks

1. MBOM 2. MPS 3. FIFO 4. EOQ
5. ROCE 6. SKU 7. ERP 8. GIT

Q4. Match the following in column A with those in column B

- | A | B |
|---------------------------------|--------------------------------|
| 1. Fork Lift | A. Demand forecasting method |
| 2. Exponential smoothing | B. Shelf life |
| 3. Optimization of inventory | C. MRP system |
| 4. PQR Classification | D. Economic order quantity |
| 5. Determine requirements | E. Selective Inventory control |
| 6. Ordering cost = Storage cost | F. Container |
| 7. HML analysis | G. Supplier Managed Inventory |
| 8. Unit load | H. Material Handling System |

PART – B

Write any three (3) of the following questions – 16 marks each (48 Marks)

- Q5. What are the four types of inventory? Explain each of it in detail.
- Q6. What are the different types of requirement forecasting techniques? Write briefly on each
- Q7. What is the need for inventory classification? Write in detail on at 6 of them
- Q8. Draw the block diagram of the MRP system. Explain the purpose of the MRP system
- Q9. What are the different types of inventory carrying costs? Explain each of them in detail

PART - C

Write all the following questions – 4 marks each (20 Marks)

1. Calculate the inventory carrying cost as a percentage of inventory value **(2 Marks)**
Calculate the ordering cost for the company with the following data. **(2 Marks)**
No of purchase orders issued – 2800, wages of purchase personnel – Rs. 4,98,000/=,
cost of purchase order follow up – Rs. 1,02,000/=, purchase department overheads –
Rs. 50,000/=, Cost of inspection – Rs. 80,000/=, cost of storage – Rs. 2,50,000/=,
Average value of inventory – Rs. 25,00,000/=, Cost of material handling – Rs. 30,000/=,
Material losses – Rs. 25,000/= and Interest rate is 15%
2. The annual demand for an item is 28000 units per annum at a unit cost of Rs. 50 per unit each. Using the information provided in the above Calculate the Economic Order Quantity. **(4 Marks)**
3. A company's past demand data for one of its cars is given below.
Calculate demand forecast using different techniques using the data provided
Period 1 - 1300, period 2 - 1600, period 3 - 2100, period 4 - 1300, period 5 - 1400,
period 6 - 2200, period 7 - 1600, period 8 - 1800, period 9 - 2200. You are required to
make the projections for the next period 10 based on
 - (a) The last period method **(1 Mark)**
 - (b) The simple average method **(1 Mark)**
 - (c) The weighted average model with weights of 2 for periods 3,6 and 9 **(1 Mark)**
 - (d) The moving average method using average for 3 month period. **(1 Mark)**

4. An item has the following consumption pattern during the past 12 periods is 80, 60, 110, 90, 110, 90, 80, 90, 100, 90, 90, 80. The lead time of procurement for this item is 3 months. Using 1σ (sigma) as safety stock. Calculate the reorder point level. (4 marks)
5. Annual demand of an item is 60,000 units. The cost of placing a purchase order works out to Rs. 100 per order. The opening inventory for this item was 1000 units and the closing inventory for this item was 1000 units. The cost of storage of these items is @ Rs. 20 per unit. The cost of the item is Rs. 30 per unit. Find out
- (a) The average inventory of the item **(2 Mark)**
 - (b) The EOQ for this item **(2 Marks)**
