| **ET-581(B)**

B.Tech. Civil (Construction Management)

Term-End Examination

June, 2011

00619

ET-581(B) : INVENTORY AND STORES MANAGEMENT

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any five of the following questions. Use of calculator is permitted. Assume, missing data, if any.*

1. (a) Elimination of waste is a vital part of JIT. Identify some sources of waste and discuss how they may be eliminated. **7+7**

    (b) Battery wholesale Inc. purchases batteries for Rs. 140 each and it costs Rs. 110 to process an order. The company sells about 12,000 of a particular type of battery per year at a uniform rate. The company is open 5 days a week for 52 weeks per year with the exception of six holidays a year. The order lead time is 3 days, and the company wants to have an average of 2 days sales on hand as safety stock when a new order is scheduled to arrive. The holding cost is eliminated to be 24 percent of the item cost per year.

    (i) Determine the EOQ

    (ii) Determine the expected level of the maximum inventory.

    (iii) Determine the reorder level

    (iv) Determine the average inventory level.

2. (a) What do you understand by Inventory 7+7
Control ? Explain the purpose of maintaining inventory in any production unit.

(b) In the assembly of telephone sets, a particular item is required at the rate of 500 numbers per day. The same item can be produced from a manufacturing shop at the rate of 1500 numbers per day. It costs Rs. 400 for shop set-up to start a production run. The inventory carrying cost amounts to Rs. 2/- per unit per annum. What is the optimal batch size ? Assume 250 working days in a year. How frequently should the production run be undertaken and what should be the length of each run ?

3. (a) Describe the factors affecting inventory 7+7
control in an organisation. What do you mean by requisition ? How will you resolve the problem of pending requisition.

(b) Item X is a standard item stocked in a company's inventory of component parts. Each year the firm, on a random basis, uses about 2000 of them X, which costs Rs. 25 each. Storage cost, which include insurance and cost of capital, amount of Rs. 5 per unit of average inventory. Everytime an order is placed for additional items of X it cost Rs. 10.

(i) Whenever item X is ordered, what should be the order size be ?

(ii) What is the annual cost for ordering item X ?

(iii) What is the annual cost for storing item X ?

4. (a) What are the different records maintained **7+7** in the store ? Describe briefly the different methods of checking the stock in the store.

   (b) A company produces 4800 parts per day and sells them at approximately half of that rate. The set up cost is Rs. 1000 and carrying cost is Rs. 5 per unit. The annual demand is 4,80,000 units. Find :

   (i) Optimal lot size

   (ii) Number of production runs that should be scheduled per year

   (iii) Length of each production run

5. (a) Name the different types of inventory **7+7** required for a big construction project. Identify and explain the types of costs that are involved in an inventory system. What is the difference between a continuous review and a periodic review inventory system ?

(b) An item has annual consumption of 10600 units per year. The ordering cost is Rs. 30 per order and unit cost of the items is Rs. 2. The inventory holding cost is estimated as 20% of average value of the inventory. The inventory consumption rate is 20 units per day. While the arrival of items is gradual, at a rate of 25 units per day. Find the economic order quantity.

6. (a) What are the two uncertainties encountered in managing inventories and what is usually done to compensate for those uncertainties ?   7+7

(b) The demand of bearing produced by a company, is uniform at 25 units per day. It is estimated that each time a production is set, the company incurs Rs. 60 as fixed cost. Production cost is Rs. 4 and carrying cost is Rs. 1 per unit per day. If the shortage cost is Rs. 6 per bearing per day, find the frequency of production run and the optimal production size.