Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014**

**Subject code: 1724901** **Date: 16-06-2014**

**Subject Name: Construction Project Management-II**

**Time: 02:30 pm - 05:00 pm** **Total Marks: 70**

**Instructions:**

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

**Q.1** **(a)** Give Difference Between CPM and PERT **07**

**(b)** What is Bar chart and Mile stone chart? Enlist advantages and limitations of bar chart. **07**

**Q.2** **(a)** Explain the following terms **07**

a) Critical activity
b) Dummy activity
c) Total float
d) Free float

**(b)** Draw the network and determine the critical path for the given data Also find total float **07**

| Activity | 1-2 | 1-3 | 1-4 | 3-4 | 2-6 | 3-6 | 3-5 | 4-5 | 5-6 |
|---|---|---|---|---|---|---|---|---|---|
| Time(Weeks) | 4 | 3 | 1 | 2 | 4 | 5 | 6 | 2 | 2 |

**OR**

**(b)** Determine the EOQin units, Total Variable cost, EOQ in Rs, EOQ in years of supply and Numbers of orders per year for the material-A and material-B. Consider Order cost is Rs. 5 per order and holding cost is 10% of unit price. **07**

| Material | A | B |
|---|---|---|
| Annual Demand in Units | 800 | 400 |
| Unit Price (Rs.) | 0.02 | 1.00 |

**Q.3** **(a)** What is EOQ? Explain any EOQ model with suitable example and graph. **07**

**(b)** What is purchase management? Give principle of purchase management and its objectives and functions. **07**

**OR**

**Q.3** **(a)** Explain the following terms **07**

a) Rolling resistance
b) Coefficient of traction
c) Tractive Efforts
d) Rim pull bar
e) Drawbar pull

**(b)** Discuss scientific planning of equipment for construction project. Also note on forecasting equipment requirement. **07**

**Q.4** **(a)** What is inventory management? Give the type of inventory and Explain its function. **07**

**(b)** Define personnel management and explain its functions in details. **07**

**OR**

**Q.4** **(a)** Why updating of project network is essential? Discuss the factor affecting work scheduling. **07**

**(b)** Explain the frequency distribution curve with various time estimates used in PERT. **07**

**Q.5** **(a)** Find the critical path and standard deviation for the following project **07**

| Activity | Estimated duration (weeks) | | | Predecessor |
|---|---|---|---|---|
| | Optimistic | Most likely | Pessimistic | |
| A | 3 | 6 | 9 | None |
| B | 2 | 5 | 8 | None |
| C | 2 | 4 | 6 | A |
| D | 2 | 3 | 10 | B |
| E | 1 | 3 | 11 | B |
| F | 4 | 6 | 8 | C,D |
| G | 1 | 5 | 15 | E |

**(b)** A building material manufacturing company uses 50000 units of an item each costing Rs.1.20. Each order costs Rs. 45 and inventory carrying charges 15% of annual average inventory value **07**

(a) Find EOQ

(b) If the company operates 250 days a year, the procurement time is 10 days and safety stock is 500 units. Find the reorder level, Maximum, Minimum, and average inventory values.

**OR**

**Q.5** **(a)** Write short notes on: **07**

(1) Fulkersonôs rules of numbering the events

(2) Various networking techniques used in construction management

**(b)** Prepare a Bar chart by proposing minimum seven typical tasks of construction project and respective times to such tasks. Assume suitable data. **07**

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