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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(CE) (2011 Onwards) (Sem.-4)**  
**CONSTRUCTION MACHINERY AND WORK MANAGEMENT**

Subject Code : BTCE-402

Paper ID : [A1172]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**1. Write short notes on :**

- a) Difference between activity and event
- b) Limitations of bar charts
- c) Successor event and predecessor event
- d) Work breakdown structure
- e) Total float
- f) Updating process
- g) Critical path
- h) Compare PERT and CPM
- i) Economic life of equipment
- j) Types of mixers

**SECTION-B**

2. What do you mean by frequency distribution? How do you determine
  - i) most likely time
  - ii) variance
  - iii) standard deviation from frequency distribution?
3. Discuss various rules for providing dummies in a network. What are redundant dummies?
4. Draw the network, for following ten events, with the following interrelationships:

Event	1	2	3	4	5	6	7	8	9	10
<b>Immediate predecessor</b>	-	1	2	2	2	3,5	3,4	3,7	7	3,6,8,9

5. What do you mean by updating? Why it is essential?
6. List various excavating equipments used in civil engg projects. Explain clamshell in detail with neat sketches.

**SECTION-C**

7. Draw the flow diagram and explain the working of hot mix bitumen plant.
8. A maintenance project consists of number of jobs. Their normal duration and costs along with crash costs and duration are given below. Find out the optimum project cost and time.

Job	Normal duration ( weeks)	Normal Cost(Rs.)	Crash Duration (weeks)	Crash Cost (Rs.)
1-2	7	6000	4	13500
1-3	9	3000	6	7500
2-4	5	5000	2	8000
2-4	6	4000	4	14000
3-4	6	4000	4	10000

Indirect costs are Rs. 2000/- per day.

9. From the data given in the table for a CPM project draw the network and determine critical path based on total float.

Job	1-2	2-3	2-5	2-4	4-5	3-6	5-6	5-7	6-7	4-8	4-10	8-10	7-9	9-10	6-9
<b>Time (Days)</b>	3	6	5	8	2	11	10	5	3	9	4	3	8	2	11