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Total No. of Questions: 09

Total No. of Pages: 02

B. Tech. (CE) (Sem. 4)

**CONSTRUCTION MACHINERY & WORKS MANAGEMENT**

Subject Code: BTCE-402

Paper ID: A1172

Time: 03 Hrs.

Max. Marks: 60

**INSTRUCTIONS 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.

1.

- a) How does milestone chart differ from bar chart?
- b) Differentiate between the terms total float and free float
- c) What is meant by the 'optimistic time estimate'?
- d) What is a dummy? Where a dummy should be used?
- e) Define the term 'line of balance'
- f) Differentiate between-activity and event.
- g) What is a life-cycle curve? What are its uses?
- h) What is meant by resource smoothing?
- i) How do you select the size of a power shovel?
- j) Compare between Drag line and Clam shell in Cycle time.

**SECTION B**

2. What are the objectives of construction planning?
3. What are the different types of network scheduling? Give examples.
4. A project takes 25 days along the critical path and has standard deviation of 5 days. What is the probability of completing the project within
  - (i) 30 days
  - (ii) 25 days?
5. Draw a typical cost-duration curve and show on it the optimum cost and optimum duration. Explain the importance of the curve.
6. With neat sketches explain the working of a dragline

### SECTION C

7. The following table gives the activities in a construction project:

Activity	1-2	1-3	2-3	2-4	3-4	4-5
Duration (days)	20	25	12	11	7	10

- i) Draw the network for the project
  - ii) Find the critical path
  - iii) Find the float, total float and independent float for each activity
8. For the construction of a health centre building, the following activities are to be performed:

Activity	Initial and final node	Estimated duration (days)
p	(1,2)	2
q	(2,3)	3
r	(2,4)	5
s	(3,5)	4
t	(3,6)	1
u	(4,6)	6
v	(4,7)	2
w	(5,8)	8
x	(6,8)	7
y	(7,8)	4

- i) Draw a network for the project
  - ii) Calculate earliest and latest activity times for each activity
  - iii) How much slack do activity (3, 5), (4, 6) and (7, 8) have?
  - iv) Which of the activities are critical?
  - v) If activity (2, 3) were to take 6 days instead of 3 days, how much the project finish date be delayed?
9. Write short notes differentiating the following:
- i) Earliest start time and earliest finish time
  - ii) Normal duration and Crash duration
  - iii) Back hoe and bull dozer
  - iv) Belt conveyor and aerial ropeways