Roll No. | | | | | | | | | | | |

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 t any FOUR questions.**
3. **Section C contains THREE questions carrying TEN marks each and students have 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 showel?
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

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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

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