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Total No. of Pages : 2

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B.Tech (CE) (Sem.-5)

CONSTRUCTION MACHINERY AND WORKS MANAGEMENT

Subject Code : CE-301

Paper ID : [A0612]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY.
2. Attempt any FOUR questions from SECTION-B.
3. Attempt any TWO questions from SECTION-C.

SECTION-A (10 × 2 = 20 Marks)

1. (a) Define the terms: total float, free float and share float.  
(b) Define activity and event in network development.  
(c) What is a milestone chart?  
(d) What is meant by 'critical path' in CPM?  
(e) What is a dummy? Where should a dummy be used?  
(f) Define the term 'line of balance' in a construction project.  
(g) Differentiate between PERT and CPM.  
(h) What is meant by resource smoothing?  
(i) How do you select the size of a power shovel?  
(j) What type of equipment will you use for :  
(i) Lifting and lowering of Hume pipes  
(ii) Conveying mixed concrete for bridge construction.

SECTION-B (4 × 5 = 20 Marks)

2. What are the factors affecting job layout? How do you prepare a job layout?

3. What is meant by partial restraint in a network and give the logic of the network diagram?
4. Explain the working of Clamshell.
5. State the purposes of scheduling in a construction project. Explain the different methods of scheduling.
6. Draw a typical cost-duration curve and show on it the optimum cost and optimum duration. Explain the importance of the curve.

SECTION-C (2 × 10 = 20 Marks)

7. The following activities are identified with respect to a project. Draw the network for the project and find out the critical path. Find also the free float, total float and independent float for each activity :

Activities	Duration (weeks)	Predecessors
P	1	None
Q	3	P
R	1	P
S	3	Q,R
T	5	S
U	3	S
V	4	U
W	3	V

8. (a) "Modern construction works have lifted the role of project planning and control to a very high degree". Comment with typical examples.  
(b) Differentiate between 'standard equipment' and 'special equipment'. What are occasions in which specific equipment are required?
9. Write short notes:  
(a) Fulkerson's rule  
(b) Resource scheduling  
(c) Normal duration and Crash duration  
(d) Job planning of a tunnel