

Code: 20HS7701E

**IV B.Tech - I Semester – Regular Examinations - DECEMBER 2023**

**CONSTRUCTION MANAGEMENT**  
(Common for ALL BRANCHES)

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.

2. All parts of Question must be answered in one place.

BL – Blooms Level

CO – Course Outcome

			BL	CO	Max. Marks
<b>UNIT-I</b>					
1	a)	What are the principles of planning? Discuss the role of planning at different stages of a project.	L2	CO1	7 M
	b)	What are the charts? Enumerate the various types of charts with graphical representation?	L2	CO1	7 M
<b>OR</b>					
2	a)	What are the methods of scheduling? Explain with the help of a suitable example, the method of preparing a bar chart.	L2	CO1	7 M
	b)	Explain in detail about the functions and limitations of PERT and CPM techniques.	L2	CO1	7 M
<b>UNIT-II</b>					
3	a)	Draw a PERT network, with the three estimates of each activity. Determine (i) critical path and its standard deviation. (ii) Probability of completion of project in 40 days. (iii) Time duration that will provide 95% probability of its completion in time.	L2	CO2	7 M

			<b>Activity</b>	<b>t<sub>o</sub></b>	<b>t<sub>L</sub></b>	<b>t<sub>p</sub></b>			
			1-2	2	5	8			
			2-3	8	11	20			
			3-4	0	0	0			
			2-4	4	7	16			
			2-5	4	9	20			
			4-6	7	10	13			
			5-6	3	7	13			
			3-7	3	5	13			
			6-7	2	3	10			
			7-8	2	4	6			
	b)	Discuss the different types of floats involved in CPM.					L2	CO2	7 M

**OR**

4	a)	A project has the following schedule. Construct the PERT network and compute the earliest start time for each activity					L2	CO2	7 M																					
		<table border="1"> <thead> <tr> <th>Activity</th> <th>Time (weeks)</th> <th>Predecessors</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>3</td> <td>None</td> </tr> <tr> <td>B</td> <td>2</td> <td>A</td> </tr> <tr> <td>C</td> <td>4</td> <td>A</td> </tr> <tr> <td>D</td> <td>5</td> <td>B</td> </tr> <tr> <td>E</td> <td>3</td> <td>C</td> </tr> <tr> <td>F</td> <td>6</td> <td>D</td> </tr> </tbody> </table>	Activity	Time (weeks)	Predecessors	A	3	None	B	2	A	C	4	A	D	5	B	E	3	C	F	6	D							
Activity	Time (weeks)	Predecessors																												
A	3	None																												
B	2	A																												
C	4	A																												
D	5	B																												
E	3	C																												
F	6	D																												
	b)	Draw a PERT network for the following and find expected mean time, variance and SD of the project					L2	CO2	7 M																					
		<table border="1"> <thead> <tr> <th>Activity</th> <th>Three-time estimates (days)</th> </tr> </thead> <tbody> <tr> <td>1-2</td> <td>6-9-18</td> </tr> <tr> <td>1-3</td> <td>5-8-17</td> </tr> <tr> <td>2-4</td> <td>4-7-22</td> </tr> <tr> <td>3-4</td> <td>4-7-16</td> </tr> <tr> <td>4-5</td> <td>4-10-22</td> </tr> <tr> <td>2-5</td> <td>4-7-10</td> </tr> <tr> <td>3-5</td> <td>2-5-8</td> </tr> </tbody> </table>	Activity	Three-time estimates (days)	1-2	6-9-18	1-3	5-8-17	2-4	4-7-22	3-4	4-7-16	4-5	4-10-22	2-5	4-7-10	3-5	2-5-8												
Activity	Three-time estimates (days)																													
1-2	6-9-18																													
1-3	5-8-17																													
2-4	4-7-22																													
3-4	4-7-16																													
4-5	4-10-22																													
2-5	4-7-10																													
3-5	2-5-8																													

### UNIT-III

5	a)	The indirect cost of the project is Rs 2000 per week. Determine the optimum duration of the project and the corresponding minimum cost. Draw the least cost network			L2	CO3	7 M		
		<b>Activity</b>	<b>Normal duration (weeks)</b>	<b>Normal cost (Rs)</b>				<b>Crash duration (weeks)</b>	<b>Crash cost (Rs)</b>
		1-2	4	4000				2	12000
		2-3	5	3000				2	7500
		2-4	7	3600				5	6000
3-4	4	5000	2	10000					
	b)	Explain in detail about the allocation of resources.			L2	CO3	7 M		

### OR

6	a)	What is resource leveling? What are the advantages and disadvantages of resource leveling? Summarize the differences between resource leveling and resource smoothing.	L2	CO3	7 M
	b)	Draw a typical cost-duration curve and show on it optimum duration and minimum project cost.	L2	CO3	7 M

### UNIT-IV

7	a)	Describe the top qualities of a construction project manager.	L2	CO4	7 M
	b)	What is construction management? Discuss the scope of construction management in civil engineering.	L2	CO4	7 M

### OR

8	a)	What are the safety measures? What is the importance of safety measures in construction industry?	L2	CO4	7 M
	b)	Compare organization and management.	L2	CO4	7 M

**UNIT-V**

9	a)	What is line organization? Compare line organization and functional organization.	L2	CO5	7 M
	b)	Discuss the major problems faced by labor market in India.	L2	CO5	7 M

**OR**

10	a)	What is minimum wage under Minimum Wages Act, 1948? Discuss the amendments to Minimum Wages Act, 1948.	L2	CO5	7 M
	b)	Describe the merits and demerits of line and staff organization.	L2	CO5	7 M