Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering - SEMESTER - VI EXAMINATION - WINTER 2025

Subject Code: 3164014 **Date: 21-11-2025**

Subject Name: Construction Project Planning and Management

Time: 02:30 PM TO 05:00 PM **Total Marks: 70**

Instructions

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	What are the main objectives of construction management?	**03**
	(b)	Differentiate CPM and PERT methods.	**04**
	(c)	Explain different types of project scheduling techniques in detail.	**07**
Q.2	**(a)**	Explain the Responsibility Matrix?	**03**
	(b)	What is the significance of planning in project management?	**04**
	(c)	Define Work Breakdown Structure (WBS). Write advantages of using WBS. Explain Work Breakdown Structure (WBS) of compound wall.	**07**

OR

	(c)	Crash the project with the activities in the table by 2 days with minimum costing. The indirect cost for the project is 1200 Rs per day.	**07**

Activity	Normal Time (days)	Normal Cost (Rs)	Crash Time (days)	Crash Cost (Rs)
1–2	6	12,000	3	15,000
1–3	4	8,000	2	9,200
2–4	5	10,000	2	13,000
3–4	6	9,000	3	11,400
4–5	3	6,000	1	7,200
2–6	7	14,000	4	17,000
5–6	4	5,000	2	6,200

Q.3	**(a)**	Define an ‘event’ and ‘activity’.	**03**
	(b)	Write the limitations of Gantt and Milestone charts.	**04**
	(c)	What is the Line of Balance (LOB) Method? Explain its importance and applications.	**07**

OR

	(a)	What is CPM (Critical Path Method)?	**03**
	(b)	Distinguish between AOA and AON networks.	**04**
	(c)	Explain the procedure for Project Cost Control and Monitoring using CPM Networks.	**07**

Q.4 **(a)** What is float? Explain different types of the float. **03**

(b) What are serial and parallel activities in a network diagram? **04**

(c) In a civil engineering project, the following activities are to be performed. Activity numbers and time duration are shown below. Draw a network diagram, find critical path and determine total time required for the completion of project. **07**

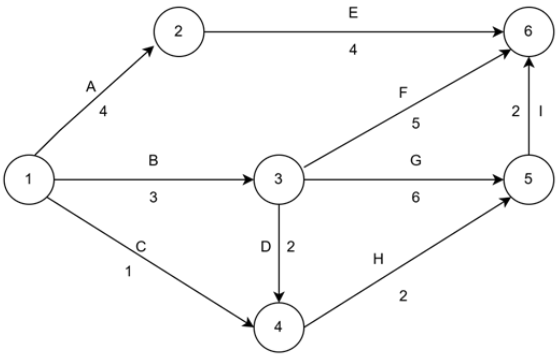
Activity	i- j	Duration (weeks)
A	1 - 2	6
B	1 -3	4
C	2 - 4	5
D	2 - 3	3
E	4 - 6	6
F	3 - 5	10
DUMMY	5 - 6	0
G	5 - 7	10
H	6 - 7	12

OR

(a) Define dummy activity and its importance. **03**

(b) Explain most likely time, optimistic time, and pessimistic time with respect to a PERT diagram. **04**

(c) The following network shown in figure has the estimated duration for each activity worked. Determine the critical path, also determine EST, EFT, LST, LFT, total float for each activity. **07**



Q.5 **(a)** Write short notes on project monitoring. **03**

(b) What is Project Crashing? Explain the steps of project crashing for a typical project. **04**

(c) Describe the procedure to find optimum project duration using Time–Cost analysis. **07**

OR

(a) What is a Time Grid Diagram? **03**

(b) Explain how probability of project completion is estimated using PERT. **04**

(c) What is Precedence Network Analysis (PNA)? Explain its types of relationships and advantages. **07**

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