

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE- SEMESTER-VI (NEW) EXAMINATION – WINTER 2024**

**Subject Code:3164014**

**Date:02-12-2024**

**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) | List differences between PERT and CPM.                                     | <b>03</b> |
|  | (b) | Illustrate the need of construction project management in project success. | <b>04</b> |
|  | (c) | Explain different types of project scheduling techniques in detail.        | <b>07</b> |

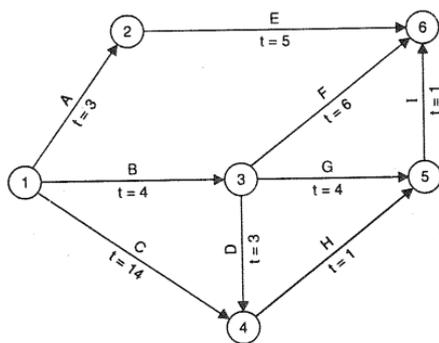
- Q.2**
- |  |     |   |           |
|--|-----|---|-----------|
|  | (a) | Define events and their types.  | <b>03</b> |
|  | (b) | Write the limitations of Gantt charts.  | <b>04</b> |
|  | (c) | Enumerate various types of slacks used in a PERT network along with method to calculate them. | <b>07</b> |

**OR**

- (c) Crash the project with the activities in the table by 2 days with minimum costing. The indirect cost for the project is 1000 Rs per day. **07**

Activity	Normal Time		Crash Time	
	Time (days)	Cost (Rs)	Time (days)	Cost (Rs)
1-2	8	30000	6	35000
1-3	4	20000	2	22000
2-4	2	5500	1	6000
2-5	10	11000	5	12000
3-4	5	11000	1	12500
4-5	3	10000	1	11000

- Q.3**
- |  |     |   |           |
|--|-----|---|-----------|
|  | (a) | Differentiate between forward planning, backward planning and combined planning.  | <b>03</b> |
|  | (b) | How is time cost optimization achieved in CPM network?  | <b>04</b> |
|  | (c) | For the network diagram shown below, calculate EST, EFT, LST, and LFT and total float. The activity times are also shown in figure. | <b>07</b> |

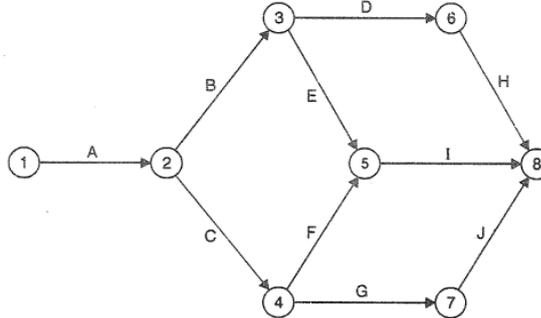


**OR**

- Q.3**
- |  |     |  |           |
|--|-----|--|-----------|
|  | (a) | How are indirect costs calculated in a project?          | <b>03</b> |
|  | (b) | Explain the updating of CPM network through a flowchart. | <b>04</b> |

- (c) A building project consists of 10 activities, shown by a network diagram below. The normal duration required to perform the above activity are given in table below. Compute the event time, activity times and critical path. 07

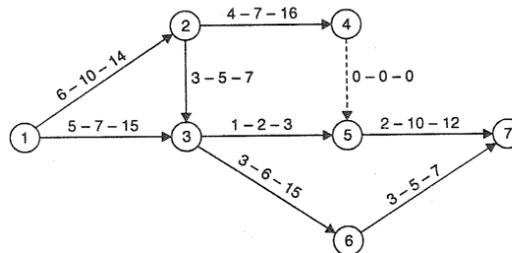
Activity	Estimated duration	Activity	Estimated duration
A	5	F	2
B	2	G	3
C	6	H	8
D	4	I	7
E	4	J	2



- Q.4** (a) How critical path is determined in a CPM network? 03  
 (b) What are serial and parallel activities in a network diagram? 04  
 (c) Draw a PERT and CPM based network diagram for assembling of a cupboard in a house. 07

**OR**

- Q.4** (a) Explain most likely time, optimistic time, and pessimistic time with respect to a PERT diagram. 03  
 (b) Define normal project time, normal cost, crash time and crash cost. 04  
 (c) Evaluate the critical path from the below figure: - 07



- Q.5** (a) Define project updating in networks. 03  
 (b) Explain line of balance method of project scheduling. 04  
 (c) Draw a WBS diagram schedule for construction of low cost housing project up to level 1 for all activities and any one activity for level 4. 07

**OR**

- Q.5** (a) Describe dummy activity. 03  
 (b) Write rules and regulations to be followed in drawing of a dummies in a network diagram. 04  
 (c) Draw a WBS diagram schedule for construction of road project up to level 1 for all activities and any one activity for level 4. 07

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