

Roll No. ....

**3521**

**B. Tech 7th Semester (Civil)**

**Examination – February, 2022**

**CONSTRUCTION PLANNING AND MANAGEMENT**

**Paper : PCC-CE-401-G**

*Time : Three hours ]*

*[ Maximum Marks : 75*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Q. 1 is *compulsory*. Students have to attempt *five* questions in total at least *one* questions from each section. All questions carry equal marks.

1. (a) What is Dummy activity and its uses.
- (b) What is PPT technique in CPM updating ?
- (c) Define dual role event and successor event?
- (d) What do you understand about HIERARCHIES ?
- (e) Write short note on different types of formworks.
- (f) Write briefly about resource smoothing ?

**SECTION – A**

2. (a) What are the shortcomings of bar charts ? How are these removed ?

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- (b) Explain the difference between PERT and CPM network. Explain the circumstances under which one is preferred over the other.

3. (a) How do you use the normal probability curve for determining standard and deviation ?
- (b) A project consists 16 activities having their predecessor relationship as follow :
  - A is the first activity of the project.
  - B, C and D follow A and can be concurrently.
  - E and G cannot begin until C is completed and can be performed simultaneously.
  - F is the immediate successor to activities B and E.
  - H and K run in parallel, and both succeed G.
  - L succeeds F and H.
  - I and J are immediate successor activities to activity D.
  - M and N are immediate successor to I and K. However, both M and N can be performed concurrently.
  - Activities O and P are the last activities. Activity O is the immediate successor to N and L.
  - Activity P is the immediate successor to M and J.

**SECTION – B**

4. The network for a construction project, with the three estimates of each activity marked. Determine :
  - (1) Critical path and its standard deviation.
  - (2) Probability of completion of project in 40 days.

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- (3) Time duration that will provide 95% probability of its completion in time.

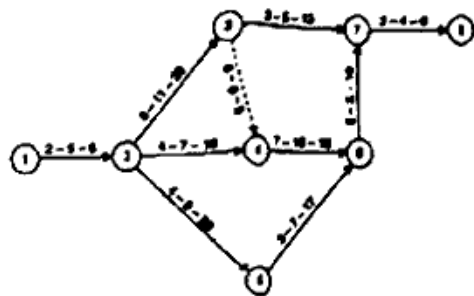


Fig.1

5. Fig. 3. show the network for a project, the data for the duration and costs of each activity are given in Table as below.

Activity	Normal Distribution (weeks)	Normal Cost (Rs.)	Crash duration (weeks)	Crash Cost (Rs.)
1-2	6	7000	3	14500
1-3	8	4000	5	85000
2-3	4	6500	1	9000
2-4	5	7500	3	14500
3-4	5	5000	3	11000

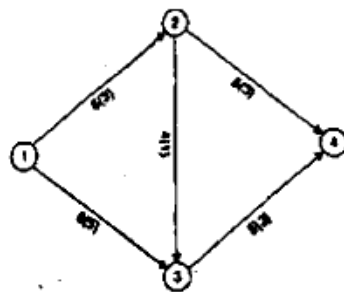


Fig. 3

The direct cost of the project is Rs. 3000 per week. Determine the optimum duration of the project and the corresponding minimum cost. Draw the time scaled version of the network at each stage of crashing.

### SECTION - C

6. Name the equipment's needed for compacting concrete and explain their uses in detail.
7. (a) Explain the concept of fabrication and erection in construction. How it is essential to a large-scale project ? <https://www.mdustudy.com>
- (b) Discuss the form work and explain the methods of placing of concrete.

### SECTION - D

8. (a) What do you understand by updating ? Why is it essential ?
- (b) Illustrate the method of updating a network during its execution period.
9. (a) Discuss the resources allocation problem. What are the methods of solving the problems ?
- (b) Explain in detail resources smoothing method of resources allocation problem.