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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- 2025

M.Tech-I Semester (CE)

COURSE CODE (CREDITS): 10M11CE113 (3) MAX. MARKS: 35

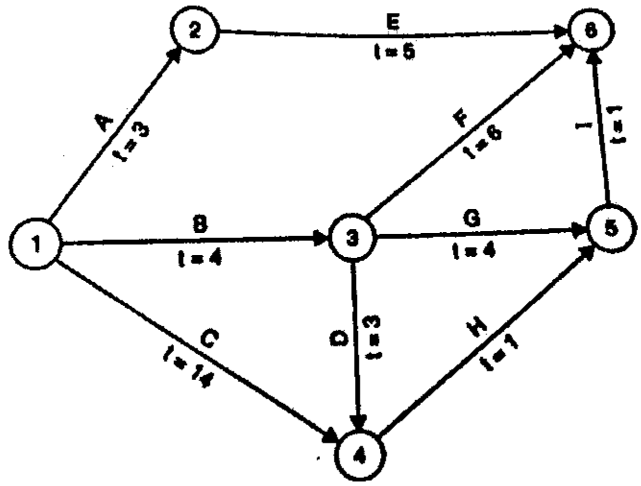
COURSE NAME: Construction Planning and Control

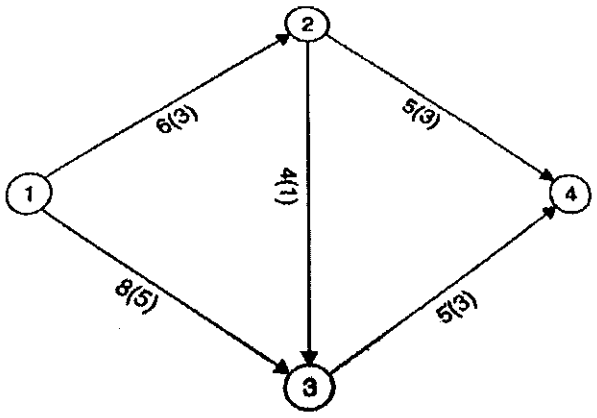
COURSE INSTRUCTORS: Akash Bhardwaj MAX. TIME: 2 Hours

Note: *(a) All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Calculator is allowed.

Q.No	Question	Marks
Q1 (a)	Define Float. Why it is important in network planning and what are its types?	3
Q1(b)	The network shown in figure below has the estimated duration for each activity marked. Determine the total float for each activity and also find and draw the critical path. Also determine free float and independent float for each activity. 	7
Q2	Figure below shows the network for a project, the data for the duration and costs of each activity are given in table below-	8



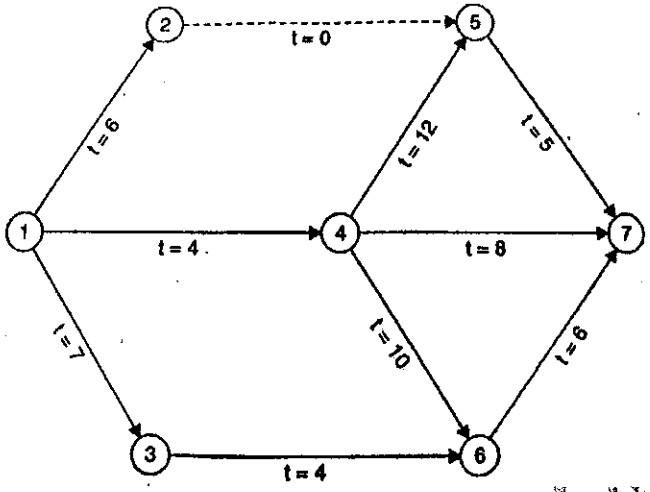
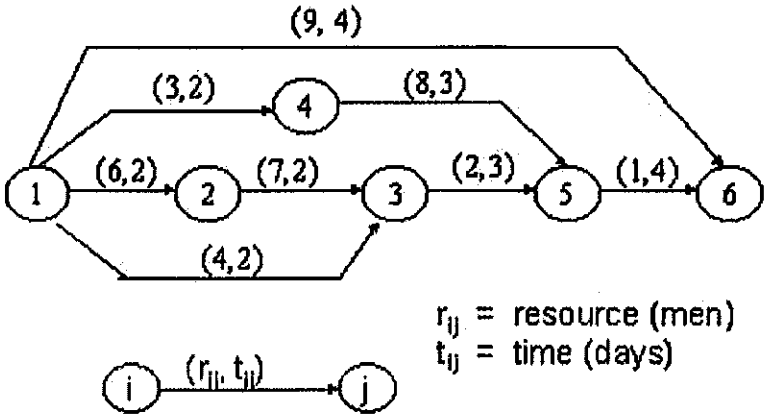
Activity	Normal Duration (weeks)	Normal Cost (Rs)	Crash Duration (weeks)	Crash Cost (Rs)
1-2	6	7000	3	14500
1-3	8	4000	5	8500
2-3	4	6000	1	9000
2-4	5	8000	3	15000
3-4	5	5000	3	11000

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.

Q3 A network for a project is shown in figure below. The network is to be updated after 10 days of its execution. The following conditions exists at the end of 10 days: 7

i. Activity 1-2, 1-3 and 1-4 have been completed as originally scheduled.
ii. Activity 4-5 is in progress and will require 6 more days for its completion.
iii. Activity 4-6 is in progress and will require 6 more days for its completion.
iv. Activity 3-6 is in progress and will be completed in one day.
v. Other activities have not been commenced and their original predicted durations will hold good, except for activity 5-7 which will require only 3 days instead of 5 days originally planned.

Update the network and determine the critical path of the updated network. What is the total increase in project duration?

		
Q4	Consider the network diagram shown below. Level out the requirement of the resources, if the maximum number of labour, on any day, has to be limited to **10**. Draw the allocation of resources before and after Leveling operation on ***Graph Paper***. 	7
Q5	Explain total cost, direct cost and indirect cost of the project with suitable figure.	3