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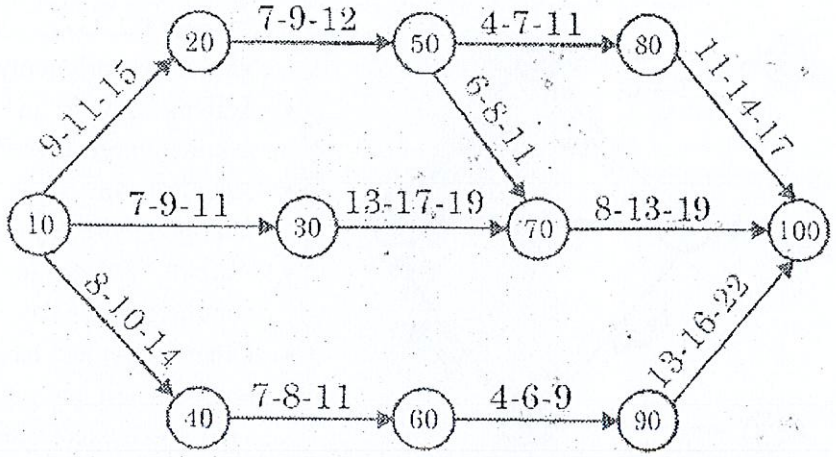
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- OCT 2019
B.Tech 5th Semester

COURSE CODE: 10B11CE515 MAX. MARKS:25
COURSE NAME: Construction Technology and Management
COURSE CREDITS: 4 MAX. TIME: 1.5 Hrs

Note: *All questions are compulsory and carry 5 marks each. Carrying mobile phone or sharing of materials during examinations will be treated as case of unfair means.*

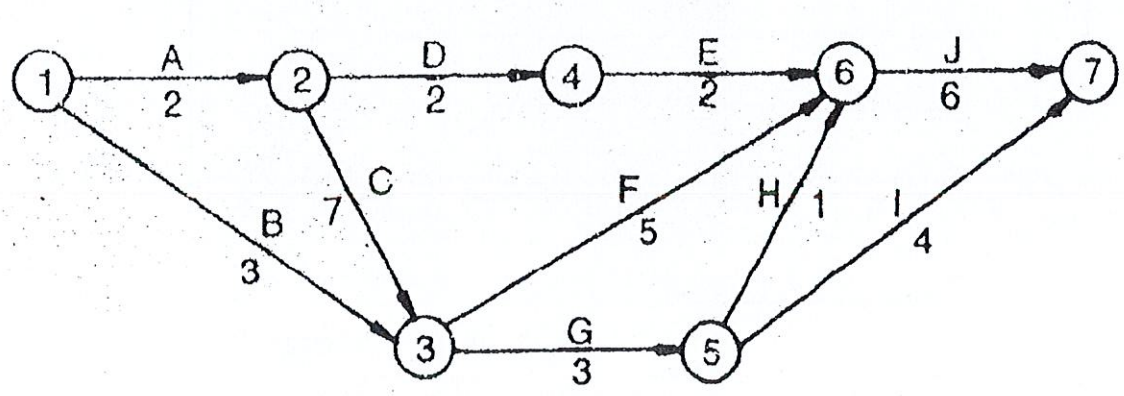
Q 1. In the following network, the optimistic, the most likely and the pessimistic time estimates are given for each activity. If 10 and 100 are the starting and ending events respectively. Find the critical path through the network.



i. Show the critical path and determine the expected completion time.
ii. What is the probability of the project being completed in 53 days? Probability may be linearly interpolated from the table of probability factors (Z).

Z	1.0	1.5	2.0	2.5	3.0
Probability	84.13	93.32	97.72	99.38	99.87

Q 2. From the network given below indicates activity description along with its time duration. Calculate (a) Total Float (b) Free Float (c) Independent Float (d) Project duration and identify critical path for both the projects.

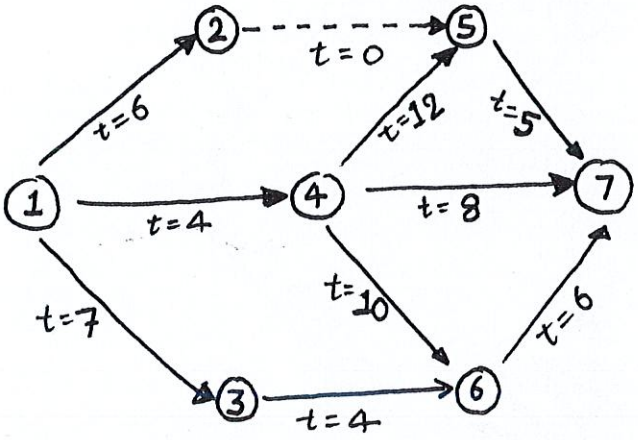


Q 3. From the given table below, find project's minimum cost and Optimum duration *using graph paper*

Activity	Normal Duration (weeks)	Normal Cost (Rs.)	Crash Duration (weeks)	Crash cost (Rs.)
1 - 2	7	7000	3	14500
1 - 3	8	4000	5	8500
2 - 3	5	6000	1	9000
2 - 4	5	8000	3	15000
3 - 4	6	5000	3	11000

The overhead cost of project is Rs. 428.57 per day. Draw time-scale curve for each stage.

Q4.

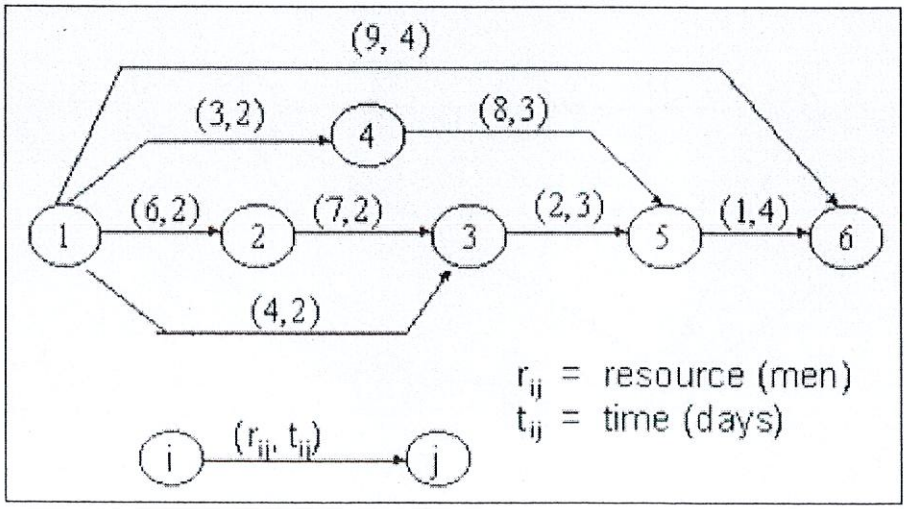


Following conditions exist after 10 days

- Activity 1-2, 1-3, and 1-4 have been completed as originally scheduled
- Activity 4-5 is in progress and will require 6 more days for its completion.
- Activity 4-6 is in progress and will require 6 more days for its completion.
- Activity 3-6 is in progress and will complete in one day.
- Other activities have not commenced and their original predicted duration will hold good, except for activity 5-7 which will require only three 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?

Q 5. 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***.



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