JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- OCT-2018

M.Tech I[st] Semester Prof. AK Gupta

COURSE CODE: 10M11CE113 MAX. MARKS: 25

COURSE NAME: Construction Planning and Control

COURSE CREDITS: 03 MAX. TIME: 1.5 Hours

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q. 1 The network shown in Fig.1 has the estimated duration for each activity marked. Determine four types of activity times and floats. Also establish the critical path for the network. **(8)**

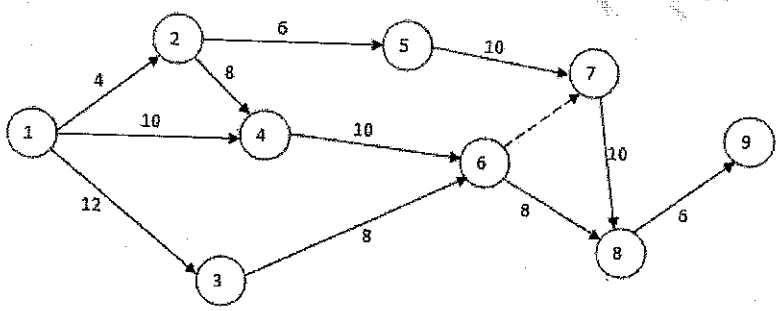

Figure 1

Q.2 The details of activities for a small project are given in table1. If the indirect cost for the project is Rs.6000/day then, a) What is the minimum time in which the project can be completed considering maximum possible crashing. b) What would be the total project cost if the schedule is crashed to the maximum. Find optimum duration and Optimum project cost also by drawing total (indirect plus direct) cost versus time curve. **(9)**

Table 1

	Normal		**Crash**	
Activity	Duration	Cost (Rs)	Duration	Cost (Rs)
1-2	3	5000	2	7000
2-3	4	6000	2	10000
2-4	3	9000	1	17000
2-5	4	5000	3	9000
3-5	2	8000	1	9500
4-5	5	7000	2	16000
5-6	5	20000	5	20000

Q.3 A network for a project is shown in fig.2. The network is to be updated after 10 days of its execution. The following conditions exist at the end of 10 days: **(4)**

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 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 the project duration?

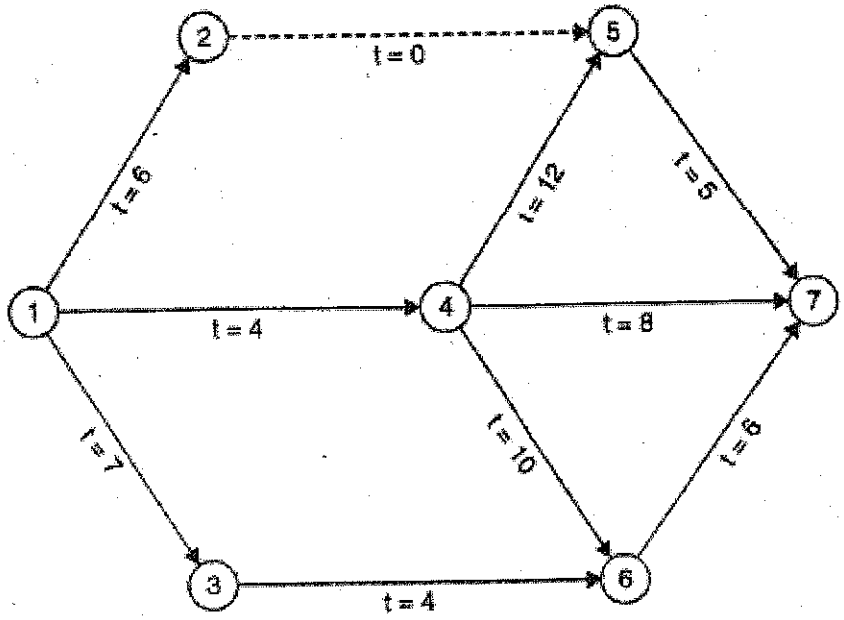

Figure 2

Q. 4 **(i)** Define the terms direct cost, indirect cost and outage loss and cost-slope.
(ii) Draw a typical cost-duration curve and show on it optimum duration and minimum project cost.
(iii) What do you understand by updating? Why is it essential?
(iv) Can slack in a network become negative? If Yes/No, write why?

(1x4=4)