

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Construction Planning and Management

Program: B.Tech Civil Engg

Course Code: CIVL 3004

Semester: V

Time 03 hrs.

Max. Marks: 100

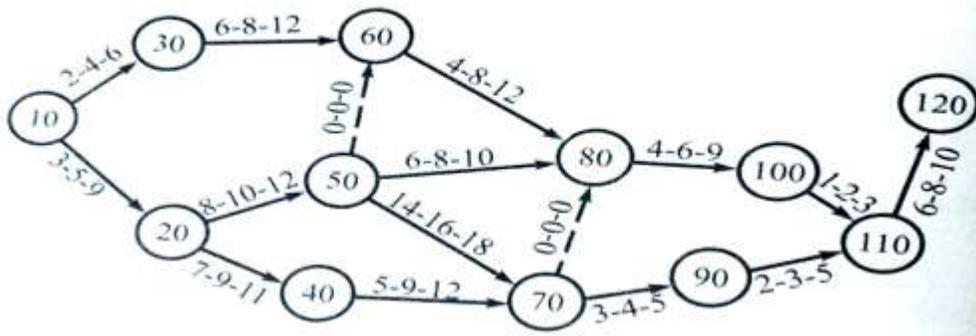
Instructions:

SECTION A

S. No.		Marks	CO												
Q 1	In what way does a CPM network is differ from PERT network?	4	CO2												
Q 2	What is role of Project Management? Briefly describe.	4	CO1												
Q 3	Define characteristics of “Functional organisation”. What are its advantage & disadvantage?	4	CO1												
Q 4	Define two approaches of resource allocation for their optimum utilization in Project.	4	CO3												
Q 5	Draw the network and number the event using Fulkerson rules for a construction Project. The project has 14 activities K to X with following relationships: <table border="1" data-bbox="203 1129 1271 1388"><tbody><tr><td>1. K is the first activity</td><td>5.R follows N, but it cannot start until O is complete</td></tr><tr><td>2. L & M can be performed in parallel and are immediate successor to K</td><td>6.S and T succeed Q</td></tr><tr><td>3. N, O and P follow L</td><td>7.P and T precede U</td></tr><tr><td>4. Q follows O</td><td>8.R and S precede V</td></tr><tr><td></td><td>9.W succeeds V & U</td></tr><tr><td></td><td>10. The last operation X succeeds W and M</td></tr></tbody></table>	1. K is the first activity	5.R follows N, but it cannot start until O is complete	2. L & M can be performed in parallel and are immediate successor to K	6.S and T succeed Q	3. N, O and P follow L	7.P and T precede U	4. Q follows O	8.R and S precede V		9.W succeeds V & U		10. The last operation X succeeds W and M	4	CO2
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SECTION B

Q 6	What are various type of Contract in construction industry? Explain characteristic, advantage & disadvantage of for Cost Plus contract & Lump Sum contract.	10	CO1
Q 8	Discuss the Project Quality management and steps involved for defining it? Explain the process for Quality control. Or Explain the Risk Management for project? Draw flow chart of risk management process, showing each step with its purpose & tools used.	10	CO4
Q 7	The three time estimates are indicated along the activity arrow for the project shown below.	10	CO3



Calculate (a) the expected or average time t_E and the variance for each activity, (b) the earliest expected time, and (c) the latest allowable time for each event. Make the entries in a tabular form.

Q 9 A construction Project consists of 12 activities. The predecessor relationships and duration mentioned below

Activity	A	B	C	D	E	F	G	H	I	J	K	L
Predecessors	-	A	A	A	C	C	B, E	F	F	D, I	G, H	K, J
Durations	3	5	4	6	3	4	5	5	3	4	2	3

Draw a Network for the construction project and identify following

(i) Activity time, (ii) All floats for each activity (iii) Critical Path for the network

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CO3

SECTION-C

Q 10 A project consists of four activities as detailed below. Determine optimum project completion time assuming indirect costs @ Rs. 2000/- per week

Activity	Normal Time T_N (weeks)	Crash Time T_C (weeks)	Normal Cost C_N (Rs.)	Crash Cost C_C (Rs.)
(1-2)	4	2	4000	12000
(2-3)	5	2	3000	7500
(2-4)	7	5	3600	6000
(3-4)	4	2	5000	10000

Draw the time-cost diagram also.

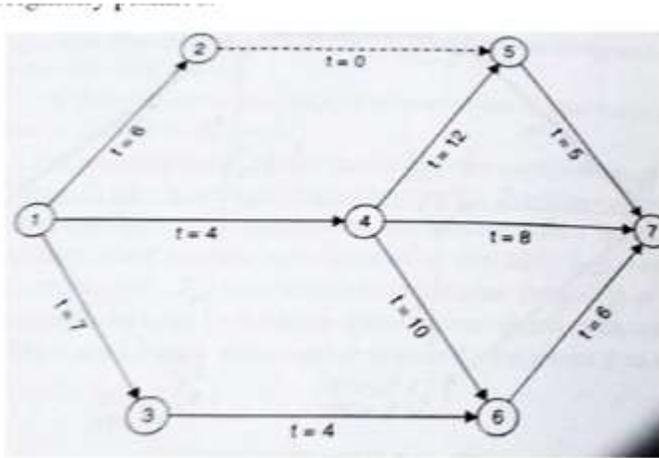
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CO4

Q 11

For the below mentioned network assume that, after working 10 days on the project, the following conditions exist:

- a. Activities 1-2, 1-3, & 1-4 are completed as originally planned
- b. Activity 4-5 is in process & will require 6 more days for its completion
- c. Activity 4-6 is in process and will require 6 more days for its completion
- d. Activity 3-6 is in progress and will be completed in one day.
- e. 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.



- i. Update the network & determine the critical path for updated network. What is the total increase in the project duration?
- ii. Draw bar chart for the original project and show on it the progress as on 10th day. Indicate also the modification based on the re-assessment

OR

A Project consists of 7 activities, whose time estimate and manpower requirement are indicated below:

Activity	(1-2)	(1-3)	(2-3)	(2-4)	(3-5)	(4-5)	(5-6)
Time (days)	2	4	8	5	7	2	2
Manpower (Masons)	2	0	6	3	2	1	3

Do resource smoothing & show the same by drawing Histogram for masons.

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CO3

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CO3