UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Construction Engineering and Management   **Semester: V**
Program: B.Tech Civil Engg   **Time 03 hrs.**
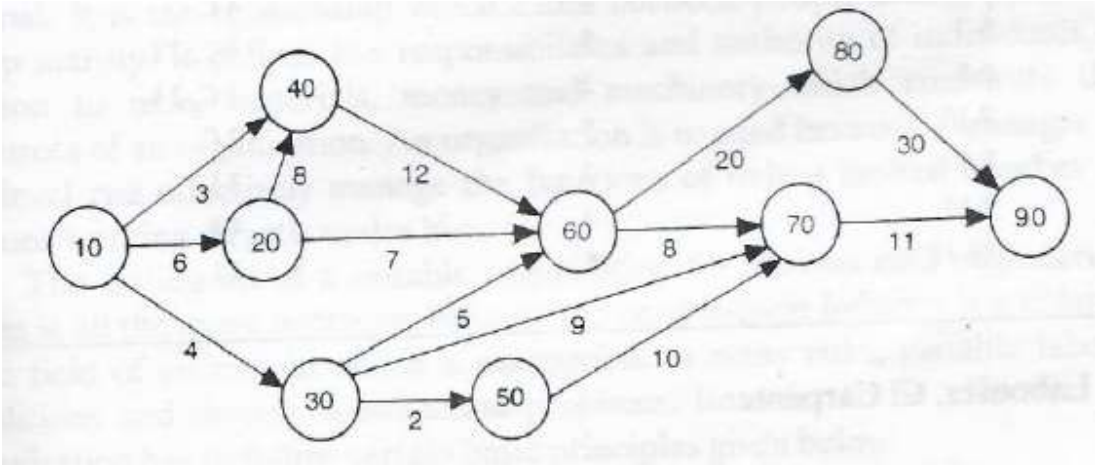**Course Code:** CIVL 3021   **Max. Marks: 100**

Instructions:

SECTION A (20 Marks)		
S. No.		**Marks**	**CO**

S. No.		Marks	CO
Q 1	Briefly explain the importance of project management for construction project.	4	CO1

Q 2	Define in 1-2 lines the following:
	  A. Float & Slack
	  B. Activity & Event
		4	CO2

Q 3	When any contract considered as Void contract. Explain	4	CO1
Q 4	Why in modern construction Matrix organization structure is preferred for Management of Construction site?	4	CO1
Q 5	Discuss the Quality Management System and steps involved for defining it?	4	CO4
SECTION B (40 Marks)			
Q 6	In construction industry, list down various types of contract generally used? Explain difference in PPP Contract and Lumpsum contract.	10	CO1
Q 7	Draw the network diagram for the following activities of a construction project Find out critical Path and completion time of the project.	10	CO2

Q 7 table:

Activity	Predecessor Activity	Duration (Days)	Activity	Predecessor Activity	Duration (Days)
A	-	13	G	D, F	8
B	A	8	H	E	6
C	B	10	I	H	7
D	C	9	J	G, I	14
E	B	11	K	J	18
F	E	10			

| Q 8 | Analyze the Construction project shown below

Duration in Weeks.

Find (1) critical Path (2) completion time of Project (3) All Float of activities | **10** | **CO3** |
|---|---|---|---|
| Q 9 | Define Project management for construction project? What are various phases of project management? Define all phases in brief.

OR

Would you be a project manager of construction project, which are various accounts for construction Project failure? | **10** | **CO1** |

SECTION-C (40 Marks)

| 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

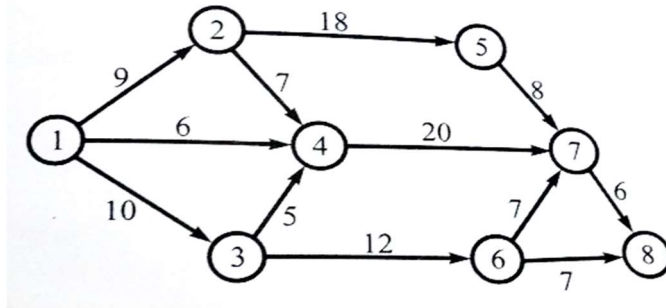Draw the time-cost diagram also. | **20** | **CO4** |
|---|---|---|---|
| Q 11 | For the below mentioned network assume that, after working 15 days on the project, the following conditions exist:

   a. Activities 1-2, 1-3, & 1-4 are completed as originally planned
   b. Activity 2-4 is in process & will be completed in 3 more days
   c. Activity 3-6 is in process and will need 18 more days for completion
   d. Activity 6-7 appears to present some problem & its new estimated time of completion is 12 days | **20** | **CO3** |

e. Activity 6-8 can be completed in 5 days instead of originally planned 7 days

Formulate a new project based on the assessment at the end of 15 days. Including all activities in the new project.

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
Duration (days)	2	4	8	5	7	2	2
Manpower Bar- Benders (B)	2	-	6	3	2	1	3

Do resource smoothing & show the same by drawing Histogram for Bar-benders.