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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2025

B.E. CIVIL ENGINEERING

V Semester

CE23008 & Construction Project Management Through Lean Concepts

(Regulation 2023)

Time:3hrs Max.Marks: 100

CO1	**Perform formulations of projects**
CO2	Develop project planning strategies
CO3	Prepare the activity schedule for the construction projects
CO4	Apply lean techniques to achieve sustainability in construction projects.
CO5	Apply lean construction techniques in design and modeling

BL – Bloom's Taxonomy Leveis

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)

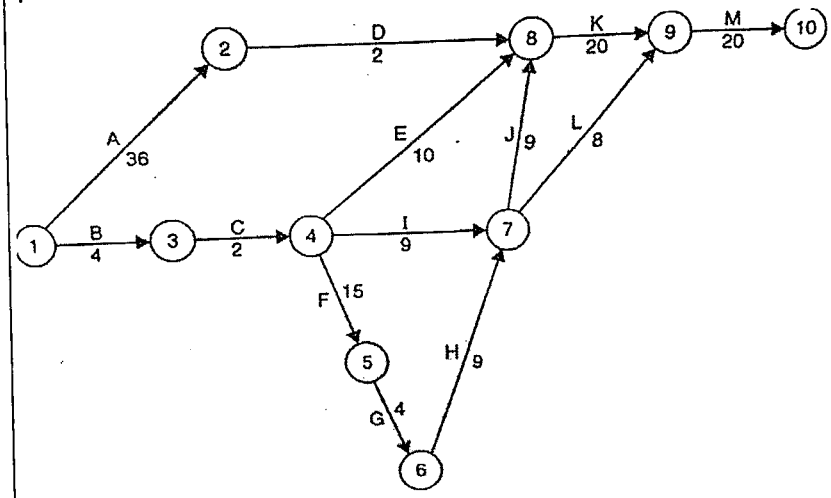
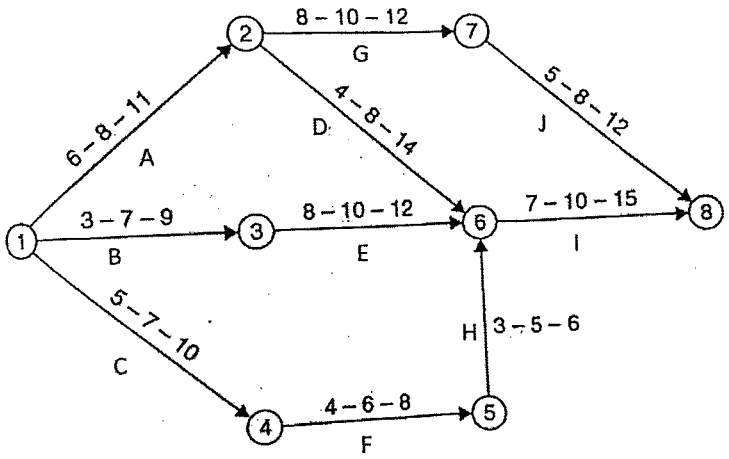
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	What are the significance of construction project management?	2	1	L1
2	List the major causes of failure in construction projects.	2	1	L1
3	State the need for planning the activities in the construction projects.	2	2	L1
4	Enumerate the importance of coding systems in construction.	2	2	L2
5	Draw an A-O-A network diagram for a project given in the following table.	2	3	L2
6	Infer the mathematical formula for independent float.	2	3	L2
7	State the applications of lean concepts.	2	4	L1
8	How does VSM identify the bottlenecks in the process?	2	4	L2
9	Mention any two effects of fragmented supply chains on lean practices.	2	5	L1
10	What is Integrated Project Delivery (IPD)?	2	5	L1

Activity	A	B	C	D	E	F	G	H	I	J	K
I P	–	–	-	A	B	B	C	D	E	H,I	F,G

PART- B(5x 13=65Marks)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain the scope and importance of Construction Project Management. Describe the key characteristics of construction projects and the stages of the project development life cycle.	13	1	L3
	OR			
11 (b)	Evaluate the major causes of project failure in the construction industry. Suggest effective managerial strategies to overcome these pitfalls and improve project outcomes.	13	1	L3

12 (a)	Explain how the choice of construction method impacts the project cost, duration, and quality.	13	2	L4
	OR			
12 (b)	Identify and explain the key factors that affect the duration of construction activities such as manpower efficiency, weather, and equipment availability.	13	2	L4
13 (a)	The A-O-A network for a certain project is shown in Figure.1, along with the estimated time of completion of each activity marked. Compute the activity times, and total float, free float and independent float for each activity. Locate the critical path on the network. The durationS are in days.  Figure. 1	13	3	L5
	OR			
13 (b)	The A-O-A network for a certain project is shown in Figure. 2. Determine the expected time for each of the paths. Which path is critical? The durations are in days.  Figure. 2	13	3	L5
14 (a)	Describe the concept of work structuring and how does it supports lean implementation in construction projects.	13	4	L4
	OR			

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14 (b)	Explain the structure and operation of the Last Planner System. How does it improve the workflow reliability?	13	4	L4
15 (a)	Discuss how Building Information Modelling (BIM) acts as a key enabler of lean construction.	13	5	L3
	OR			
15 (b)	Explain how lean construction principles contribute to sustainability in the built environment.	13	5	L3

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Describe the Lean implementation techniques in detail for the real-time construction activities.	15	5	L6

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