SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
(**AUTONOMOUS**)
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: Construction Project Management (20CE0127) **Course & Branch**: CE

Year & Sem: III Year & II Sem   **Regulation:** R20
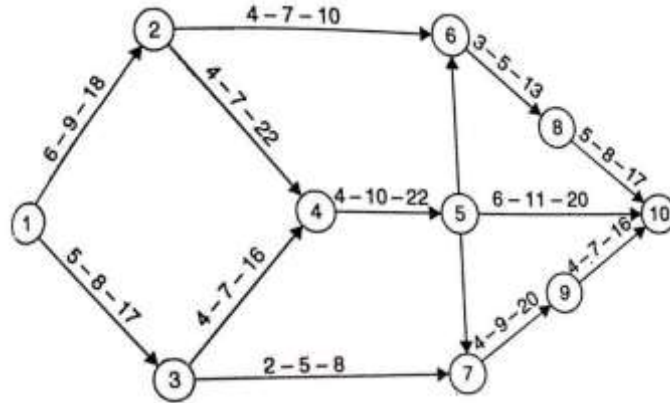
UNIT –I
CONSTRUCTION PROJECT & CONSTRUCTION PLANNING

1	a) What is the importance of construction?	[L1][CO1]	[6M]
	b) Explain about the Indian construction industry?	[L2][CO1]	[6M]
2	What are the different phases in construction project? Explain briefly.	[L2][CO1]	[12M]
3	a) Define construction project? Write about its unique features?	[L1][CO1]	[6M]
	b) What are the types of construction? Explain.	[L2][CO1]	[6M]
4	a) What are the types of project plans? Explain briefly.	[L2] [CO1]	[6M]
	b) What is a work break down structure? Explain with suitable example.	[L2][CO1]	[6M]
5	a) What is the use of bar chart? Write down steps for the construction of a bar chart with sketch.	[L1][CO1]	[8M]
	b) Write down various Limitations to construct a bar chart.	[L1][CO1]	[4M]
6	Draw the bar chart for finalization of designs and work order for a building project.	[L3][CO1]	[12M]

Activity	Description	Time for completion(weeks)
A	Site selection &survey	4
B	Design	6
C	Preparation of Drawings	3
D	Preparation of specifications &tender documents	2
E	Tendering (NIT)	4
F	Selection of Contractor	1
G	Award of work order	1

7	The Activity Breakdown for a certain project is as under.	[L3][CO1] [12M]

Activity	1	2	3	4	5	6	7
Duration(weeks)	1	2	4	3	1	2	4

Activity 2&3 can be done concurrently and both must follow activity 1. Activity 2 must precede activity 4. activity 5 cannot begin until both activities 2&3 are complete. Activity 6 can be started only after activities 4&5 complete. Activity 7 is the last activity which can be started only after completion of activity 5. Prepare the bar chart.

8	a) Define and give examples of event. How it represents?	[L1][CO1]	[6M]
	b) Draw a network diagram for the project having 7 activities with the following interrelationships: i. C follows D but precedes F. ii. C follows B but precedes H. iii. G follows F but precedes I. iv. E follows A but precedes I. v. D follows A. vi. H and I terminate at the same time. vii. A and B starts at the same time.	[L3][CO1]	[6M]

9	**a)** Define and give examples of activity. How it represents?	**[L1][CO1]**	**[6M]**
	b) The maintenance of project of a building consists of ten jobs. The predecessor relationships are identified by their node numbers, as indicated below:	**[L3][CO1]**	**[6M]**

Job	Identification	Job	Identification
A	(1,2)	F	(4,5)
B	(2,3)	G	(4,7)
C	(2,4)	H	(5,8)
D	(3,6)	I	(6,8)
E	(3,5)	J	(7,8)

Draw the network diagram for the project.

| 10	**a)** Write specification, determine plan breakdown, and prepare network for the project of 'casting a concrete beam over verandah opening.'	**[L3][CO1]**	**[6M]**

	b) Assume that a statue is to be erected in a village square on a stone platform which is to be built on a cement concrete foundation. The statue is to be prepared at another place, moved, and erected. The various operations of entire project are given below. The various operations are not in logical sequence.
	      i. Make statue
	      ii. Shift statue
	      iii. Erect statue
	      iv. Lay Foundation
	      v. Construction Platform.
	 Represent the above project by (i) Activity oriented network
	                                (ii) Event oriented network.
		[L3][CO1]	**[6M]**

UNIT –II
PERT AND CPM NETWORK ANALYSIS

1	**a)** Define PERT? What are the uses of PERT?	[L1][CO2]	[4M]
	b) What are the different types of time estimates involved in PERT? Explain in detail	[L2][CO2]	[8M]
2	What do you understand by the frequency distribution? How do you determine (i) Most likely time (ii) Variance and (iii) Standard deviation	[L2][CO2]	[12M]
3	A project schedule has the following characteristics a) Construct network diagram b) Find the estimated duration and variance c) Find the critical path and expected project completion time d) What is the probability of completing the project on or before 22 weeks	[L3][CO2]	[12M]

Activity	Predecessor	Duration (weeks)		
		t_o	t_m	t_p
A	-	5	6	7
B	-	1	3	5
C	-	1	4	7
D	A	1	2	3
E	B	1	2	9
F	C	1	5	9
G	C	2	2	8
H	E, F	4	4	10
I	D	2	5	8
J	H, G	2	2	8

4	A project schedule has the following characteristics a) Construct network diagram b) Find the estimated duration and variance c) Find the critical path, slack and expected project completion time d) What is the probability of completing the project on or before 42 weeks	[L3][CO2]	[12M]

Activity	Dependency	Duration (Days)		
		t_o	t_m	t_p
A	-	3	12	21
B	A	2	5	14
C	A	6	15	30
D	B	1	2	3
E	B	5	14	17
F	C, D	2	5	14
G	C, D	4	5	12
H	E, F	1	4	7

5	The network for a construction project is shown in figure. The three time estimates foreach activity are given along each activity arrow. Compute a) Expected time of completion of each activity b) Earliest expected time for each event c) Latest allowable occurrence time for each event.		[12M]

4 – 7 – 10

6 – 9 – 18

4 – 7 – 22

3 – 5 – 13

5 – 8 – 17

4 – 10 – 22

6 – 11 – 20

5 – 8 – 17

4 – 7 – 16

4 – 9 – 20

2 – 5 – 8

4 – 7 – 16

6	The network for a certain project is shown in figure. Determine the expected time for each of the path. Which path is critical?	[L3][CO2]	[12M]

8 – 10 – 12

6 – 8 – 11

4 – 8 – 14

5 – 8 – 12

3 – 7 – 9

8 – 10 – 12

7 – 10 – 15

5 – 7 – 10

3 – 5 – 6

4 – 6 – 8
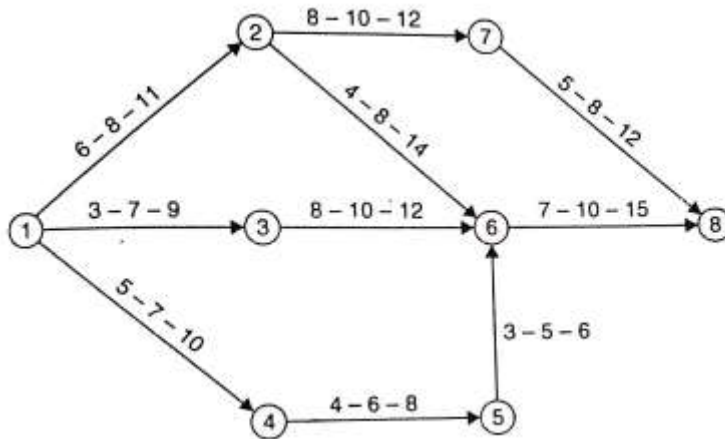
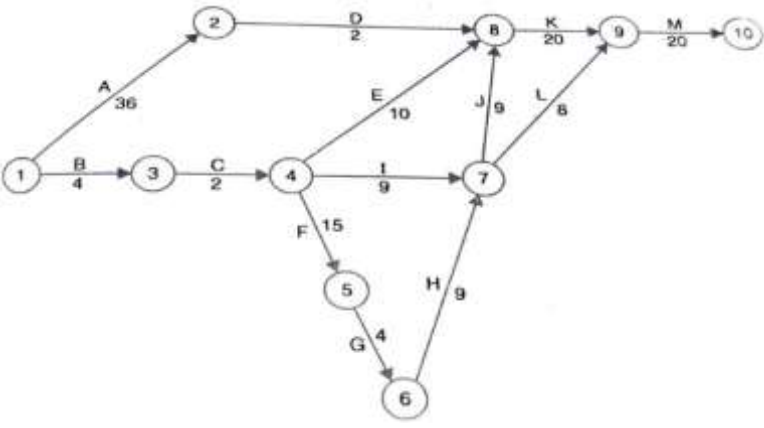| 7	**a)** What is CPM Network analysis? Explain with any one example?	[L2][CO2]	[6M]
	b) What do you understand by critical path? How is it determined?	[L1][CO2]	[6M]
8	The following details are available regarding a project:	[L3][CO2]	[12M]
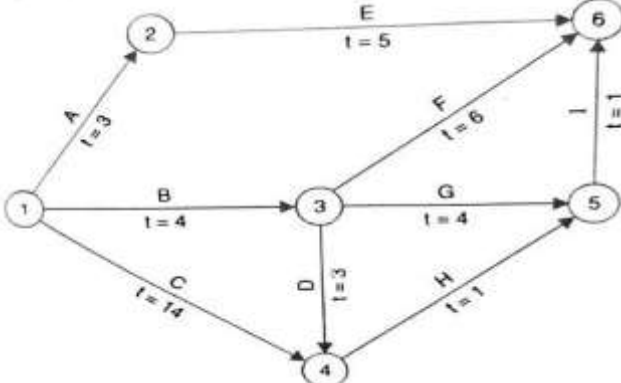
Activity	Dependency	Duration (months)
A	-	2
B	-	5
C	-	4
D	B	5
E	A	7
F	A	3
G	B	3
H	C,D	6
I	C,D	2
J	E	5
K	F,G, H	4
L	F,G, H	3
M	I	12
N	J,K	8

a) Construct the CPM network.
b) Determine the critical path, the critical activities and the project completion time.
c) Compute Total float & Free floats for non-critical activities.

9	The network for a certain project shown in fig, 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.	[L3][CO2]	[12M]

10	The network shown in fig has the estimated duration for each activity marked. Determine total float for each activity and establish the critical path.	[L3][CO2]	[12M]

UNIT –III
CPM: COST MODEL, COST UPDATING, RESOURCES ALLOCATION

1	Explain briefly about project cost. Also explain components involved in total cost.	[L2][CO3]	[12M]
2	Gives the information about various activities of network shown in fig.1 The project overhead costs are @ Rs. 300.0 per day. Determine (a) Direct cost-duration relationship (b) Total cost-duration relationship and the corresponding least cost plan (network)	[L3][CO3]	[12M]

Network table for item 2:

Activity	Normal duration (days)	Normal Cost (Rs.)	Crash duration (days)	Crash cost (Rs.)
1-2	9	8000	6	9500
2-3	5	5000	3	5500

Fig-1

| 3 | Gives the information about various activities of network shown in fig.1

 The project overhead costs are @ Rs. 300.0 per day. In addition to the overheads there is an outage loss of Rs.100 per day up to and including 11th day and Rs.200 per day thereafter, Find the total cost duration relationship. | [L3][CO3] | [12M] |

Network table for item 3:

Activity	Normal duration (days)	Normal Cost (Rs.)	Crash duration (days)	Crash cost (Rs.)
1-2	9	8000	6	9500
2-3	5	5000	3	5500

Fig-1

4	a) Explain about Indirect project cost and Direct project cost.	[L2][CO3]	[6M]
	b) Explain slope of direct cost curve	[L2][CO3]	[6M]
5	Differentiate between project cost and optimum duration in detail with neat sketch.	[L3][CO3]	[12M]
6	a) What are the data required for updating?	[L1][CO4]	[6M]
	b) What are the steps involved in the process of updating?	[L1][CO4]	[6M]
7	What is Cost optimization? What are the various steps involved in time cost optimization?	[L1][CO3]	[12M]
8	Explain about Resources usage profiles histograms.	[L2][CO4]	[12M]
9	With the help of an illustrative example, explain Resources smoothing method	[L2][CO4]	[12M]
10	Discuss about i. Resources smoothing ii. Resources Levelling	[L2][CO4]	[12M]

UNIT –IV

MATERIAL MANAGEMENT & QUALITY MANAGEMENT

1	Discuss the Material Procurement process in construction organization.	[L2][CO5]	[12M]
2	What are the different functions of material management	[L1][CO5]	[12M]
3	**a)** What are the advantages of centralized and local purchasing	[L1][CO5]	[6M]
	b) What are the advantages and disadvantages of early and late procurement	[L1][CO5]	[6M]
4	What is the inventory- related cost? Explain the components of inventory-related cost in detail.	[L2][CO5]	[12M]
5	Write about Inventory Management. Explain functions of inventory.	[L2][CO5]	[12M]
6	Discuss about Total quality management.	[L2][CO5]	[12M]
7	Explain briefly a) Inspection b) Quality control c) Quality assurance in projects	[L2][CO5]	[12M]
8	What are the objectives in construction quality, cost of quality and organization?	[L1][CO5]	[12M]
9	Define cost of quality. Explain in detail	[L2][CO5]	[12M]
10	**a)** Define Audit? Explain different types of Audits.	[L2][CO5]	[6M]
	b) Explain Why Audit and requirements of Internal Audit.	[L2][CO5]	[6M]

UNIT –V

SAFETY MANAGEMENT AND CONSTRUCTION CONTRACT

1	What are the safety measures to be adopted in work sites and explain principles of safety?	[L2][CO5]	[12M]
2	What are the common causes of construction site accidents?	[L1][CO6]	[12M]
3	What are the preventive measures to be taken during accidents?	[L1][CO6]	[12M]
4	What is cost of accidents? Explain briefly about direct and indirect expense.	[L2][CO6]	[12M]
5	What is the key element to be taken ensured in safety and health management system?	[L1][CO6]	[12M]
6	Explain about contract document.	[L2][CO5]	[12M]
7	What are different types of contracts? Explain briefly.	[L2][CO6]	[12M]
8	Briefly explain about a) Lump-sum contract b) Item rate contract c) Turnkey contract	[L2][CO5]	[12M]
9	What is bid? What are the various stages and types of bids?	[L1][CO5]	[12M]
10	Write a short note on CPWD contract conditions?	[L1][CO5]	[12M]

PREPARED BY

CHALLA SAILAJA, Assistant Professor, CE