KUMARAGURU
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M.E / M.TECH/MCA DEGREE EXAMINATIONS: NOV/ DEC 2024

(Regulation 2024)

First Semester

CONSTRUCTION MANAGEMENT

24CNT503: Construction Planning, Scheduling and Control

COURSE OUTCOMES

CO1: Apply project management principles to define scope and budget in construction projects.

CO2: Analyze scheduling techniques like CPM and PERT to create effective project timelines.

CO3: Apply resource allocation methods to optimize resource use and manage constraints.

CO4: Evaluate cost estimation techniques to develop accurate project budgets.

CO5: Apply information management tools to improve the accuracy and flow of project data.

Time: Three Hours   **Maximum Marks: 100**

PART A (4*20 = 80 Marks)

1. a) Using an appropriate chart, explain the various phases of a project life cycle. 10 CO1 [K$_2$]

   b) Discuss any two methods of project cost estimation used in construction. 10 CO1 [K2]

2. A simple project is shown in the following table, along with the logic, 20 CO3 [K$_4$] duration and the required number of labourers for each activity. Draw the network diagram, allocate the required resources and then level them so that the subcontractor does not use more than six labourers at any time.

Activity	Predecessor	Duration (Days)	Labourers/day
A	-	2	2
B	A	3	1
C	B	4	6
D	B	4	4
E	B	2	4
F	C	2	2
G	F	3	2
H	E	3	1
I	D, G, H	1	1

3.	a)	Using suitable examples, illustrate the various types of project costs.	10	CO4	[K₃]
	b)	Elaborate the application of cost indices in construction using appropriate examples.	10	CO4	[K₃]
4.		Illustrate a conceptual model of a database management system applicable for a bridge construction project. Highlight its architecture, information flow and management.	20	CO5	[K₃]

Answer any ONE Question
PART B (1*20 = 20 Marks)

5. Conduct critical path analysis for the project activities given in the table. Calculate the critical path and all types of floats. 20 CO2 [K₄]

Activity	Duration (Days)	Predecessor
A	2	--
B	6	A
C	10	A
D	4	A
E	7	B
F	5	B, C
G	3	C, D
H	5	E, F
I	2	G, H

OR

6. Perform a PERT analysis for the project activities in the table given below. Calculate the critical path and expected project completion time. 20 CO4 [K₄]

Activity	Predecessor	Duration (Days)		
		Optimistic	Most Likely	Pessimistic
A	-	10	16	20
B	A	7	10	20
C	A	5	7	8
D	B	15	18	21
E	C, B	25	30	32
F	D	6	9	12
G	E, D	21	25	28
H	F, G	6	8	9

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