Enrolment No._____

Date: 04/05/2017

Total Marks: 70

07

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2180611

Subject Name: Construction Management

Time: 10:30 AM to 01:00 PM

Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- Q.1 (a) Distinguish between Network diagram and Time grid diagram. Narrate 07 advantages of time grid diagram.
 - (b) What is network? Discuss various network rules.
- Q.2 (a) What do you understand by floats? Differentiate clearly between 'total float', 07 'free float', and 'independent float'.
 - (b) The data for the project is given in table. Prepare the network diagram with the or estimated duration of various activates.

Activity	Activity on	Duration	Activity immediately		
	arrow (i-j)	(Days)	Preceed	Follow	
Α	1-2	6	-	D,E	
В	1-3	7	-	F,G	
С	1-4	8	-	Н	
D	2-5	7	А	I,J	
Ε	2-7	8	А	L	
F	3-4	4	В	Н	
G	3-6	4	В	K	
Н	4-5	9	C,F	I,J	
Ι	5-6	5	D,H	K	
J	5-7	6	D,H	L	
K	6-7	6	G,I	L	
L	7-8	9	E,J,K	-	

Determine the following:

1). Critical path for the network,

- 2). Earliest start and finish time, latest start and finish time for each activity,
- 3). Total, free float and independent floats for each activity.

OR

- (b) Explain Line of Balance techniques and how it is advantageous in construction 07 field?
- Q.3 (a) What do you understand by 'Cost slope'? Draw a typical cost-duration curve 07 and show it on optimum duration and minimum project cost.
 - (b) The following table gives the data for the duration and cost of each activity of project network shown in figure. The indirect cost is Rs. 3000/-week. Determine the minimum cost and optimum duration for the project network shown in figure. Draw the time scale version of the network.

Activity	Normal duration (Weeks)	Normal cost (Rs.)	Crash duration (weeks)	Crash cost (Rs.)	$A \xrightarrow{6(3)} 2 D$
1-2	6	7000	3	14,500	
1-3	8	4000	5	8,500	1 B $-$
2-3	4	6000	1	9,000	
2-4	5	8000	3	15,000	8(5) 3 5(3)
3-4	5	5000	3	11,000	
			•	OR	-

- Q.3 (a) Explain, why time-cost tradeoff is necessary? Discuss various ways to reduce 07 the activity duration.
 - (b) For the network below, determine the critical path and probability for finishing 07 the project within scheduled time of (1). T_s = 36.67 days (2). T_s=36 days. Also calculate the earliest and latest event occurrence times.



The three time estimate for each, activity is written on the arrow showing the respective activity. Probability corresponding to Z value may be interpolated from following table.

Value of Z	0.00	0.40	0.50	0.60
Probability	0.50	0.69	0.72	0.75

Q.4 (a) Discuss Economic Order Quantity (EOQ) model with total cost curve.
(b) Find out sinking fund for accumulating 5,00,000/- Rs. in five years at the rate of interest of 8%.

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(a)	What do you understand by updating? Why it is essential?	07
(b)	List out project performance attributes for success of project.	07
(a)	Enlist various forms of project management structure. Discuss pure project management with its advantages and disadvantages.	07
(b)	Explain: 1). Slack variable 2). Basic variable 3). Non-basic variables	07
	OR	
(a)	Discuss the important traits of a project co-coordinator.	07
(b)	Explain evaluation of public projects by benefit/cost ratio method.	07
	 (a) (b) (a) (b) (a) (b) 	 (a) What do you understand by updating? Why it is essential? (b) List out project performance attributes for success of project. (a) Enlist various forms of project management structure. Discuss pure project management with its advantages and disadvantages. (b) Explain: 1). Slack variable 2). Basic variable 3). Non-basic variables OR (a) Discuss the important traits of a project co-coordinator. (b) Explain evaluation of public projects by benefit/cost ratio method.
