Reg. No. :

Question Paper Code : X10227

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Seventh Semester
Civil Engineering
CE 8012 – CONSTRUCTION PLANNING AND SCHEDULING
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Define work breakdown structure.
2. List two limitations of Bar charts.
3. List out three kinds of time estimates involved in PERT analysis.
4. Define the term crashing. Mention its significance.
5. Define the terms outage loss and overheads cost.
6. Why should cost be controlled in project ? Write its significance.
7. Define quality circle.
8. What are the advantages of Data base management ?
9. Write the objective of PMIS.
10. List any two software used for project management.

PART – B **(5×13=65 Marks)**

11. a) Enumerate the effective management of various resources involved in a construction project.

(OR)

b) Illustrate the work breakdown structure in projects and mention its need.

12. a) The following table gives data elated to activities in a project. Crash the project to minimum project duration and determine the minimum cost and optimum time of completion. Assume indirect cost as Rs. 1400/week.

Activity	Normal		Crash	
	Time (Days)	Cost (Rs.)	Time (Days)	Cost (Rs.)
0-1	1	5000	1	5000
1-2	3	5000	2	12000
1-3	7	11000	4	17000
2-3	5	10000	3	12000
2-4	8	8500	6	12500
3-4	4	8600	2	16500
4-5	1	5000	1	5000

(OR)

b) Conduct PERT analysis and determine the following for the given project.
-Expected time of occurrence of activities and its degree of variation
-Earliest and latest allowable occurrence times for events.
-Slack for events and total floats for activities.
-Critical path, duration and its degree of variability
-Probability of completing the project two days earlier.

Act (i-j) Days	1-2	2-3	2-4	2-6	3-5	3-6	4-6	5-6
t_0	4	8	4	5	3	0	5	2
t_m	6	10	4	7	5	0	7	4
t_p	8	12	4	9	9	0	12	6

13. a) Draw a cash flow diagram and briefly explain its salient features.

(OR)

b) Explain in detail the benefits of cost control techniques.

14. a) Explain the site management with respect to safety considerations.

(OR)

b) Discuss about total quality control in a construction site.

15. a) Discuss the challenges in project information management system.

(OR)

b) Explain about centralized database management system.

PART – C **(1×15=15 Marks)**

16. a) Draw a network diagrams on A-O-A basis for the following project using the activity relationship given below and number the events using Dr. Fulkerson's rule. Determine the critical path and duration of the project.

Activity	Duration (days)	Activity relationship
A	8	A is first operation
B	7	B, C and D follow A
C	2	-
D	3	-
E	5	E and F preceded by D
F	6	-
G	3	G depends C for its start
H	4	H succeeds B, G and E and H and F are terminal activities

(OR)

b) Conduct CPM analysis and determine EST, EFT, LST, LFT, Total float, Free float, Critical path, Critical Activities and draw square network diagram. Also determine the % utilization of resources for a critical and non-critical activity.

Activity (i-j)	1-2	1-3	1-4	2-5	3-6	3-7	4-7	5-8	6-8	7-9	8-9
Duration (days)	3	2	3	4	4	5	2	3	3	2	4