[Total No. of Questions - 9] [Total No. of Printed Pages - 4]
(2123)

1381

B. Tech 5th Semester Examination

Construction Planning and Management (O.S.)

CE-5004

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt any five by selecting one question from each section. Question No. 9 is compulsory. All question carry equal marks.

SECTION - A

1. Discuss different types of construction and stages in construction. **(20)**

2. Discuss in detail the role of engineering drawing in construction. **(20)**

SECTION - B

3. What is mile stone chart? How it is superior to bar chart? **(20)**

4. What is Line organization? List the advantages and disadvantages of it. How it is different from Line and Staff organization? **(20)**

SECTION - C

5. Consider the following network for a small maintenance project (all times are in days).

Activity	Immediate Predecessor	Optimistic time	Most likely time	Pessimistic time
A	–	2	3	4
B	–	5	6	7
C	–	5	6	7
D	A	3	4	5
E	A	2	3	4
F	C	3	4	5
G	C	8	10	16
H	B,E,F	5	6	7
I	B,E,F	7	11	15
J	B,E,F	2	3	4
K	G,J	3	4	5
L	D,H	7	11	15

(i) Draw an activity on node network diagram for the project.

(ii) Calculate the minimum expected completion time of the project. Identify the critical path.

(iii) Estimate the total float, free float and independent float for activities F and G. Explain the meaning of these values.

(iv) Calculate the probability that the project would be completed within 25 days. **(20)**

6.

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

(i) Construct an activity network

(ii) Determine the earliest finish date for the entire project, assuming the project begins at day 0.

(iii) Total floats for each activity

(iv) Critical path

(v) The latest start day for activity B

(vi) The earliest finish date for activity F

(vii) The effect on the project duration if activity I were to take 3 days

(viii) The effect on the project duration if activity F were to take 6 days **(20)**

SECTION - D

7. Discuss the principles of inspection. **(20)**

[P.T.O.]

8. The time cost data for a project is given in the table below

	Activity Duration (days)		Direct Cost (Rs.)	
	Normal	**Crash**	**Normal**	**Crash**
1 -2	4	1	100	130
1 -3	3	1	140	160
1 -4	3	1	200	240
2-5	5	2	100	200
3-6	2	1	50	80
4-6	10	9	150	180
5-6	7	5	200	250

If the indirect cost is Rs 50/ day. Find the optimal project duration. **(20)**

SECTION - E

9. (a) Write a note on different types of construction.

(b) Write a note on arbitration.

(c) Write limitation of bar chart.

(d) Write a note on job layout.

(e) What is Fulkerson's rule for numbering the events in a network?

(f) How critical path is decided using floats?

(g) Classify the various activities in a network.

(h) How probability of achieving the completion time is calculated?

(i) How testing of structures is carried out?

(j) How quality control is ensured at a project site?

(2x10=20)