

[Total No. of Questions - 9] [Total No. of Printed Pages - 4]
(2125)

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B. Tech 5th Semester Examination
Construction Planning and Management (OS)
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 A, B, C & D. Question No. 9 (Section E) is compulsory. All question carry equal marks.

SECTION - A

1. Discuss the significance, objectives and functions of construction management. (20)
2. Discuss various resources for the construction industry. (20)

SECTION - B

3. How scheduling is done by bar chart? Also discuss the limitation of bar chart. (20)
4. Discuss how materials and equipments schedules are prepared? (20)

SECTION - C

5. A Project consists of 12 activities from A to L. The order in which the activities falls as follows:
 - (a) Activity A comes 1st & precedes B, C & D.
 - (b) Both B & C must be completed before E starts and C & D must come before F but G & H can start as soon as D is completed.

[P.T.O.]

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- (c) Activity I succeeds D, E, F, & G.
- (d) Activity J & K succeeds G, H, & I but precedes L.

Draw the network & eliminate redundant activity. (20)

6. The activity 3 time estimates for a project are given in table below. Construct the arrow diagram and determine the critical path.

Activities	t_o	t_m	t_p
1-2	3	5	7
1-3	1	2	3
2-5	6	8	12
3-4	8	12	17
4-5	0	0	0
4-6	6	9	12
4-7	3	6	8
5-8	5	7	9
6-9	1	2	3
7-10	8	15	20
8-9	3	6	8
9-10	2	4	6

What is the probability of finishing the project within the scheduled time

when (i) $T_s = 34.67$ (ii) $T_s = 36.0$ (20)

SECTION - D

7. Discuss different stages in inspection and quality control. (20)
8. The data pertaining to the activities, crash and normal durations, and crash and normal costs is given below:

Activity	Normal		Crash	
	Time (days)	Cost (Rs.)	Time (days)	Cost (Rs.)
1-2	8	100	6	200
1-3	4	150	2	350
2-4	2	50	1	90
2-5	10	100	5	400
3-4	5	100	1	200
4-5	3	80	1	100

Indirect costs amount to Rs. 70 per day. Determine the shortest project duration and the minimum cost for this duration. Develop time-cost trade-off curve for the project. (20)

SECTION - E

9. (a) Differentiate between the most likely time estimate, mean time and expected time.
- (b) For a particular activity of a project the time estimates given by Engineers X and Y are as follows.

	t_o	t_m	t_p
Engineer X	4	6	9
Engineer Y	5	7	9

State who is more certain about the time of completion of the job.

[P.T.O.]

- (c) Write a note on important conditions of contract.
- (d) List various types of organizations.
- (e) Distinguish between CPM & PERT.
- (f) How critical path is decided using slack?
- (g) List steps in time cost optimization,
- (h) Write a note on temporary services.
- (i) List different types of floats.
- (j) Write a note on enforcement of specifications. (2×10=20)