15325

B. Tech 7th Semester Examination

Project Planning & Construction Equipment (NS)

CE-415

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 one question each from Sections A, B, C and D. Section E is compulsory. All questions carry equal marks.

SECTION - A

1. (a) How Critical Path Method is different from Programme Evaluation and Review Technique. (8)

    (b) Taking the example of two room house (residential) explain the concept of work breakdown structure used in construction planning. (12)

2. Draw the construction network and find the project duration and four types of activity times and floats. (20)

Activity	Precedents	Duration
A	-	2
B	A	1
C	-	4
D	I,M	3
E	-	1
F	B	2
G	F,L	5
I	G,K	2
J	A	1
K	J,L	4
L	C,E	3
M	G,K	4
N	I	2
O	D,N	1

[P.T.O.]

SECTION - B

3. For the network given in the table below, determine optimum cost and duration.

Activity	Normal Time (Months)	Normal Cost (Rs.)	Crash Time (Months)	Crash Cost (Rs.)
1-2	5	4000	4	5000
1-3	7	8000	3	10000
2-3	6	6000	2	8400

Indirect Cost = Rs. 1000/- per month (20)

4. (a) State the need for inspection and quality control in construction projects. (10)

    (b) Explain important requirements for the inspection of plain cement concrete. (10)

SECTION - C

5. (a) Define linear Programming Problem and discuss its applications. (12)

    (b) A small manufacturing unit manufactures tables and chairs. Each table require twice as much time as chair. If the unit was to produce only tables, it could manufacture 15 pieces per week. Keeping in view the market demand, manufacturer cannot produce more than 25 pieces of both per week. Market survey has shown that no more than 10 tables per week can be sold. The manufacturer is also committed to supply atleast 5 chairs per week. If the net profit on sale of a chair is Rs. 100 per piece, and on sale of a table Rs. 150 per piece. How should he plan his production to maximize the profit? Formulate the problem as LPP. (8)

6. Define transportation problem and give its mathematical formulation. Calculate initial basic feasible solution by Vogel's method and also obtain optimal solution of the following transportation problem whose cost matrix is   (20)

		Destination				
		E	F	G	H	Available
Origin	A	7	2	5	5	30
	B	4	4	6	5	15
	C	5	3	3	2	10
	D	4	1	4	2	20
Requirement		20	25	15	15	

SECTION - D

7. A dam project involves construction of dam where mass concreting is to be done. What equipments would you procure for efficient and speedy construction? Describe any two equipments in detail with neat sketch.   (20)

8. Write short notes on (1) trenchers (2) graders, (3) compressors (4) Clam shell and (5) Muckers.   (5x4=20)

SECTION - E

9. Answer any Five.

   (a) Differentiate between construction stage and commissioning stage.

   (b) What is time value of money?

   (c) What are various causes of accidents during construction?

   (d) What are the principles of inspections?

   (e) Differentiate between bar charts and milestone charts.

   (f) Why do we need to update the construction project plan?
                 (5×4=20)