BTS (C) – V – 05 – 064 (F)

B. Tech Degree V Semester Examination, November 2005

CE 505 (B) CONSTRUCTION, NETWORKING MONITORING AND CONTROL

(2002 Admissions onwards)

Time : 3 Hours Maximum Marks:100

I. (a) What is scheduling? Explain the different scheduling procedures used in construction.

(b) Explain Fulkerson's rule for numbering events. Draw an arrow diagram showing the following relationships. Number the events according to Fulkerson's rule.

Activity	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Immediate predecessor	-	-	-	A,B	B,C	A,B	C	D,E,F	D	G	G	H,J	K	I,L

(25)

OR

II. (a) Explain the following terms and enumerate their uses :

(i) Project break down (ii) Time and cost curve

(iii) Critical path method (iv) Listing of materials. (12)

(b) Draw the network and find the critical path, completion time, EST, EFT, LST and LFT from the data given below :

Activities	Duration (weeks)
1 – 2	2
1 – 3	3
1 – 4	4
2 – 3	2
2 – 5	3
3 – 6	6
4 – 7	5
5 – 6	2
5 – 8	4
6 – 8	6
7 – 8	5
8 – 9	5

(13)

III. (a) Explain network compression. (8)

(b) Find the optimum time and cost of the project whose details are given below :

Activities	Normal		Crash	
	Time (weeks)	Cost (Rs.)	Time (weeks)	Cost (Rs.)
1 – 2	4	1600	3	1800
1 – 3	7	2500	5	3000
1 – 4	6	2400	4	2800
2 – 5	7	1800	6	2000
3 – 5	6	1600	6	1600
4 – 5	8	3200	6	3800
5 – 6	9	2700	8	3000

The indirect cost of the project is Rs. 2000/week. (17)

OR

(Turn Over)

IV. (a) Explain the method of crashing the network.

(b) Crash the given network and find the optimum cost and time.

Activities	Normal		Crash	
	Time (weeks)	Cost (Rs.)	Time (weeks)	Cost (Rs.)
A – B	3	1200	2	1600
A – C	5	1800	3	2000
B – D	2	1500	1	1800
C – D	4	1000	2	1500
D – E	5	1200	4	1300

(25)

V. Write notes on the following :

(i) Resources allocation (ii) Resources leveling

(iii) Scarce resources (iv) Practical planning with CPM

(v) Scheduling for time limitations. (25)

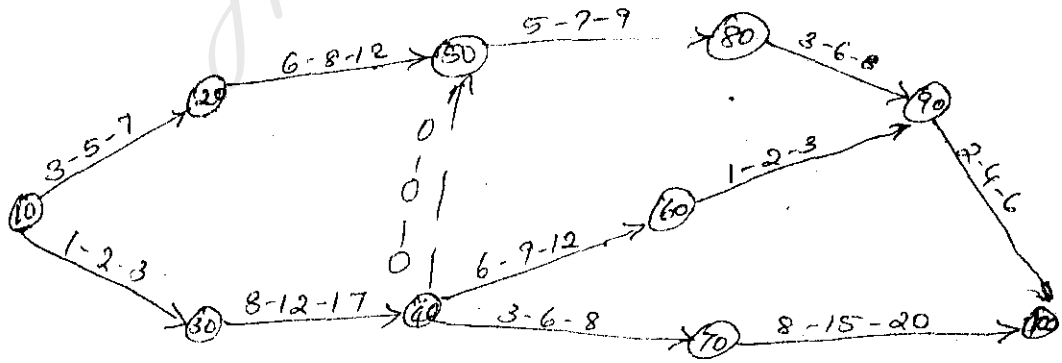
OR

VI. The data concerning manpower requirement for the various activities is given in the following table. Allocate manpower resources for the job and carry out resource leveling.

Activity	Duration	No. of labourers required
1 – 2	2	4
2 – 3	4	2
2 – 4	4	4
2 – 5	3	2
3 – 9	4	6
4 – 6	7	2
4 – 9	2	4
5 – 7	5	4
6 – 8	2	2
7 – 10	5	2
8 – 9	2	2
9 – 10	3	4
10 – 11	5	4

(25)

VII. For the network shown in figure, determine the variance, time duration and standard deviation of all activities. Optimistic, most likely and pessimistic time estimates are given on the arrows representing the activities. (25)



OR

VIII. Refer to the figure of Q. No. VII, determine the critical path and the probability of finishing the project within 36 days. (25)

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