JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- OCT 2018

B.Tech 5th Semester

Kaushal Kumar

COURSE CODE: 10B11CE515 MAX. MARKS:25

COURSE NAME: Construction Technology and Management

COURSE CREDITS: 4 MAX. TIME: 1.5 Hrs

Note: *All questions are compulsory. Carrying of mobile phone or sharing of materials during examinations will be treated as case of unfair means.*

Q 1. A project consist of seven activities P, Q, R, S, X, Y and Z. Their sequence and duration is shown in following table : **[1+2+1+2 = 6 Marks]**

Activity	*Duration in weeks*			*Immediate Predecessor*
	Pessimistic	*Optimistic*	*Most likely*	
P	18	9	12	-
Q	17	6	10	P
R	8	4	6	P
S	26	14	17	Q, R
X	21	10	14	Q
Y	14	8	11	S, X
Z	10	6	8	S

i. Draw the network Diagram.

ii. Show the critical path and determine the expected completion time.

iii. Find the next most critical path.

iv. What is the probability of the project being completed in 58 days? Probability may be linearly interpolated from the table of probability factors (Z).

Z	1.0	1.5	2.0	2.5	3.0
Probability	84.13	93.32	97.72	99.38	99.87

Q 2. Draw the network for the following project and indicate the event times and Critical Path. Also find the Project duration and Total Float for all activities: **[2+2+1+2 = 7 Marks]**

Activity	*Duration (Days)*	*Preceding Activities*
A	5	-
B	3	A
C	3	A, B, F
D	7	C, L
E	7	D, G, H
F	2	A
G	2	F
H	3	G, L
K	6	A
L	3	F, K

Q 3. A small CPM network has the following data given in the table below. Establish the optimum schedule for (i) minimum cost, and (ii) minimum duration. Indirect cost is ***Rs 3000*** per day and normal total cost is ***Rs 2,00,000*** only. Above results must be clearly shown Graph paper along with **total cost curve** on it. **[2+2+2 = 6 Marks]**

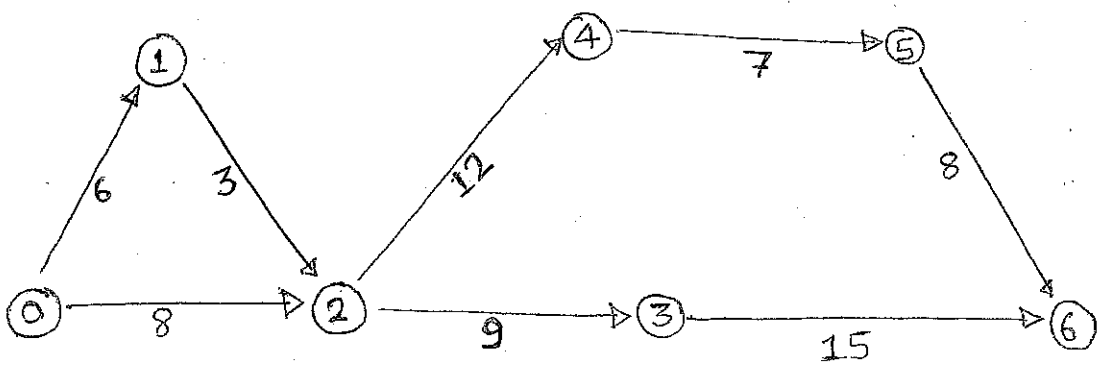
Activity	*Following*	*Preceding*	*Duration, days*		*Time cost curve slope in Rs/day*
			Normal	*Minimum*	
A	D & E	-	8	6	2000
B	F	-	12	8	1500
C	-	-	20	19	2500
D	-	A	10	9	3000
E	F	A	5	3	1000
F	-	B & E	10	9	2200

Q 4. **[3+3 = 6 Marks]**

(a). With the help of an illustrative example, explain the ***resources smoothing method***.

(b) A network is shown which is to be updated at the end of 12 weeks. The following exists at the time of updating:-

i. Act. 0-1, 0-2, 1-2 are completed
ii. Act. 2-3 has been progressing for 3 weeks and need 8 more weeks for completion.
iii. Act. 2-4 has been in progress for 3 weeks, since a new machine has been commissioned, the present estimate is that it can be completed in 6 more weeks.
iv. A reassessment of activity 5-6 has revealed that it can be completed in 7 weeks.



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