COURSE CODE:10B11CE515   MAX. MARKS:25
COURSE NAME: Construction Technology and Management
COURSE CREDITS: 4   MAX. TIME: 1.5 Hr

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. What is *Gantt chart* ? What are its advantages and limitations?   [2 Marks]

Q 2. What do you mean by *Beta-Distribution* probability function and its application?
Explains 'Errors' related to the Network Diagram.   [2+2 = 4 Marks]

Q 3. With the help of an illustrative example, explain the resources smoothing method.
          [3 Marks]

Q 4. A building project consists of 10 activities. Normal duration of each activity along with preceding and succeeding activities are also given.

Activity	A	B	C	D	E	F	G	H	I	J
Preceding activity	-	A	A	B	B	C	C	D	E, F	G
Succeeding activity	B, C	D, E	F, G	H	I	I	J	-	-	-
Estimated Duration	5	2	6	4	4	2	3	8	7	2

Draw the network and determine the **critical path,** the **total project duration.** Also find Total and Free Float for each activity.   [6 Marks]

Q 5. Following information is available about the various activities of a network.
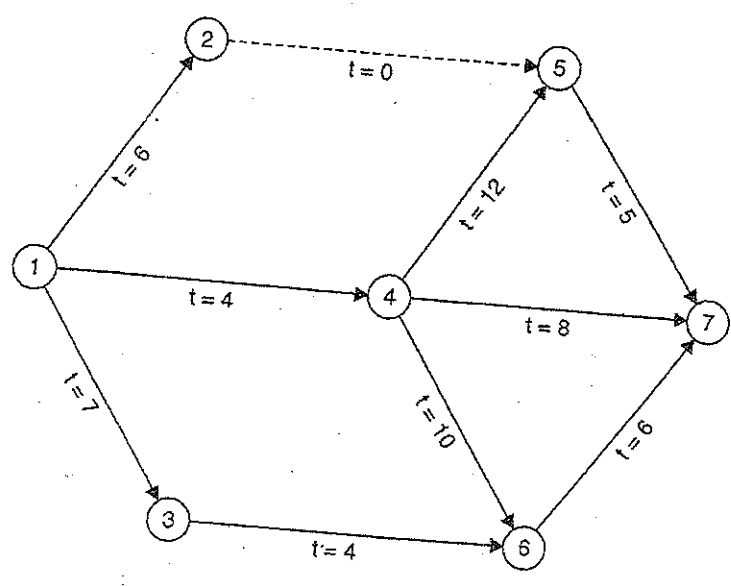
Activity	Normal Duration (Weeks)	Normal Cost (Rupees)	Crash Duration (Weeks)	Crash Cost (Rupees)
1 – 2	4	4000	3	7000
1 – 3	8	5000	7	8000
2 – 3	5	8000	3	10000

Project overhead cost are Rs. 2000/week. Draw each stage time-scale diagram and Determine

a) Direct cost-duration relationship
b) Total cost-duration relationship   [6 Marks]

Q 6. Figure below shows the network of a project which is to be updated at the end of 10 days of its execution. The following conditions exist at the end of 10 days:

  i.   Activity $1-2$, $1-3$ and $1-4$ have been completed as originally scheduled.

  ii.   Activity $4-5$ is in progress and will require 6 more days for its completion.

  iii. Activity $4-6$ is in progress and will require 6 more days for its completion.

  iv. Activity $3-6$ is in progress and will be completed in one day.

  v.   Other activities have not been commenced and their original predicted duration will hold good, except for activity $5-7$ which will require only **three days** instead of **5** days originally planned.

Update the network and determine the critical path of the updated network. What is the total increase in project duration?

[4 Marks]