

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (OLD) - EXAMINATION – SUMMER 2017****Subject Code: 170601****Date: 09/05/2017****Subject Name: Construction management and Equipments****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

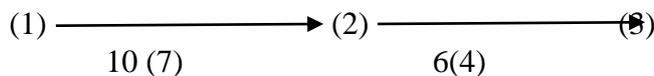
- Q.1** (a) What is critical path? How is it determined? Explain its properties. **07**  
 (b) Draw the network diagram from following details. Also show critical path and find time required for completion of project. Calculate Total float, Free float and Independent float. **07**

Activity	Duration in days	Preceding activity	Succeeding activity
A	30	-	B,C
B	20	A	D,E
C	30	A	E
D	50	B	F
E	60	B,C	F,G
F	50	D,E	-
G	40	E	-

- Q.2** (a) Write difference between Activity and Event. **07**  
 (b) Explain “Burst event and Merge event” with sketch and also write about looping and dangling event in network. **07**

**OR**

- (b) Draw (i) direct cost – duration relationship (ii) Total cost – duration relationship and (iii) least cost curve using following data of various activities of a project. **07**



Activity	Normal duration in days	Normal cost in Rs.	Crash duration in days	Crash cost in Rs.
1 – 2	10	7000	7	8500
2 – 3	6	4000	4	5000

- Q.3** (a) What are the reasons for updating of CPM network? Explain each reason and draw updating cycle. **07**  
 (b) What is time – grid diagram? Explain in detail time – grid diagram method. **07**

**OR**

- Q.3** (a) Classify the resource scheduling methods and explain any one in detail. **07**  
 (b) What are the resources in project? Explain objectives of resource planning. **07**

- Q.4** (a) What is slack? Explain various types of slack. **07**  
 (b) For an activity the optimistic time, pessimistic time and most likely time estimates are 8, 20 and 12 days respectively. Calculate (i) Expected time (ii) Standard deviation and (iii) variance. **07**

**OR**

- Q.4** (a) What is job layout? List the purposes of preparing a job layout of a project. **07**  
(b) Explain cash flow analysis by S-curve. **07**
- Q.5** (a) What is the use of present worth analysis in engineering economic studies? **07**  
(b) Find out the depreciation for each year by “sum of digits” method for the equipment having purchase price of Rs. 10000/- and scrap value at the end of useful life of 6 years equal to 10 % of its original purchase price. **07**

**OR**

- Q.5** (a) Write the types of draglines and list factors affecting output of a dragline. **07**  
(b) Explain cycle time of a truck and write factors affecting cycle time of a truck. **07**

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