

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.

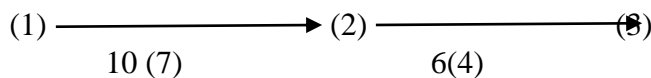
- Q.1** (a) What is critical path? How is it determined? Explain its properties. **07**
 (b) Draw the network diagram from following details. Also show critical path and find time required for completion of project. Calculate Total float, Free float and Independent float. **07**

| 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**
