Code No: **RT41013**          **R13**          Set No. 1

### IV B.Tech I Semester Supplementary Examinations, March - 2017
## CONSTRUCTION TECHNOLOGY AND MANAGEMENT
### (Civil Engineering)

**Time: 3 hours**                                                                 **Max. Marks: 70**

*Question paper consists of Part-A and Part-B*
*Answer ALL sub questions from Part-A*
*Answer any THREE questions from Part-B*
*****

## PART–A *(22 Marks)*

1.  a) Enumerate the steps involved in Construction scheduling. [3]

    b) Explain the significance of Beta distribution Curve in PERT analysis. [4]

    c) Highlight the limitations of Earthmoving equipments. [4]

    d) Discuss the advantages and disadvantages of Clamshell buckets. [4]

    e) Differentiate between Jaw and Gyratory Crushers based on their use and application. [4]

    f) State the safety precautions to be followed at construction sites. [3]

## PART–B *(3x16 = 48 Marks)*

2.  a) For a construction project, the following activities are to be performed. Activities P and Q can be performed in parallel; activities R and S cannot start until P is complete. T cannot start until half work of activity R is complete. Activity U can start only after activity S is complete. Activity N succeeds activity R and activity W which is the last activity succeeds T. Draw the bar chart and determine the total completion time of the project.

| Activities | Duration (weeks) |
|------------|------------------|
| A | 2 |
| B | 4 |
| C | 2 |
| D | 4 |
| E | 6 |
| F | 4 |
| G | 5 |
| H | 4 |

[6]

    b) What is meant by Work Breakdown Structure? [5]

    c) Show the differences between Critical Path Method and PERT technique. [5]

3. a) The following table gives data on normal time and cost and crash time and cost for a project. (a) Draw the network and identify the critical path. (b) What is the normal project duration and associated cost? (c) Find out total float for each activity. (d) Crash the relevant activities systematically and determine the optimum project time and cost. The indirect cost can be taken as Rs. 150 per week.

| Activity | Normal time (weeks) | Crash time (weeks) | Normal Cost (Rs. Per week) | Crashing Cost (Rs. Per week) |
|----------|---------------------|--------------------|-----------------------------|-------------------------------|
| 1-2 | 3 | 2 | 300 | 600 |
| 2-3 | 3 | 3 | 450 | 550 |
| 2-4 | 7 | 5 | 600 | 780 |
| 2-5 | 9 | 7 | 920 | 1010 |
| 3-5 | 5 | 4 | 450 | 550 |
| 4-5 | 0 | 0 | 0 | 0 |
| 5-6 | 6 | 4 | 800 | 1100 |
| 6-7 | 4 | 3 | 1000 | 1500 |
| 6-8 | 13 | 10 | 900 | 1200 |
| 7-8 | 10 | 9 | 1800 | 2000 |

[10]

b) What are the various costs involved in Time – Cost analysis? Explain each in detail.          [6]

4. a) Explain the important economical consideration required for construction equipments.          [8]

   b) Discuss in detail the procedure to calculate the truck production and its utility for any construction project.          [8]

5. a) Highlight and explain the various factors governing the selection of earthmoving equipment.          [6]

   b) With neat sketches, explain any two methods of earthmoving.          [5]

   c) Explain in detail the significance and application of Power shovels.          [5]

6. a) What do you understand by screening of aggregate? Explain about its necessity in construction industry.          [8]

   b) Give the detailed classification of Concrete mixers along with their limitations, advantages and disadvantages.          [8]

7. a) Discuss in detail the common risks possible at the fabrication stage.          [8]

   b) What do you understand by Quality Control in Construction industry? How it helps in good quality of workmanship.          [8]