

Code No: RT41013

**R13****Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Oct/Nov - 2018

**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*

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**PART-A (22 Marks)**

1. a) What are the steps involved in project planning? [4]  
b) What is slack? What are the different types of slack? [3]  
c) What are economical considerations for earthwork equipment? [4]  
d) Discuss the merits and demerits of scrapers. [4]  
e) Write the application of gyratory crushers. [4]  
f) Discuss briefly about the piling. [3]

**PART-B (3x16 = 48 Marks)**

2. a) Describe various phases of project management. [8]  
b) Bring out the differences between bar chart and mile stone chart. [8]
3. a) Draw a PERT network, with the three estimates of each activity. Determine (i) critical path and its standard deviation. (ii) Probability of completion of project in 40 days. (iii) Time duration that will provide 95% probability of its completion in time.

Activity	$t_o$	$t_L$	$t_p$
1-2	2	5	8
2-3	8	11	20
3-4	0	0	0
2-4	4	7	16
2-5	4	9	20
4-6	7	10	13
5-6	3	7	17
3-7	3	5	13
6-7	2	3	10
7-8	2	4	6

- b) What do you understand by updating? Why is it essential? Illustrate the method of updating a network during its execution period. [8]
4. a) Explain in detail about the trucks and hauling equipment. [8]  
b) Describe the different types of compaction rollers. [8]
5. a) On what basis cranes are classified. Explain it. Discuss their applications. [8]  
b) Write notes on clamshell buckets. [8]
6. a) Describe the different types of concrete mixers and their application. [8]  
b) Describe the method of selection of crushing equipment. [8]
7. a) Explain the concept of fabrication and erection in construction. How it is essential to a large scale project. [8]  
b) Discuss the form work and explain the methods of placing of concrete. [8]

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**Set No. 2**

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**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*

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**PART-A (22 Marks)**

1. a) What are the objectives and principles of project planning? [4]
- b) Define free float. What is its importance? How is it determined? [3]
- c) How do you find the capacity of trucks? Discuss it. [4]
- d) Discuss about the draglines. [4]
- e) What are the applications of jaw crushers? [4]
- f) Discuss uses of pile driving equipment. [3]

**PART-B (3x16 = 48 Marks)**

2. a) Discuss in brief the role of management in project execution. [8]
- b) Describe the classification of scheduling. [8]
3. a) The network for a construction project is shown in figure 3 (a). The three time estimates for each activity are given along each activity arrow. Compute (i) expected time of completion of each activity, (ii) earliest expected time for each event, (iii) latest allowable occurrence time for each event. [10]

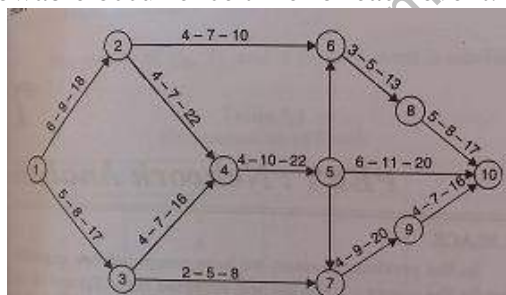


Figure 3 (a)

- b) Differentiate between crashing for optimum cost and crashing for optimum resources [6]
4. a) Mention the various types of handling equipment and their uses. [8]
- b) Discuss about the compaction equipment and its significance. [8]
5. a) Differentiate between graders and scrapers in detail. [8]
- b) Highlight and explain the various factors governing the selection of earthwork equipment. [8]
6. a) Describe the different types of concrete mixers and their uses. [8]
- b) Discuss briefly about the screening of aggregate. [8]
7. a) Discuss the importance of fabrication and erection work in engineering projects. [8]
- b) Explain the methods of piling and placing of concrete. [8]

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**Set No. 3**
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**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*

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**PART-A (22 Marks)**

1. a) What is a milestone chart? How does it differ from a bar chart? [4]
- b) What do you understand by the latest allowable occurrence time? How do you determine it? [3]
- c) What are the limitations of Earthmoving equipments? [4]
- d) What are the applications of scrapers? [4]
- e) Discuss about the consolidating and finishing of concrete. [4]
- f) Write note on safety engineering. [3]

**PART-B (3x16 = 48 Marks)**

2. a) Discuss the qualities of a project manager. [8]
- b) Describe the stages and types of planning in construction management. [8]

3. a) The direct cost of the project is Rs 2000 per week. Determine the optimum duration of the project and the corresponding minimum cost. Draw the least cost network.

Activity	Normal duration (weeks)	Normal cost (Rs `)	Crash duration (weeks)	Crash cost (Rs `)
1-2	4	4000	2	12000
2-3	5	3000	2	7500
2-4	7	3600	5	6000
3-4	4	5000	2	10000

- b) Discuss in brief the resources allocation problem. What are the methods of solving the problem? [8]
4. a) Mention the different types of compaction rollers. [8]
- b) What is meant by cycle time in trucks and how do you calculate the truck production? [8]
5. Describe about the Hoisting and earthwork equipment in detail with neat sketches. [16]
6. a) How do you carry out the mixing and placing of concrete in construction projects? Explain in detail? [8]
- b) Differentiate between impact and Gyratory Crushers based on their use and application. [8]
7. a) Discuss in detail about various types of piles used in earth work for a project. [8]
- b) Differentiate between earthwork and formwork. [8]

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**Set No. 4**

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**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*

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**PART-A (22 Marks)**

1. a) What is a critical path? How is it identified? [4]
- b) Explain the term 'earliest expected time'. Formulate an expression for determine the same. [3]
- c) Discuss rear dump truck. [4]
- d) What are the applications of bulldozers? [4]
- e) What are the uses of screening of aggregate? [4]
- f) What are the significance of quality control? [3]

**PART-B (3x16 = 48 Marks)**

2. a) What are the methods of scheduling? Explain with the help of a suitable example, the method of preparing a bar chart. [8]
- b) Discuss the main objectives and applications of construction management? [8]
3. a) A construction company has an opportunity to submit a bid for the construction of a new apartment building. From the specification provided by the developer, the PERT network along with the three time estimate (in week) for each activity are shown in figure 3 (a). Determine (i) critical path and its standard deviation. (ii) Probability of completion of project in 38 days. (iii) Time duration that will provide 95% probability of its completion in time.

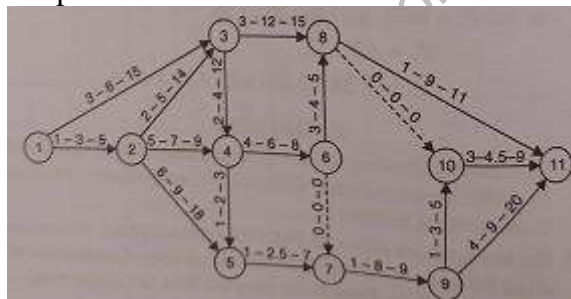


Figure 3 (a)

- b) Draw a typical cost-duration curve and show on it optimum duration and minimum project cost. [6]
4. a) Explain about the compaction equipment and its significance. [8]
- b) What are economical considerations for the selection earthwork equipment? Discuss it. [8]
5. a) Describe the difference between hoists and cranes with their applications. [8]
- b) Discuss in detail about the clamshell buckets and its applications. [8]
6. a) Explain how the selection of crushing equipment in carrying out for a large construction projects? [8]
- b) Explain different types of crushers and its application. [8]
7. Describe in detail about the different construction methods. Discuss their merits and demerits. [16]