

B TECH
(SEM VIII) THEORY EXAMINATION 2017-18
CONSTRUCTION TECHNOLOGY AND MANAGEMENT

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

- 1. Attempt *all* questions in brief. 2 x 10 = 20**
- a. Write about Network rules and graphical guidelines for network.
 - b. What are the necessary data required for updating?
 - c. What is meant by Work Breakdown Structure?
 - d. Write the significance of Beta distribution Curve in PERT analysis.
 - e. What is the difference between nominal interest rate and effective interest rate?
 - f. Write the principle of engineering economy.
 - g. What is the content of specification?
 - h. What is meant by earnest money deposit?
 - i. How will you measure the effectiveness of grouting?
 - j. What is the basic purpose of screening?

SECTION B

- 2. Attempt any *three* of the following: 10 x 3 = 30**
- a. Describe the salient features of various activities and resources involved to be planned for a new project. What are the roles of planning techniques to make the decisions for a new project?
 - b. Illustrate the CPM techniques as used in scheduling a construction project. Also give the differences between PERT and CPM system.
 - c. The fixed costs for the year 1994-95 are Rs 60000. The estimated sales for the period are valued at Rs 200000. The variable cost per unit for the single product made is Rs 5/-. If each unit sells at Rs 25 and the no. of units involved coincide with the expected volume of output. Construct the break even chart and determine the followings:
 - i. The break even point
 - ii. The profit earned at a turnover of Rs 125000
 - iii. Margin of safety
 - iv. Angle of incidence.Verify the results algebraically.
 - d. What is a bid? How is it submitted? What are the various stages and types? How do the presentation of bid and its evaluation take place?
 - e. List down the factors which affect the economic life of equipments. Discuss each factor in detail by assuming some date.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**
- (a) What are the basic reasons for the failure of a construction company? Discuss the factors for cost escalation of a construction project.
- (b) Why is it necessary to maintain an appropriate reporting and monitoring system in a construction project? Describe the managerial system with the help of an organizational chart for a job site.
4. Attempt any *one* part of the following: **10 x 1 = 10**
- (a) Four activities to be undertaken in series for the completion of a project are as follows:
- | Activity | Optimistic time(days) | Most likely time (days) | Pessimistic time (days) |
|----------|-----------------------|--------------------------|--------------------------|
| P | 8 | 14 | 22 |
| Q | 7 | 21 | 32 |
| R | 8 | 19 | 28 |
| S | 28 | 40 | 52 |
- (b) Explain the concept of float and slack. Distinguish between the free, independent and interfering floats.
5. Attempt any *one* part of the following: **10 x 1 = 10**
- (a) The initial cost of equipment is Rs 1100, salvage value is Rs 100. Life of equipment is 5 years. The rate of interest for sinking fund is 8%, calculate the yearly depreciation and book value at the end of each year by 5 methods. Present the values in tabular form and graphically.
- (b) An engineer sold his patent to a corporation and is offered a choice of Rs 12500 now or Rs 1650 per year for the next 10 years. The money worth is 12 %. Find the desirable choice for the engineer.
6. Attempt any *one* part of the following: **10 x 1 = 10**
- (a) What are the conditions of contract in contract document? Why is it recommended to use standard forms of contract? What are the matters to be defined in the conditions of contract? Elaborate.
- (b) What is the purpose of 'retention money'? When payments may be made at reduced rate? How and by whom are the reduced rates determined?
7. Attempt any *one* part of the following: **10 x 1 = 10**
- (a) Explain a central batching and mixing plant for a very large construction project.
- (b) What are the various types of heavy hauling equipment vehicles? Also write in brief, their relative advantages and disadvantages.