

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 100801

Roll No.

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B.Tech.

(SEM. VIII) THEORY EXAMINATION 2013-14

**CONSTRUCTION TECHNOLOGY AND
MANAGEMENT**

Time : 3 Hours

Total Marks : 100

Note :- Attempt **all** questions. All questions carry equal marks.

1. Answer any **four** parts : **(5×4=20)**
 - (a) What are the six main functions of management in undertaking a construction project ? Discuss.
 - (b) Discuss project life cycle and performance objectives.
 - (c) In a big construction project, how the work is divided into small sub projects and how contract planning programme is worked out to complete the project in specified time. Discuss with a suitable example.
 - (d) What is the role of architects and other specialist consultants in planning and construction of a multi storied housing project ? How is their role integrated in the whole system of project planning ?
 - (e) Discuss the various types of civil engineering construction and their unique features.
 - (f) Discuss the importance of control system in successful completion of a project i.e. with respect to scope, cost, time and quality.

2. Answer any two parts :

(10×2=20)

(a) Draw a bar chart and compute the total duration of the project from the data given below :

Task (1)	5 days (Duration)
Task (2)	3 days
Task (3)	7 days
Task (4)	2 days
Task (5)	4 days
Task (6)	7 days

Task (1) and (4) will be started together. Task (2) will start after completion of Task (3) and Task (3) will take place after Task (1). Task (5) and (6) will be taken up together but only after completion of Task (3).

- (b) (i) Explain the concept of float and slack. Distinguish between the free, independent and interfering floats.
(ii) Explain the three time estimates that are used in PERT. How are the expected duration of a project and its standard deviation calculated.
- (c) Fig.1 represents the network of a project and duration of each activity in number of days is given along the respective activity. Identify all the paths through the network and find out the critical path and project duration.

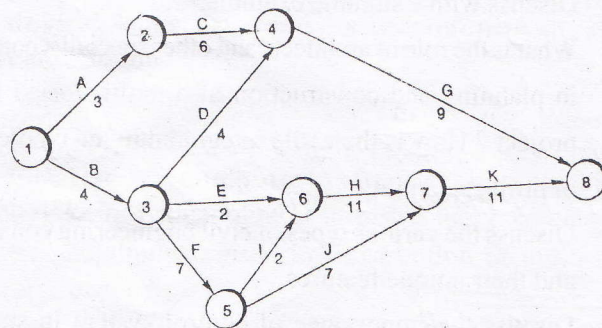


Fig.1

3. Answer any two parts :

(10×2=20)

(a) Discuss the following methods used in engineering economic analysis for evaluating and comparing alternatives:

- (i) The Present Worth method
- (ii) Future Worth method
- (iii) The Annual Equivalent method
- (iv) Rate of Return method.

(b) An engineer has two bids for an elevator to be installed in a new building. The details of the bids for the elevators are as follows :

Bid	Engineer's Estimates		
	Initial cost (Rs.)	Service life (Years)	Annual Operation and Maintenance cost (Rs.)
Alpha elevator	4,50,000/-	15	27,000/-
Beta elevator	5,40,000/-	15	28,500/-

Determine which bid should be accepted, based on present worth method of comparison assuming 15% interest rate compounded annually.

- (c) (i) Distinguish between declining balance method of depreciation and double declining balance method of depreciation.
- (ii) A company has recently purchased an overhead travelling crane for Rs. 2,50,000/-. Its expected life is 7 years and its salvage value at the end of the life is Rs. 1,00,000/-. Using the straight line method of depreciation, find the depreciation and the book value at the end of third and fourth year after the crane is purchased

4. Answer any **two** parts : **(10×2=20)**
- (a) What are reciprocal promises in a contract ? How their non-fulfillment leads to breach of contract ? Discuss it with a few practical examples.
 - (b) Describe the tendering process adopted in case of an item rate contract. What is the importance of comparative statement of tenders and how does it help in decision making with respect to accepting or rejecting the lowest tender.
 - (c) Define and discuss the importance of the following :
 - (i) Earnest money
 - (ii) Security deposit
 - (iii) Maintenance liability period of contract
 - (iv) Debitable agency
 - (v) Registration of contractors and suppliers by engineering departments.
5. Answer any **two** parts : **(10×2=20)**
- (a) What are the various operations associated with the earth work for providing basement and raft foundation for constructing a multi storied building. Describe the various equipments which shall be deployed for carrying out these operations.
 - (b) Discuss the various equipments used in production and placement of concrete. When is it economical and desirable to use ready mix concrete at site of construction.
 - (c) Write short notes on following in brief :
 - (i) Time and Motion study
 - (ii) Use of computer softwares in construction management of large infrastructure projects.
 - (iii) Equipments used in construction of multi-storied buildings.
 - (iv) Advantages and disadvantages of owning a construction equipment.