

**3E1624**

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**B.Tech. (Sem.III) (Main/Back) Examination, 2015  
Civil Engineering  
3CE4 Construction Technology**

Time : 3 Hours

Total Marks : 80  
Min. Passing Marks : 26

**Instructions to Candidates :**

Attempt any five questions, selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

**Unit - I**

1. (a) What are the essential structural components of a building? Discuss the functional requirement of the superstructure to perform their primary objectives satisfactorily. (8)
- (b) What is the general principle would you keep in mind while supervising a (i) stonework and (ii) brickwork under construction.  
Give a general review which you apply to ensure a structurally sound, aesthetically pleasant and comfort cum service type construction. (8)

OR

1. (a) Define scaffolding and give name of different type of scaffolding. Describe any two of the scaffolding with neat sketches, which are most commonly used. (8)
- (b) Discuss the different types of bond, which are used in brick masonry construction with neat sketches. (8)

**Unit - II**

2. (a) What is the dampness in building? Discuss the possible causes and effects of dampness on the performance of a building structure. (8)
- (b) Differentiate between :  
(i) Pre cast and cast in situ lintel  
(ii) Skewback and springing points  
(iii) Extrados and intrados  
(iv) Spandrel and haunch  
(v) Springing line and springers. (4 × 2 = 8)

OR

2. (a) What are the requirements of a staircase in residential and public building? Draw a section through R.C.C. staircase showing tread, rise, baluster, newel post, handrail and landings. (8)
- (b) What are the objectives of joints? Discuss in brief different type of joints, which are used in construction of a building with neat sketches. (8)

**Unit - III**

- (a) What is the difference between fabrication and erection work? How does erection of precast reinforced concrete structure? (8)
- (b) Enumerate different types of flooring used for ground floor construction. Discuss the factors affecting the selection of ground floor construction. (8)

OR

3. (a) Define the following terms used in pitched roof construction and show in diagram.  
(i) Pitch of a roof  
(ii) Ridge  
(iii) Purlin  
(iv) Jack Rafter  
(v) Cleat  
(vi) Eaves Board (9)

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- (b) Differentiate between the following:
  - (i) King post roof truss and queen post roof truss
  - (ii) Gable roof and hip roof
  - (iii) Couple close roof and collar beam roof.

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**Unit - IV**

- 4. (a) Enumerate the different types of grouting equipment. Explain the jet grouting with neat diagram. (7)
- (b) Differentiate between the following: (7)
  - (i) Pneumatic type roller and Sheep foot roller
  - (ii) Drop hammer and diesel hammer
  - (iii) Needle vibrator and screed vibrator

**OR**

- 4. (a) Discuss the construction and functioning of Asphalt Batch hot mix plant giving special attention on screening, weighing and mixing units. (9)
- (b) Write a short note on the following: (10)
  - (i) Reciprocating pump
  - (ii) Scraper

**Unit - V**

- 5. (a) Determine the probable, overing and operating cost of 15/20 m<sup>2</sup>m<sup>3</sup> electrically operated batching plant for the following particulars: (6)
  - (i) Power required = 61 Hp
  - (ii) Life of equipment = 20 years
  - (iii) Total cost of batching plant = 25,00,000
  - (iv) Hours used per year = 1600 hours
- (b) Discuss the factors affecting the selection of equipment in construction project for better and speedy execution. (12)

**OR**

- 5. (a) What is the use of break-even point theory? Explain the methods, which are used for the determination of break-even value. (4)
- (b) Discuss the advantage of using machine v/s manual labour. (7)
- (c) Discuss the advantage of preventive maintenance of equipment. (6)

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