

Total Pages—4

(Set-Q₁)

B.Tech-3rd (Civil)

Civil Engineering Materials and Construction

Full Marks : 70

Time : 3 hours

Q.No.1 is compulsory and answer
any five from the rest of the questions

The figures in the right-hand margin indicate marks

1. Answer all questions : **2 × 10**

- (i) What are the harmful substances which affect the qualities of a good clay brick ?
- (ii) What is rapid hardening cement ? Where do you recommend this type of cement ?
- (iii) What is bulking of sand ? How does it affect concrete mix ?
- (iv) What is alkali-aggregate reaction ? What are the factors which affect this reaction ?

(Turn Over)

(2)

- (v) Mention the factors affecting the workability of concrete.
 - (vi) What is meant by seasoning of timbers and how is it done ?
 - (vii) What do you mean by Relieving Arch ?
 - (viii) What do you understand by fire load in a building ? How do you determine it ?
 - (ix) Differentiate between shallow and deep foundations.
 - (x) What are the objectives of plastering and pointing in buildings ?
2. (a) Briefly explain the manufacturing process of clay bricks. 5
- (b) What are the major compounds formed during hydration of cement ? How do they affect the properties of cement ? 5
3. (a) What are the different admixtures used in concrete ? Describe the effects of these admixtures on properties of cement concrete. 5

(3)

- (b) What are the desired properties of aggregates to be used in concrete ? 5
4. (a) Enumerate with the help of sketches, various types of arches based on their shape. 5
- (b) Discuss the various considerations made in planning of staircases. Illustrate different types of staircases indicating their suitability for specific use. 5
5. (a) Mention the defects in plastering ? What are the remedial measures ? 5
- (b) Describe different methods of damp proofing. 5
6. (a) Explain fire resisting properties of various building materials. 5
- (b) Classify various types of windows based on their method of operation with the help of sketches. 5

(4)

7. (a) Explain the different components of a timber showing the cross-section of a matured tree. 5
- (b) Describe briefly different methods of preservation of timbers. 5
8. (a) Describe various types of paints and their suitability. 5
- (b) Differentiate between pile and well foundations. 5
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