

Code: 20ES1301

**II B.Tech - I Semester – Regular Examinations - FEBRUARY 2022**

**CONSTRUCTION MATERIALS & CONCRETE TECHNOLOGY  
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

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Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.  
2. All parts of Question must be answered in one place.

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**UNIT – I**

1. a) What are the characteristics of good building stones? 7 M  
Explain briefly.
- b) How bricks are classified? What are the properties of 7 M  
first class bricks?

OR

2. a) What is seasoning of timber? Explain briefly about any 8 M  
two methods of seasoning.
- b) What is plywood and where is it used with advantage? 6 M  
State its uses in modern buildings.

**UNIT – II**

3. a) Explain with neat sketches about (i) English bond and 8 M  
(ii) Flemish bond.
- b) How are mortars classified on the basis of bulk density 6 M  
and kind of binding material?

OR

4. a) What are the characteristics of an ideal paint? 7 M
- b) Explain briefly about different methods of preventing dampness. 7 M

**UNIT-III**

5. a) Explain hydration of cement by flow chart. 7 M
- b) List out the physical properties of cement and explain any one in detail. 7 M

OR

6. a) Explain briefly about grading of aggregates. 8 M
- b) Give the classification of aggregates based on unit weight. 6 M

**UNIT – IV**

7. a) Define admixtures. What are the purposes of using admixtures? 7 M
- b) Describe the role of plasticizers in concrete. 7 M

OR

8. a) Define workability. Describe the factors affecting workability of concrete. 10 M
- b) Briefly explain the quality requirements of construction water. 4 M

## UNIT – V

9. a) State and explain the Duff Abram's law of water/cement ratio. 7 M
- b) Define durability of concrete. What are the requirements for durability of concrete? 7 M

OR

10. Design a concrete mix using IS code method for the following data: 14 M

Characteristic compressive strength= 25MPa

Maximum size of coarse aggregate= 20mm

Specific gravity of coarse aggregate= 2.78

Specific gravity of fine aggregate= 2.64

Sand conforming to zone= III

Specific gravity of cement= 3.15

Degree of workability= 0.80CF

Dry rodded density= 1550kg/m<sup>3</sup>

Missing data may be suitably assumed.