

II B. TECH I SEMESTER REGULAR EXAMINATIONS, MARCH - 2022
CONCRETE TECHNOLOGY
(CIVIL ENGINEERING)

Time: 3 Hours

Max. Marks: 70

Note: Answer ONE question from each unit (5 × 14 = 70 Marks)

IS 10262:2019 is allowed

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UNIT-I

1. a) Write down the names of important compounds of cement and explain the influence of each on the properties of cement. [7M]
- b) Classify the types of cement and explain Air entraining cement and rapid hardening cement. [7M]

(OR)

2. a) what are the desired properties of good aggregates for making concrete and discuss in brief various tests carried out on aggregates [7M]
- b) Calculate the fineness modulus of a sample using following data : Total weight of sample is 500g [7M]

|              |         |         |       |       |       |     |
|--------------|---------|---------|-------|-------|-------|-----|
| Sieve size   | 2.36 mm | 1.18 mm | 600 μ | 300 μ | 150 μ | Pan |
| Weight in gm | 15      | 100     | 127   | 185   | 67    | 6   |

UNIT-II

3. a) Explain the factors affecting workability of fresh concrete [7M]
- b) Mention the various stages involved in manufacturing of concrete. [7M]

(OR)

4. a) What is segregation and bleeding of concrete why they occur, discuss how to prevent them [7M]
- b) Discuss about the maturity concept of concrete. [7M]  
 The strength of sample of fully matured concrete is found to be 40Mpa. Find the strength of identical concrete at the age of 7 days when cured at an average temperature during day time at 20<sup>0</sup>C and night time at 10<sup>0</sup>C

UNIT-III

5. a) Explain the procedure to determine compressive strength of concrete in lab. [7M]
- b) Discuss about the rebound hammer test method on concrete structures and its limitations [7M]

(OR)

6. a) Describe any two tests on hardened concrete. [7M]
- b) What are the types of cracks and list out any 4 remedial measures to prevent cracks. [7M]

## UNIT-IV

7. a) What are the different types of fibers? What are the factors affecting properties of FRC. [7M]
- b) What is Shrinkage of concrete and types and discuss about the factors affecting the shrinkage of concrete [7M]

(OR)

8. a) Write short notes on No Fines Concrete, High Density Concrete and Cellular Concrete. [7M]
- b) Discuss about the Polymer concrete and its Properties. [7M]

## UNIT-V

9. a) Explain in detail about the statistical quality control and acceptance criteria of concrete. [5M]
- b) What is durability of concrete? what are the factors affecting durability of concrete [9M]

(OR)

10. Design M25 grade concrete mix using IS method for mild exposure and good quality control. The workability required is 100mm slump. Maximum size of coarse aggregate is 20mm and fine aggregate confirmed to Zone.III. The specific gravity of cement is 3.05, specific gravity of coarse aggregate and fine aggregate is 2.77. Cement is OPC 53 grade. Water absorption by CA is 1.5% and moisture content in FA is 3%. Assume any other suitable data if necessary [14M]

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