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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 20328

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

Fourth Semester

Civil Engineering

CE 8404 — CONCRETE TECHNOLOGY

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the function of gypsum in the manufacture of cement?

2. Describe bulking of sand.

3. What is meant by waterproofing admixtures?

4. Write the advantages of GGBS in concrete.

5. State Nominal mix and its advantages.

6. Illustrate the factors affecting proportioning of concrete mixes.

7. List out the factor affecting workability.

8. Write the different tests to determine corrosion.

9. List the advantages of geopolymer concrete.

10. Define High performance concrete.

PART B — (5 × 13 = 65 marks)

11. (a) (i) List the various types of cement indicating their use for different Applications. (8)

(ii) What is soundness of cement and how is it tested? (5)

Or

(b) (i) Criticize about the following

(1) Uniform grading

(2) Gap grading

(3) Continuous grading. (8)

(ii) Describe the importance of the quality of water used for concreting? (5)

12. (a) Explain the impact of Accelerators and Retarders in concrete properties. (13)

Or

(b) Discuss the effects of adding fly ash and silica fume in concrete. (13)

13. (a) Explain the concept of mix design and Mention the method of proportioning. (13)

Or

(b) Design a concrete mix which is required to have a specified mean strength of 30 MPa at 28 days. The presence of reinforcement requires a slump of 75 mm and a maximum size of aggregate of 10 mm. The aggregate are of normal weight and their grading conform to the approximate standard with a fineness modulus of 2.8. Assume negligible absorption and moisture content, bulk density of coarse aggregate 1600 Kg/m^3 and extreme exposure conditions. Use ACI method. (13)

14. (a) (i) Describe about bleeding in concrete and its measurement. (5)

(ii) Compare the relative merits and demerits of various workability tests. (8)

Or

(b) (i) Explain Durability of concrete and factors affecting durability of concrete. (5)

(ii) Explain in detail about the determination of Flexural strength of concrete. (8)

15. (a) (i) Describe the significances of polymer concrete. (5)

(ii) Discuss the classification of light weight concrete. (8)

Or

(b) (i) Illustrate the fresh state properties of high-strength concrete. (5)

(ii) Explain the process, components and advantages of Ready mix concrete. (8)

PART C — (1 × 15 = 15 marks)

16. (a) Compare ACI and IS method of concrete mix design (15)

Or

(b) (i) What are basic properties of fibre-reinforced concrete which can be advantageously made use of in the design of structural elements. (10)

(ii) List the disadvantages of fibre reinforced concrete. (5)

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