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Fourth Semester B.E. Degree Examination, Feb./Mar. 2022 Concrete Technology

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of IS10262-2009 is permitted.
3. Assume any missing data suitably.*

Module-1

- 1 a. What are Bouge's compounds? Explain the importance of Bouge's compounds. (08 Marks)
b. List the different laboratory tests conducted on cement. Explain fineness modulus (fitness test). (12 Marks)

OR

- 2 a. List the various laboratory tests conducted for mechanical properties of coarse aggregate. Explain the test for determining impact value. (10 Marks)
b. Define admixture. Briefly discuss mineral and chemical admixture. (10 Marks)

Module-2

- 3 a. Briefly explain the factors which affects the workability of concrete. (10 Marks)
b. List out the different test employed to measure workability. Explain slump test. (10 Marks)

OR

- 4 a. Explain segregation and bleeding. (04 Marks)
b. Explain the manufacturing process of concrete. (12 Marks)
c. List the different methods of curing. (04 Marks)

Module-3

- 5 a. Explain the factors affecting the strength of hardened concrete. (10 Marks)
b. What is shrinkage of concrete? Explain different types of shrinkage. (10 Marks)

OR

- 6 a. Define durability. Explain sulphate attack and carbonation. (10 Marks)
b. With neat sketch, explain electro chemical process of corrosion of steel. (10 Marks)

Module-4

- 7 a. Discuss the concept of mix design and variables in proportioning of concrete. (10 Marks)
b. Write step by step procedure for mix design as per IS-code. (10 Marks)

OR

- 8 Design a concrete mix for M30
- Type of cement : OPC 53 grade
 - Max nominal size of aggregates 20mm down
 - W/C : 0.50
 - Min cement content : as per IS-code
 - Exposure condition : Moderate
 - Workability : 100mm slump
 - Max cement content : As per IS-code
 - Fine aggregate: Zone 2
 - Cement – Type of cement : OPC 53 grade
Specific gravity 3.15
 - Coarse aggregate – specific gravity 2.70
water absorption : 1%
free surface moistures NIL
 - Fine aggregate – specific gravity 2.65
water absorption 2%
free surface moisture 2%

Note: Assume any missing datas.

(20 Marks)

Module-5

- 9
- List the advantages and disadvantages of Ready mix concrete. (06 Marks)
 - What is self compacting concrete? List the benefits of self compacting concrete. (08 Marks)
 - Explain flow ability test (V funnel test) for S.C.C. (06 Marks)

OR

- 10
- Write short notes on light weight concrete and fibre reinforced concrete. (10 Marks)
 - Discuss different types of fibre used in fibre reinforced concrete. (10 Marks)

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