



CBCS SCHEME

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15CV44

Fourth Semester B.E. Degree Examination, June/July 2023 Concrete Technology

Time: 3 hrs.

Max. Marks: 80

- Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of IS 10262 – 2009 and IS 456 – 2000 is permitted.

Module-1

- 1 a. With the help of process chart explain the manufacturing of cement. (08 Marks)
b. Briefly explain following tests on cement
i) Standard comintency test (08 Marks)
ii) Soundness test.

OR

- 2 a. Briefly explain importance of size, shape and texture of coarse aggregates. (08 Marks)
b. Write short notes on following admixtures :
i) Plasticizers (08 Marks)
ii) Ground Granulated Blast Furnace Slag (GGBS)

Module-2

- 3 a. Define workability of concrete and explain factors affecting workability. (08 Marks)
b. Briefly explain the following tests in workability.
i) Slump test (08 Marks)
ii) Vee – bee comintometer test.

OR

- 4 a. Briefly explain causes, effects and Remedial measures for 'aggregation and bleeding of concrete. (08 Marks)
b. Briefly explain different method of curing. (08 Marks)

Module-3

- 5 a. Discuss the factors affecting durability of concrete. (08 Marks)
b. Define creep. Explain the factors affecting creep. (08 Marks)

OR

- 6 a. Define plastic Shrinkage and drying Shrinkage. (04 Marks)
b. Explain the factors affecting Shrinkage. (04 Marks)
c. Write short notes on :
i) Sulphate attack on concrete
ii) Briefly, express on compression tests on concrete (08 Marks)

Module-4

- 7 a. Briefly explain the factors to be considered for mix design. (08 Marks)
b. Briefly write the general procedure for concrete mix design IS 456 : 2000. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 With the help of following design stipulations and tests data for materials design M – 40 Grade concrete.

a. Design Stipulation :

- | | | |
|---|---|---------------------------|
| i) Grade designation | : | M 40 |
| ii) Type of cement | : | OPC 43 grade |
| iii) Maximum Nominal size of aggregates | : | 20mm |
| iv) Minimum cement content | : | 320 kg/m ³ |
| v) Maximum water cement ratio | : | 0.45 |
| vi) Workability | : | 100 mm (slump) |
| vii) Type of aggregate | : | crashed angular aggregate |
| viii) Maximum cement content | : | 450 kg/m ³ |
| ix) Chemical admixture type | : | Super plasticizer |
| x) Degree of supervision | : | Good |

b. Test Data for Materials

- | | | |
|--|---|---|
| i) Specific Gravity of cement | : | 3.15 |
| ii) Chemical admixture | : | super plasticizer |
| iii) Specific gravity of coarse aggregate | : | 2.74 |
| iv) Specific gravity of fine aggregate | : | 2.74 |
| v) Water absorption of coarse aggregate | : | 0.5% |
| vi) Water absorption of fine aggregate | : | 1.0% |
| vii) Free moisture content of coarse aggregate | : | Nil |
| viii) Free moisture content of fine aggregate | : | Nil |
| ix) Sieve and gain for coarse aggregate | : | Conforming to table 2 of IS 383 |
| x) Sieve analysis for fine aggregate | : | Conforming to grading I of table 4 of IS 383. |

(16 Marks)

Module-5

- 9 a. Briefly explain manufacturing of RMC with their advantages and disadvantages. (08 Marks)
 b. Define self compacting concrete and write the materials used in SCC and their advantages. (08 Marks)

OR

- 10 a. Define fiber reinforced concrete and write their properties and applications. (08 Marks)
 b. Write the materials used in "Light weight concrete", their properties and types. (08 Marks)
