



## P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

**Fourth Semester, B.E. - Civil Engineering**

**Semester End Examination; June - 2016**

**Concrete Technology**

*Time: 3 hrs*

*Max. Marks: 100*

**Note:** Answer **FIVE** full questions, selection **ONE** full question from each unit.

### UNIT - I

1. a. With a flow chart explain the manufacture of OPC by dry process. 10
- b. Explain the following two tests conducted on cement : 10
  - (i) Soundness
  - (ii) Compressive strength
2. a. Explain the importance of size, shape and texture of aggregates in making good concrete. 10
- b. Write a note on manufactured sand. 10

### UNIT - II

3. a. Define workability. Explain the factors affecting workability of concrete. 10
- b. Explain the following tests conducted on concrete to check workability : 10
  - (i) Slump test
  - (ii) compaction factor test
4. a. Write a note on: 10
  - (i) Segregation
  - (ii) bleeding of concrete.
- b. Explain the purpose of curing and different methods adopted to cure concrete. 10

### UNIT - III

5. a. Explain the factors affecting the strength of concrete. 10
- b. Write a note on modulus of elasticity of concrete. 10
6. a. Explain the following : 10
  - (i) Accelerated curing
  - (ii) Plastic Shrinkage of concrete.
- b. Explain the factors affecting : 10
  - (i) Shrinkage
  - (ii) Creep.

### UNIT - IV

7. Explain the concept of concrete mix design and factors affecting mix design. 20
8. Design concrete mix by I.S. Code method (10262-2009) of M<sub>20</sub> grade concrete with following data : 20
  - (i) Specific gravity of cement = 3.15
  - (ii) Specific gravity of F.A. = 2.6
  - (iii) Water absorption of C.A. = 5%
  - (iv) Water Absorption of F.A. = 10%

**UNIT - V**

- 9. a. Explain the factors contributing to cracks in concrete. 10
- b. Write a short note on : 10
  - (i) Sulphate attack (ii) Chloride attack on concrete.
- 10 a. Explain the following tests on concrete : 10
  - (i) Split tensile strength (ii) Flexural test
- b Write a note on non-destructive tests on concrete. 10

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