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## 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/July - 2015**

### Concrete Technology

Time: 3 hrs

Max. Marks: 100

**Note:** i) Answer **FIVE** full questions, selecting **ONE** full question from each **Unit**.  
 ii) Assume suitable missing data if any. iii) Use of thermodynamic data hand book is permitted.

#### UNIT - I

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|---|----|
| 1. a. Explain the manufacture of Portland Pozzolona Cement with flow chart.   | 10 |
| b. Explain in brief the different types of Cement and their uses.             | 10 |
| 2 a. Explain Blaine's air permeability test for fineness of Cement.           | 10 |
| b. Write the importance of size, and shape of coarse aggregate in concreting. | 10 |

#### UNIT - II

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|--|----|
| 3 a. Define Workability and Explain the factors affecting Workability. | 10 |
| b. Explain Slump Test for manufacturing workability.                   | 10 |
| 4 a. Explain compaction factor test for measuring workability.         | 10 |
| b. What is curing of concrete and also explain the methods of curing.  | 10 |

#### UNIT - III

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|--|----|
| 5 a. Explain gel / space ratio and Maturity concept.                           | 10 |
| b. Write a note on Accelerated Curing Test and Aggregate Cement bond strength. | 10 |
| 6 a. Explain Plastic Shrinkage and drying shrinkage.                           | 10 |
| b. Explain the factors affecting creep of concrete.                            | 10 |

#### UNIT - IV

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| 7 a. What is the Concept of Mix Design and also explain the factors affecting Mix Design.  | 12 |
| b. Write a note on four variables in concrete mix design.  | 8  |
| 8 Design of Concrete mix by I.S code method (10262 - 2009) of M <sub>25</sub> grade concrete given specific gravity of coarse aggregate, fine aggregate and cement are 3.15, 2.6 and 2.6 respectively and water absorption of coarse aggregate is 0.5% and fine aggregate is 1.0%. | 20 |

#### UNIT - V

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|---|----|
| 9 a. Write a note on durability and permeability of concrete.             | 10 |
| b. Write a note on Sulphate attack and construction Joints in concrete.   | 10 |
| 10 a. Explain control of Cracking in mass concrete and repairs of cracks. | 10 |
| b. Explain split tensile strength of hardened concrete.                   | 10 |