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

(An Autonomous Institution affiliated to VTU, Belgaum)

Seventh Semester, B.E. - Civil Engineering

Semester End Examination; Dec - 2016/Jan - 2017

Advanced Concrete Technology

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.

ii) IS 10262 : 2009, IS 456 : 2000 permitted.

UNIT - I

- 1 a. Enumerate the importance of Brogue's compounds in ordinary Portland cement. 8
- b. Explain the Rheology of concrete in-terms of Bingham's parameter. 6
- c. Discuss the factors influencing the strength of the cement (any 3). 6
- 2 a. What is transition zone? Explain the various factors which affect on the strength of transition zone. 10
- b. Write short notes on : 10
- i) Volume of hydrated product ii) AAR

UNIT - II

- 3 a. Discuss the effects of super plasticizers on fresh and hardened concrete. 10
- b. What is optimum dosage of a plasticizer? Explain Marsh cone test. 10
- 4 a. What is GGBS? Explain their effect on concrete in flesh and hardened state. 10
- b. Write a short note on : 10
- i) Air entraining admixtures ii) Fly ash.

UNIT - III

5. Design a M30 concrete mix for following data as per IS 10262 design stipulation for proportioning. 20
- i) Grade designation : M30
- ii) Type of cement: Ultra Tech PPC confirming to IS : 1489
- iii) Maximum nominal size of aggregates : 20 mm
- iv) Minimum cement content : 300 kg/m³
- v) Maximum water cement ratio: 0.50
- vi) Workability : 50 – 75 mm (slump)
- vii) Exposure condition : Moderate
- viii) Degree of supervision : Good
- ix) Type of aggregate: Crushed angular aggregate

