

B.Tech III Year I Semester (R13) Supplementary Examinations June 2016

**CONCRETE TECHNOLOGY**

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Write about bogue's compound.
  - Write the purpose of using mineral admixtures.
  - Define bulking of aggregate and write the IS code to be used to perform the test.
  - What are the causes of bleeding of concrete?
  - Define gel space ratio.
  - Write the applications of F.R.C.
  - Define cellular concrete.
  - Write the factors influencing creep.
  - List out the available methods to proportioning the concrete mixes.
  - What are the uses of NDT?

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) What is clinker and write the procedure adopted in production of clinker?  
(b) Distinguish between plasticizers and super plasticizers.

**OR**

- 3 (a) What is meant by Fineness Modulus of sand? Explain the laboratory procedure to find fineness modulus.  
(b) Write short notes on alkali aggregate reaction.

**UNIT – II**

- 4 (a) Explain the methods available in construction practice to control "segregation" of a concrete mixture.  
(b) Write short notes on maturity concept of concrete.

**OR**

- 5 (a) What are the factors that influence the strength of cement concrete? Explain Briefly.  
(b) List out the importance of concrete curing.

**UNIT – III**

- 6 (a) Write the applications of the following types of concrete: (i) Polymer concrete. (ii) No fines concrete.  
(b) List out the different varieties of fibers available in market.

**OR**

- 7 (a) Write the advantages and disadvantages of using high performance concrete in place of normal strength.  
(b) Write short notes on: (i) SIFCON. (ii) Self Healing concrete.

**UNIT – IV**

- 8 (a) Write the factors which cause the shrinkage of concrete.  
(b) Write short notes on: (i) Modulus of elasticity. (ii) Poisson's ratio.

**OR**

- 9 Write the test procedure followed to carry out NDT by using rebound hammer?

**UNIT – V**

- 10 Design a Concrete Mix of M25 grade for a beam. The specific gravities of Coarse Aggregate and Fine Aggregate are 2.6 and 2.8 respectively. The bulk density of coarse aggregate is 16000 kg/m<sup>3</sup> and Fineness Modulus of Fine Aggregate is 2.7. A slump of 50 mm is necessary. Design the concrete mix using IS Method. Assume any missing data suitably.

**OR**

- 11 (a) Write the procedure for mix design with reference to ACI code.  
(b) Write the advantages of adopting mix design proportions as per codal provisions.