

B.Tech III Year I Semester (R13) Supplementary Examinations June 2017

**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)
- State the chemical composition of cement.
  - What is bulking of sand?
  - What are the factors affecting workability of concrete.
  - List out different methods of curing of concrete.
  - State different types of light weight aggregate concretes.
  - What are the properties of fibre reinforced concrete?
  - List out different types of shrinkage in concrete.
  - Write a short note on pull out test on concrete.
  - Distinguish between 'Mean strength' and 'Target strength of concrete'.
  - List out factors in the choice of mix proportion.

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 (a) What is hydration of cement and explain the influences of Bogue's compounds.  
(b) What are the different types of admixtures used in concrete and explain any two of them.

**OR**

- 3 (a) Discuss in detail the various tests to be carried out to determine the quality of cement.  
(b) What is alkali aggregate reaction? How to control alkali aggregate reaction?

**UNIT – II**

- 4 (a) Define workability of concrete? How to measure workability of concrete and explain any one of them.  
(b) What is segregation & bleeding of concrete and how to minimize these effects in concrete?

**OR**

- 5 (a) What is maturity of concrete?  
(b) Explain the concept of maturity as per Plowman.  
(c) List and explain the various factors affecting the strength of concrete.

**UNIT – III**

- 6 (a) Explain the characteristics and uses of Fibre reinforced concrete.  
(b) What is polymer concrete? List out different polymers used in concrete.

**OR**

- 7 Explain briefly any two of them:  
(a) High performance concrete.  
(b) SIFCON.  
(c) Self consolidating concrete.

**UNIT – IV**

- 8 (a) Explain how modulus of elasticity of concrete is determined.  
(b) What are the factors influencing the elastic modulus of concrete.

**OR**

- 9 List out different Non-destructive tests of hardened concrete and explain any two of them.

**UNIT – V**

- 10 (a) Write step wise procedure for mix design as per Indian standards.  
(b) Explain durability of concrete and list out factors affecting durability of concrete.
- 11 (a) Discuss about acceptance criteria in concrete mix design.  
(b) Explain quality control of concrete.

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