

**FACULTY OF ENGINEERING**  
**B.E. 4/4 (Civil) I – Semester (Old) Examination, July 2014**

**Subject: Concrete Technology**

**Time: 3 Hours**

**Max.Marks: 75**

**Note: Answer all questions from Part A. Answer any five questions from Part B.**

**PART – A (25 Marks)**

- |    |   |   |
|----|---|---|
| 1  | How are the ingredients of concrete classified?                               | 2 |
| 2  | Differentiate between workability and consistency of concrete.                | 2 |
| 3  | Differentiate between Tangent modulus and Secant modulus.                     | 3 |
| 4  | Differentiate Nominal mix and Design mix.                                     | 3 |
| 5  | List out the various functions of Admixtures.                                 | 2 |
| 6  | What are the various application of fiber reinforced concrete.                | 3 |
| 7  | Define hydration of cement.   | 2 |
| 8  | Discuss about the various materials used for producing light weight concrete. | 3 |
| 9  | Explain the concept of Abrams law.  | 2 |
| 10 | What is the affect of height / diameter ratio on strength of concrete?        | 3 |

**PART – B (50 Marks)**

- |    |  |    |
|----|--|----|
| 11 | a) What are the different field tests that are conducted on cement?  | 3  |
|    | b) Explain the physical and mechanical properties of aggregates and their influence on properties of concrete.   | 7  |
| 12 | What is the necessity of vibrating concrete? What are the different types of vibrators used for vibration of concrete? Explain with the help of neat diagram.  | 10 |
| 13 | a) Explain the relationship between various mechanical strengths of concrete.  | 3  |
|    | b) Explain in detail the short term and long term properties of concrete.  | 7  |
| 14 | Design M30 grade concrete using IS:10262 – 2009 using the following data:<br>Degree of quality control = Good<br>Type of exposure = Moderate<br>Max size of aggregate = 40 mm<br>Min cement content = 360 kg/m <sup>3</sup><br>Workability = 75 mm slump<br>Sp. Gr of Cement = 3.14<br>CA = 2.62<br>FA = 2.60<br>Zone II Sand.<br>Assume any data if required. | 10 |
| 15 | a) Distinguish between chemical admixtures and mineral admixtures.   | 4  |
|    | b) Discuss the mechanism by which mineral admixture improve the durability of concrete.  | 6  |
| 16 | a) What are the advantages of using fiber reinforced concrete?   | 2  |
|    | b) Discuss the various applications and specialities of using recycled aggregate concrete.   | 8  |
| 17 | Write short notes on of the following:   |    |
|    | a) Superplasticizers and V.M.A.  | 3  |
|    | b) Capping of test specimens for determining the compressive strength of concrete  | 3  |
|    | c) Water requirement in the process of hydration.  | 4  |

\*\*\*\*