

Code: CE4T1

**II B.Tech - II Semester – Regular / Supplementary Examinations
April 2019**

**CONCRETE TECHNOLOGY
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer **all** the questions. All questions carry equal marks

11 x 2 = 22 M

1.

- a) What are the various Laboratory tests used to test physical properties of concrete?
- b) Purpose of chemical admixtures using in concrete.
- c) Define the term compacting factor.
- d) Tests used for measurement of workability.
- e) Define dynamic modulus of elasticity.
- f) Reasons for shrinkage of concrete.
- g) Define Mix Design.
- h) Disadvantages of Nominal Mix.
- i) Advantages of Fibre reinforced concrete.
- j) What are the various types of Polymer concrete?
- k) Write about Bulking of sand.

PART – B

Answer any **THREE** questions. All questions carry equal marks.

$$3 \times 16 = 48 \text{ M}$$

2. a) Explain with the help of a neat sketch, the wet process of manufacture of ordinary portland cement. 8 M
- b) Explain the classification of aggregate based on particle shape, size and texture. 8 M
3. a) Explain the following: 8 M
i) Maturity of concrete ii) Slump test
- b) Discuss the importance of Water-Cement ratio in concrete. 8 M
4. a) With the help of a neat sketch, explain the procedure for determining flexural strength of concrete. 8 M
- b) Discuss the beneficial and harmful effects of creep of concrete. 8 M
5. Design a concrete mix by BIS method with the following data:
- Characteristics compressive strength = 35N/mm^2
Maximum size of aggregate = 20mm (angular)
Fine aggregates conform to grading zone II

Degree of workability = 100 mm (slump)

Degree of quality control = Good

Type of exposure = Mild

Specific gravity of cement = 3.14

Specific gravity of fine aggregate = 2.58

Specific gravity of coarse aggregate = 2.74

Water absorption (i) Coarse aggregate = 1.9%

(ii) Fine aggregate = 0.5%

Water cement ratio = 0.48

Assume any other data if necessary. Also calculate the quantity of cement, sand, coarse aggregate and water required per cubic metre of concrete.

16 M

6. a) Describe high density concrete and fibre reinforced concrete.

8 M

b) Explain the procedure of conducting Rebound hammer test.

8 M