

Code: CE4T1

II B.Tech - II Semester–Regular/Supplementary Examinations–April 2018

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

1. a) What are Bougue's compounds.
- b) What is Gap grading?
- c) What is segregation?
- d) According to IS 456 - 2000 what is the relation between compressive strength and tensile strength.
- e) What are advantages of non destructive tests over destructive testing's.
- f) What is shrinkage and creep?
- g) What is significance of target mean strength?
- h) What is aspect ratio in fibre reinforced concrete?
- i) What is cellular concrete?
- j) Mention three methods in ultra sonic pulse velocity test.
- k) If compaction factor is 0.8 for a particular concrete mix, to what type of construction work it is applicable?

PART – B

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

3 x 16 = 48 M

2. a) With a neat sketch explain the procedure to test initial setting time of cement? 8 M
- b) What is grading? Explain the significance of grading of aggregates? 8 M
3. a) What are the factors affecting workability of concrete? 8 M
- b) Discuss in detail how maturity concept and size of aggregate effect strength of concrete? 8 M
4. a) Write step wise procedure to determine compressive strength of concrete? 8 M
- b) Briefly discuss dynamic modulus of elasticity and shrinkage of concrete? 8 M
5. Determine mix design for M30 grade concrete using BIS method for the following data. 16 M
- Specific gravity of cement = 3.12
Specific gravity of fine aggregate = 2.62
Specific gravity of coarse aggregate = 2.72
Fineness modulus of fine aggregate = 2.3 (Zone III sand)
Fineness modulus of coarse aggregate = 6.9
Condition of exposure = Severe
Workability in terms of slump = 150 mm
Assume any necessary data suitably.

6. a) Discuss in detail the properties of polymer concrete?

8 M

b) Briefly discuss Rebound hammer test to determine strength of concrete?

8 M