

4E4112**4E4112**

B.Tech. IV Semester(Main/Back) Examination June/July - 2015
Civil Engineering
4CE2A Concrete Technology

Time : 3 Hours**Maximum Marks : 80**
Min. Passing Marks : 26**Instructions to Candidates:**

Attempt any **five questions**, selecting **one question from each unit**. All questions carry **equal marks**. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.

1. IS 10262**Unit - I**

1. a) Discuss physical properties of aggregates to be used in cement concrete. (6)
- b) Enumerate basic compounds of cement and discuss their hydration rate and resulting compounds of hydration. (8)
- c) Discuss get - space ratio. (2)

OR

1. a) Discuss role of water-cement ratio. (4)
- b) Describe methods of determination (with help of figures) for
 - i) Workability
 - ii) Flowability of concrete (4×2)
- c) Discuss C-S-H gel, and its significance. (4)

Unit - II

2. a) Write and explain factors affecting compressive strength of concrete. (6)
b) What do you understand by creep of concrete. Explain the factors affecting it. (8)
c) Explain the application of rebound hammer. (2)

OR

2. a) Explain application and use of ultrasonic pulse velocity meter with help of figures. (8)
b) Explain the use of 'core sampling'. (4)
c) Explain characteristics of 'aggregate-cement interface'. (4)

Unit - III

3. a) Explain various methods of placing and transportation of concrete and their suitability. (8)
b) Describe equipments and Methods of compaction of concrete. (6)
c) Enumerate any four factors affecting durability of concrete. (2)

OR

3. a) Describe various methods and their suitability for curing of concrete. (8)
b) Describe various types of concrete mixers and their suitability. (8)

Unit - IV

4. a) Discuss quality control measures for concrete. (4)
b) Design a concrete mix of grade M25 by I.S. method, using ordinary portland cement of 43 Grade fine aggregate conforming to Zone II, assuming quality control as good. Take specific gravities of fine aggregate and coarse aggregates 3.15, 2.85 and 2.60 respectively. Use maximum size of aggregates as 20mm. (12)

OR

4. a) Explain the types and uses of water reducing and superplasticising admixtures for concrete. (4)
b) Explain the use of accelerators, and retarders. (4)
c) Explain the properties and use of flyash and silica fume (separately) in concrete. (8)

Unit - V

5. a) Describe typical formworks for columns and beams. Through figures. (8)
b) Describe salient features of under water concreting through figures. (6)
c) Enumerate salient features of sulfate resisting concrete. (2)

OR

5. a) Discuss self compacting concrete, its salient properties and applications. (8)
b) Discuss salient properties of high strength concrete and its applications. (4)
c) Discuss about slip and moving form work (4)
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