

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV (New) EXAMINATION – WINTER 2015**

**Subject Code:2140608****Date:28/12/2015****Subject Name: Concrete Technology****Time: 2:30pm to 5:00pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Answer following questions in short. **07**
1. What are the advantages of concrete over other material?
  2. What are the field tests on cement?
  3. Define initial and final setting time of cement
  4. What is the significance of workability of concrete?
  5. Define shotcrete.
  6. Define water cement ratio?
  7. What is M20 ?
- (b) Describe the manufacturing of OPC cement with flow chart. **07**
- Q.2** (a) Define normal mix concrete and design mix concrete. Describe step by step procedure of IS code method of mix design. **07**
- (b) Distinguish between setting and hardening of cement. **07**
- OR**
- (b) Discuss the phenomena of hydration of cement. **07**
- Q.3** (a) Define admixture and state purpose of adding admixtures in concrete. **07**
- (b) Enlist the various tests for the measurement of workability of concrete. **07**
- OR**
- Q.3** (a) Explain segregations and their precautions. **07**
- (b) Define durability. Explain its Significance. **07**
- Q.4** (a) Explain shrinkage and factors affecting on shrinkage. **07**
- (b) Name the materials used for repairing of cracks. List various crack repair techniques and explain any one in detail. **07**
- OR**
- Q.4** (a) Differentiate between volume batching and weigh batching in concrete mix procedure. **07**
- (b) What is effect of freezing and thawing on concrete? **07**
- Q.5** (a) Describe the procedure for determining standard consistency of cement. **07**
- (b) Discuss the factors which influence the choice of mix design. **07**
- OR**
- Q.5** (a) Describe in detail 'fiber reinforced concrete'. **07**
- (b) What is non destructive testing of concrete? Explain Ultrasonic pulse velocity test. **07**

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