

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3150610****Date:27/01/2021****Subject Name:Concrete Technology****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Briefly discuss the composition of concrete. **03**
(b) Define workability and discuss factors affecting workability. **04**
(c) Explain various causes of corrosion of steel in concrete and its remedial measures. **07**
- Q.2** (a) Briefly explain Alkali-aggregate reaction. **03**
(b) Explain the compaction factor test on concrete. **04**
(c) Classify the various types of admixtures based on their application. Explain water reducing type admixtures in detail. **07**
- Q.3** (a) Briefly discuss the need for curing and enlist various methods of concrete curing. **03**
(b) Enlist Bouge's compounds of cement and their role in the hydration process. **04**
(c) Enlist various factors affecting the strength of concrete and explain anyone in detail. **07**
- Q.4** (a) Differentiate between fresh concrete and hardened concrete. **03**
(b) Define the permeability of concrete and enlist various factors affecting permeability. **04**
(c) Explain the dry process for the manufacturing of cement. **07**
- Q.5** (a) Discuss segregation and bleeding of concrete briefly. **03**
(b) Discuss the effect of freezing and thawing on concrete. **04**
(c) Define nominal mix concrete and design mix concrete. Explain step by step procedure of the IS method of mix design. **07**
- Q.6** (a) Define Ferro cement briefly. **03**
(b) Differentiate between high strength and high-performance concrete. **04**
(c) Enlist types of fibers used in fiber reinforced concrete. Also, explain factors affecting properties of fiber-reinforced concrete. **07**
- Q.7** (a) Briefly explain Gel-space ratio. **03**
(b) Explain the importance of the water-cement ratio on the strength of the concrete. **04**
(c) Define creep. Explain the factors affecting the creep of concrete. **07**
- Q.8** (a) Distinguish between the grade of cement and grade of concrete. **03**
(b) List various crack repair techniques and explain them to anyone in detail. **04**
(c) Enlist the types of NDT tests for concrete. Explain the rebound hammer test in detail. **07**
