

GUJARAT TECHNOLOGICAL UNIVERSITY

BACHELOR OF ENGINEERING – SEMESTER 5 – EXAMINATION – SUMMER 2026

Subject Code: 3150610

Date: 25/05/2026

Subject Name: Concrete Technology

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1**
- (a) Explain in short advance future trend in concrete. **03**
 - (b) Write short note on sustainability and concrete development **04**
 - (c) State the laboratory tests to be performed for determination of physical properties of cement. Explain any one of them. **07**
- Q.2**
- (a) Where can we use 43 grade of cement ? **03**
 - (b) Name any four types of cement and state their uses. **04**
 - (c) Define admixtures and state purpose of adding admixtures in concrete. **07**
- OR**
- Q.2**
- (c) Distinguish between volume batching and weigh batching in concrete mix procedure. **07**
- Q.3**
- (a) What precautions must be taken while storing cement on site? **03**
 - (b) State the necessity of using aggregate in concrete. How aggregates support the strength of concrete? **04**
 - (c) Define workability. What are different tests used to measure workability, describe any one in details? **07**
- OR**
- Q.3**
- (a) Write short note on segregation of concrete. **03**
 - (b) Enlist the factor affecting strength of concrete. **04**
 - (c) Write short note on permeability of concrete. Explain factors affecting permeability of concrete. **07**
- Q.4**
- (a) What is the significance of workability in concrete? **03**
 - (b) Explain ultrasonic pulse velocity test in detail. **04**
 - (c) Define shrinkage and give its classification. **07**
- OR**
- Q.4**
- (a) What are the benefits of using high performance concrete? **03**
 - (b) Describe various aspects of durability. **04**
 - (c) Define Nominal mix concrete and Design mix concrete. Describe step by step procedure of IS Method of mix design. **07**
- Q.5**
- (a) What do you meant by swelling of concrete? **03**

(b) Write note on NDT and its utility. **04**

(c) Explain the basic principle on which schmidt's rebound hammer is working. What are the limitations of it? **07**

OR

Q.5 **(a)** Why there is a need of special concrete? **03**

(b) State different types of special concrete and describe aerated concrete. **04**

(c) List various aggressive environment for concrete. How sulphate attack on concrete? **07**
