

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - IV EXAMINATION - WINTER 2025

Subject Code: N114AC01

Date: 03-12-2025

Subject Name: Contemporary Materials for Construction

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.**

	Marks
Q.1 (a) Explain the materials and methods used to produce non-cementous concrete.	03
(b) Discuss the durability aspects and challenges in using non-cementous concrete.	04
(c) Describe the production process and applications of non-cementous concrete in RCC structures.	07
Q.2 (a) List various types of steel used in modern construction.	03
(b) Discuss the benefits of alloy steels and their applications in construction.	04
(c) Explain the manufacturing process and advantages of aluminum as a construction material.	07
OR	
(c) Describe the different types of protective coatings applied to reinforcement bars and their importance.	07
Q.3 (a) Define composites and list different types used in construction.	03
(b) Explain the advantages of fiber reinforced polymers (FRP) in structural applications.	04
(c) Discuss the types of FRP and their suitability for various construction elements.	07
OR	
(a) State the main properties of plastic materials used in construction.	03
(b) Discuss the manufacturing process and uses of FRP in rehabilitation works.	04
(c) Explain the application of composite materials in bridge and building construction.	07
Q.4 (a) List various waterproofing compounds used in modern construction.	03
(b) Explain the importance and application of non-weathering materials in facade work.	04
(c) Describe different types of flooring materials and their uses in construction.	07
OR	
(a) Explain the types and functions of construction chemicals used for admixtures.	03
(b) Discuss the advantages of using admixtures in concrete.	04

- (c) Describe the selection criteria of facade materials for sustainable construction. 07
- Q.5** (a) Define smart and intelligent materials. 03
- (b) Differentiate between smart materials and intelligent materials with examples. 04
- (c) Explain with a case study the application of smart materials in modern construction. 07

OR

- (a) State special features of intelligent materials used in the construction industry. 03
- (b) Discuss emerging trends in the use of smart materials for sustainable building design. 04
- (c) Explain the significance of nanomaterials and shape memory alloys in smart construction systems. 07
