

GUJARAT TECHNOLOGICAL UNIVERSITY

BE(MINOR)- SEMESTER-I&II EXAMINATION – SUMMER 2025

Subject Code:N114AC01

Date:03-06-2025

Subject Name:Contemporary Materials for Construction

Time:10:30 AM TO 01:00 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) Define non-cementous concrete and list any two of its materials.	03
	(b) Explain the importance of high-performance concrete in construction.	04
	(c) Describe the challenges and solutions in using non-cementous concrete in RCC.	07
Q.2	(a) List any three types of steel used in construction.	03
	(b) Explain the advantages of aluminum over steel in façade systems.	04
	(c) Discuss how coating materials enhance the durability of reinforcements with examples.	07
	OR	
	(c) Illustrate the process of steel corrosion and suggest prevention methods.	07
Q.3	(a) Define FRP and state one use in buildings.	03
	(b) Explain how fiber-reinforced polymers help in retrofitting.	04
	(c) Compare the properties of plastics and FRP in terms of tensile strength, weight, and corrosion resistance.	07
	OR	
Q.3	(a) List various types of plastics used in construction.	03
	(b) Describe the manufacturing process of polymer composites used in construction.	04
	(c) Evaluate the suitability of FRP for bridge deck applications.	07
Q.4	(a) What are concrete admixtures? Name any two types.	03
	(b) Describe the role of waterproofing compounds in modern buildings.	04
	(c) Discuss different types of flooring materials and their ideal usage areas.	07
	OR	
Q.4	(a) Name two types of waterproofing compounds and their uses.	03
	(b) Discuss the types and applications of facade materials in modern buildings.	04
	(c) Explain the selection criteria for façade materials with respect to climate zones.	07
Q.5	(a) What are smart materials? Give two examples.	03
	(b) Differentiate between smart and intelligent materials.	04
	(c) Analyze a case study where intelligent materials improved building performance.	07

OR

- Q.5** (a) Identify the properties that make smart materials suitable for dynamic structures. **03**
- (b) Discuss two special features of intelligent materials with suitable examples. **04**
- (c) Explain the potential applications of shape-memory alloys in construction. **07**
