

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 7 – EXAMINATION – SUMMER 2026

Subject Code: 3170622

Date: 08/06/2026

Subject Name: Precast 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.**
- 5. IS: 456:2000 IS 10297:1982 and IS 15916:2020 are allowed in the exam.**

- Q.1**
- (a)** Discuss the concept of load path in structural systems. **03**
 - (b)** Enlist the element of precast skeletal structure. **04**
 - (c)** What is precast concrete construction ? Discuss the advantages and disadvantages of precast construction over cast-insitu. **07**
- Q.2**
- (a)** Explain the types of precast concrete beams. **03**
 - (b)** Explain the necessity of prefabrication in India. **04**
 - (c)** Describe step by step method for precast Frame analysis. **07**
- OR**
- Q.2**
- (c)** Write a note on Curing, Storage and Transportation of Precast elements. **07**
- Q.3**
- (a)** Which precaution may provide to adequate structural integrity? **03**
 - (b)** What are structural ties, and why are they important in precast concrete systems? **04**
 - (c)** Write the design steps for design shear wall. **07**
- OR**
- Q.3**
- (a)** Explain the manufacturing process of wall panels. **03**
 - (b)** Draw the plant process of precast unit. **04**
 - (c)** Explain in detail about IS codal provisions for prefabricated structures. **07**
- Q.4**
- (a)** Enlist different types of precast slab with neat sketches. **03**
 - (b)** Explain the merits and demerits of expansion joints. **04**
 - (c)** Explain the design requirements of precast truss. **07**
- OR**
- Q.4**
- (a)** Write short note on modular co-ordination. **03**
 - (b)** How to determine moment of resistance of T beam? **04**
 - (c)** Explain erection of precast concrete columns for high rise structures. **07**
- Q.5**
- (a)** What are non-structural fastenings, and why are they used in precast systems? **03**
 - (b)** Define the following terms: **04**
Homogeneous and Non homogeneous slab, Ribbed Slab, Voided Slab, Filigree slab.
 - (c)** Describe the process to achieve early strength of Precast Elements. **07**

OR

- Q.5**
- | | |
|---|-----------|
| (a) When a progressive collapse does occur? Why is it very critical to avoid progressive collapse of structures? | 03 |
| (b) Explain the techniques used for erection of different members in Precast construction. | 04 |
| (c) Explain the equivalent design loads for considering abnormal effects. | 07 |
