

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3170622****Date:19-12-2023****Subject Name: Precast 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.
5. IS: 456:2000 IS 10297:1982 and IS 15916:2020 are allowed in the exam.
- 6.

		MARKS
Q.1	(a) Distinguish between precast and other types of construction.	03
	(b) Enlist different structural ties and Explain any one in details.	04
	(c) Explain in detail about IS codal provisions for prefabricated structures.	07
Q.2	(a) Explain the types of precast concrete beams.	03
	(b) Explain the necessity of prefabrication in India.	04
	(c) Explain the necessity of shear walls in the precast structure. Also discuss the various types of shear walls.	07
	OR	
	(c) Write the design steps for design shear wall.	07
Q.3	(a) State advantages and disadvantages of precast concrete.	03
	(b) What are the design requirements of precast truss?	04
	(c) Write short note on precast frame analysis.	07
	OR	
Q.3	(a) Define classification of precast concrete walls.	03
	(b) Give difference between precast and cast-in-situ construction.	04
	(c) Differentiate between Composite & Non composite reinforced concrete beams.	07
Q.4	(a) Explain various application of precast construction technique.	03
	(b) Explain automation in manufacturing of precast elements	04
	(c) Explain the steps adopted for installation of precast columns.	07
	OR	
Q.4	(a) What are the erection stresses? How are they reduced or eliminated?	03
	(b) Discuss the need of modular coordination and standardization of prefabricated structures in detail.	04
	(c) Explain accelerated hardening in detail.	07
Q.5	(a) When a progressive collapse does occur? Why is it very critical to avoid progressive collapse of structures?	03
	(b) Explain the working procedure of vacuum lifting pads for prefabricated elements.	04
	(c) Design a Hollow core slab of 7 m span with panel width 1.4 m is supported on a ledger beam of span 8.5 m. The super imposed dead load is 3 kN/m ² . Live load is 4 kN/m ² . The Materials used are M30 & Fe415.	07
	OR	

- Q.5** (a) Explain the manufacturing process of wall panels. **03**
(b) Write short note on various loads and load path on precast concrete system **04**
(c) What are the three main types of large precast concrete roof units? **07**
Describe any two with neat sketches.
