

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 3170622

Date: 19/06/2023

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.

	Marks
<b>Q.1</b> (a) Enlist the element of precast skeletal structure.	<b>03</b>
(b) Discuss in detail about the concept precast concrete building.	<b>04</b>
(c) Enlist the different types of joint as per location in precast construction.	<b>07</b>
<b>Q.2</b> (a) What are the advantages and disadvantages of Precast construction. Explain with suitable example.	<b>03</b>
(b) Explain characteristics of steel and concrete which should be used in PFS.	<b>04</b>
(c) Enlist methods of analysis of Precast structures. Explain any one method in details as per IS Code.	<b>07</b>
<b>OR</b>	
(c) Explain floor unit in detail.	<b>07</b>
<b>Q.3</b> (a) How to choose production set up for precast construction. Explain various factors affecting for the same.	<b>03</b>
(b) What is the scope of precast construction in India. Explain it with suitable examples.	<b>04</b>
(c) Design double t type rcc precast slab panel having span 8 m , panel width 2.5 m live load 3.0 kN/m <sup>2</sup> , Floor finish 0.8 kN/m <sup>2</sup> . Use M30 concrete and Fe 500 steel. (Design for flexure only along longitudinal direction).	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) What are the erection stresses? How are they reduced or eliminated?	<b>03</b>
(b) Explain automation in manufacturing of precast elements.	<b>04</b>
(c) Design a bubble slab of 4.8 m span with panel width 1 m is supported on a beam of span 8.5m. The super imposed dead load is 3.0 kN/m <sup>2</sup> . Live load is 2.8 kN/m <sup>2</sup> . The materials used are M35 & Fe 500.(only provide flexure design, need not required to provide any check)	<b>07</b>
<b>Q.4</b> (a) Enlist and explain different types of precast slab with neat sketches	<b>03</b>
(b) Explain manufacturing procedure of wall panels.	<b>04</b>
(c) Explain use of shear wall in precast construction. Explain step wise procedure to erect shear wall with neat sketches.	<b>07</b>

**OR**

- Q.4** (a) Draw plant process of precast unit. **03**  
(b) Give IS Recommendations of for design and construction of precast structures. **04**  
(c) Explain erection of precast concrete columns for high rise structures. **07**

- Q.5** (a) Provide classification of precast concrete walls. **03**  
(b) Explain advantages of cross wall construction. List out necessity for cross wall in structures. **04**  
(c) Classify the structure of building based on the load distribution and briefly explain the different types of such prefabricated building. **07**

**OR**

- Q.5** (a) Explain step wise procedure to erect precast truss with neat sketches. **03**  
(b) Explain in detail about connections and joints for wall panels. **04**  
(c) Explain the equivalent design loads for considering abnormal effects **07**

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