GUJARAT TECHNOLOGICAL UNIVERSITY
Bachelor of Engineering - SEMESTER - VI EXAMINATION - SUMMER 2025

Subject Code: 116AV01   **Date: 10-06-2025**

Subject Name: Basics of Structural Design (RCC) - Software Applications

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.
IS 456: 2000, Is 13920: 2016 and IS 1893: 2016 are allowed during the exam.

			Marks
Q.1	(a)	Define RCC and State its components.	03
	(b)	Explain important clauses of IS 456 for Beam Design.	04
	(c)	Discuss the important IS 456 clauses used in the design of Slabs, Columns and Footings.	07
Q.2	(a)	What is the limit state method of Design?	03
	(b)	Compare one-way and two-way slabs with suitable conditions.	04
	(c)	Explain in detail the process of analyzing a simply supported beam manually and verify the same using software.	07

OR

	(c)	Compare the manual and software based analysis methods for a cantilever beam.	07
Q.3	(a)	List three types of load considered in Structural Analysis.	03
	(b)	Explain how to define support conditions in STADD-PRO.	04
	(c)	Describe reinforcement detailing guidelines for columns and slabs as per SP 34.	07

OR

	(a)	List three common command use in STADD-PRO modelling.	03
	(b)	What is the procedure to apply loads in STADD-PRO ?	04
	(c)	Discuss the NBC guidelines for RCC drawings in detail.	07
Q.4	(a)	What is the difference between Fixed Support and Simple Support.	03
	(b)	List the commands used to assign properties and supports in STADD-PRO.	04
	(c)	What are the various support conditions in structural design and how do they affect analysis?	07

OR

	(a)	What is dead load? Give examples of Dead Load.	03
	(b)	Explain the difference between ETABS and STADD-PRO.	04

(c) Explain how dead and live load are calculated and applied in RCC design.   **07**

Q.5 (a) State the importance of modelling geometry accurately in STAAD-PRO.   **03**

(b) Write a note on geometry creation methods in STAAD-Pro.   **04**

(c) Explain Equivalent Static Analysis in detail.   **07**

<div align="center">OR</div>

(a) Name three different software used in structural design and their specific purpose.   **03**

(b) How are wind loads defined and applied in RCC building design ?   **04**

(c) Describe the entire STADD-PRO workflow from model creation to design result interpretation for a multi storey building.   **07**

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