

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: B.ARCH
BRANCH: Architecture**

**SEMESTER : VII/ADD
SESSION : MO/2025**

SUBJECT: AR402 STRUCTURAL DESIGN SYSTEM

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	What is deformation? Explain at least five different types of deformation in the structure.	[2] 1	understand
Q.1(b)	Define load. Give examples of live load.	[3] 1	Remember
Q.2(a)	Discuss the trabeated style architecture. Mention its important element?	[2] 3	Remember
Q.2(b)	What is a catenary arch? Explain the principle on which they are constructed with neat sketch?	[3] 3	apply
Q.3(a)	Write a difference between the Anticlastic and Synclastic surfaces?	[2] 1	apply
Q.3(b)	What is a vault? Mention any six types of vaults.	[3] 3	Understand
Q.4(a)	Discuss the structural concept of Kimbell Art Museum.	[2] 4	Understand
Q.4(b)	Demonstrate with a diagram the difference in structural behaviour of a cylindrical shell and arched vault in terms of location of support, spanning direction and load-carrying mechanism.	[3] 4	apply
Q.5(a)	What is plate structure? Briefly describe its two categories.	[2] 4	Understand
Q.5(b)	What is one-way and two way slab	[3] 4	Understand

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