

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

**CLASS: B.ARCH
BRANCH: ARCHITECTURE**

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

SUBJECT: AR402 STRUCTURAL DESIGN SYSTEM

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a) What is Arris? Describe fan vault with neat sketch	[5]	1	Understand
Q.1(b) Who invented geodesic dome concept? Explain geodesic dome frequency? Mention example of any famous structure.	[5]	1	Apply
Q.2(a) How folded plate are advantageous as an structural design concept?	[5]	3	Apply
Q.2(b) Differentiate between flat slab and coffered slab.	[5]	3	Apply
Q.3(a) Give reasons - "wind load deflection is the most important one in the high-rise building design" with a sketch	[5]	2	Understand
Q.3(b) Differentiate between the structural concept of braced frame structure and braced-tube structure.	[5]	2	Apply
Q.4(a) Write the structural features of Brage stadium, Portugal	[5]	3	Remember
Q.4(b) Discuss space frame structure.	[5]	4	Understand
Q.5(a) Discuss the mobile structure and its application.	[5]	4	Understand
Q.5(b) Define pneumatic structure and its application	[5]	4	remember

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