

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

**CLASS: BARCH**  
**BRANCH: ARCHITECTURE**

**SEMESTER: VII/ADD**  
**SESSION : MO/2019**

**SUBJECT : AR7301 STRUCTURAL CONCEPT IN ARCHITECTURE**

**TIME: 1.5 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The total marks of the questions are 30.
  2. Candidates may attempt for all 30 marks.
  3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. The missing data, if any, may be assumed suitably.
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- Q1 (a) Define Structural grid. [2]  
(b) Describe tartan grid and how it is different from regular grid? Illustrate with sketches. [3]
- Q2 (a) Write the three component proposed by Vitruvius to discuss about the building. [2]  
(b) What is load? Detail the categories of load on the building? [3]
- Q3 (a) Discuss trabeated style architecture. Mention its important element. [2]  
(b) What is catenary arch? Explain the principle on which they are constructed with neat sketch. [3]
- Q4 (a) What is vault? Mention any six types of vaults? [2]  
(b) What is rib vault? Describe its element with neat sketch and name any relevant built associated with it. [3]
- Q5 (a) Write a difference between the Anticlastic and Synclastic surface. [2]  
(b) Discuss the construction technique to construct circular dome over a square configuration with sketches. Write example of any one relevant building. [3]
- Q6 (a) Define tensile structure and their uses. [2]  
(b) Write about the contribution of Frei Otto in light weight structure. Discuss the roof structure of Olympic Stadium, Munich, Germany. [3]

:::: 25/09/2019M ::::