

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

**CLASS: BARCH
BRANCH: ARCH**

**SEMESTER: VII
SESSION : MO/2018**

SUBJECT : AR7301 STRUCTURAL CONCEPTS 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) Explain architectural design and architectural structure. [3]
(b) What is a grid? What are the various types of grid adopted for any building? [2]
- Q2 (a) What are the basic components of a building structure? Discuss with the help of neat sketch. [5]
- Q3 (a) What are primary loads acting in a building. [2]
(b) What is arch action? Explain the thrust acting in an arch. [3]
- Q4 (a) What are the various components of tensile structure? [3]
(b) What is anticlastic and synclastic curve in tensile structure? [2]
- Q5 (a) Explain with neat sketches the structural concept of a dome. [2]
(b) What are the advantages and disadvantages of Geodesic dome? [3]
- Q6 (a) Write and explain the following with neat sketches: [2]
 i. Z shell structure
 ii. Cylindrical barrel vault
(b) Discuss with neat sketches different types and formation of domes. [3]

:::: 12/09/2018 M :::::