

Reg. No.

**MANIPAL ACADEMY OF HIGHER EDUCATION**

**SEVENTH SEMESTER B. ARCH. DEGREE EXAMINATION – JAN/FEB 2019**

**SUBJECT: ARC-14-409.4 – ADVANCED STRUCTURES  
(2014 SCHEME)**

Saturday, February 02, 2019

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✗ Answer any FIVE FULL questions.
- ✗ Answer all parts of a question.
- ✗ Give sketches wherever necessary.

1A. What are the types of membrane structures? Explain application of membrane structures in architectural project.

1B. What are the advantages of cable structures? Explain with an example in architecture.  
(6+4 = 10 marks)

2A. Explain the concept of pneumatic structure. What are the advantages of different types of pneumatic structures?

2B. What is breakwater? Explain with neat sketches the types of breakwater.  
(5+5 = 10 marks)

3A. Explain types of underground structures based on applications and mention the advantages.

3B. Define tensegrity. Explain its applications in architectural projects.  
(6+4 = 10 marks)

4A. Explain classification of piles with neat sketches. Under what circumstances pile foundation is preferred?

4B. Write short note on pile group and pile spacing.  
(6+4 = 10 marks)

5A. List various advanced materials used in construction. Explain any two with its application in building construction.

5B. What are the considerations required to decide location and depth of foundation?  
(6+4 = 10 marks)

6. Write short notes on following:

6A. Synclastic and Anticlastic Curvature

6B. Floating Structures

6C. Sea Walls

6D. Composite material

6E. Wharf

(10 marks)

