Reg. No.										

MANIPAL UNIVERSITY

FIFTH SEMESTER B. ARCH. DEGREE EXAMINATION –MAY 2016

SUBJECT: ARC 303 - BUILDING CONSTRUCTION AND MATERIALS V/ BUILDING CONSTRUCTION V (2010 & 2007 SCHEME)

Tuesday, May 17, 2016

Time: 14:00 – 18:00 Hrs. Max. Marks: 50

- **Answer any THREE questions from PART A and any ONE question from PART B.**
- **Assume and state data wherever required.**

PART – A

1. A prayer hall for a community is to be built in Udupi, spanning 9 m × 27 m with angular trusses used for roofing. Provide the following drawings to detail the scheme:

1A. Key Plan of the hall showing truss and purlin layout (1:200)

1B. Sectional Elevation of the truss (1:25)

1C. Isometric view of any two joinery details of the truss (1:5)

(2½+5+5 = 12½ marks)

2. Give the following drawings in suitable scale to detail out a PVC door to be fitted in an opening of 900 mm × 2100 mm. Wall thickness is 200 mm.

2A. Plan

2B. Elevation

2C. Section

2D. Isometric view

(3+3+3+3½ = 12½ marks)

3. Design a space frame composed of triangular pyramids for an auditorium having a hexagonal plan form with the outer dimension of each side being 20 m. Sketch the following to detail the space frame (Assume suitable scale):

3A. Plan showing layout of all members and structural supports

3B. Section

3C. Joinery detail between two members

(6+3+3½ = 12½ marks)

4A. Sketch a typical plumbing layout of a men's toilet for an office, containing 4 urinals, 2 water closets and 2 wash basins. Assume suitable dimensions and toilet fixtures.

4B. A passenger lift is proposed in an office building with 50 floors. Sketch the plan and section of the lift well showing clearly the machine room details.

(6½+6 = 12½ marks)

PART – B

5A. Explain various methods of damp proofing of roofs with the help of neat sketches, outlining the materials used and the process adopted.

5B. Which are the areas in a building where thermal insulation materials are generally applied? Explain the application of any two materials used for thermal insulation in detail with their properties.

(6½+6 = 12½ marks)

6A. How is sound insulation provided for floors and ceilings? Explain with the help of sketches.

6B. Write short notes on the following materials used for fireproofing of buildings:

i) Intumescent coating

ii) Spray-applied fire resistive materials

(6½+6 = 12½ marks)