Reg. No.										

MANIPAL UNIVERSITY

FIFTH SEMESTER B. ARCH. DEGREE EXAMINATION – FEBRUARY 2016

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

Tuesday, February 16, 2016

Time: 10:00 – 14:00 Hrs. Max. Marks: 50

- **Answer any THREE questions from PART A and any ONE question from PART B.**
- **Illustrate your answers with neat proportionate sketches.**

PART – A

1. Design and detail a tubular steel truss for an industrial shed of size 10m × 20m in plan. The truss will be supported on RCC columns. Roofing may be of Asbestos cement sheet or of corrugated aluminium sheet. Draw the following to explain the construction:

1A. Key plan showing the truss & purlin layout
1B. Truss elevation with roofing
1C. Any two important details

(2½+4½+5½ = 12½ marks)

2. A sliding window design is to be made for a huge project where many units of same size are to be fabricated. Clear opening measures 1.5m (wide) × 1.2 m (height). Design and detail giving the following drawings with appropriate specification:

2A. Plan, Elevation and section of the window
2B. Any two important details

(5½+7 = 12½ marks)

3. What is a space frame? What are the salient features of the same? Provide sketch details of connections for a typical space frame for a roof.

(12½ marks)

4A. Draw a section through a typical lift well and mark important dimensions.
4B. Explain the typical plumbing layout of a residential toilet with the help of a plan and a sectional elevation. The toilet shall consist of a WC, a wash basin, a geyser and a shower area.

(6½+6 = 12½ marks)

PART – B

5A. Explain the classification and characteristics of acoustical materials.
5B. Explain water-proofing of basement construction.

(7½+5 = 12½ marks)

6. Suggest a method for reducing solar heat gain by a sloping R.C.C. roof. Give details of construction and specification of materials for the suggested thermal insulation. Illustrate your design.

(12½ marks)