

**MANIPAL UNIVERSITY****THIRD SEMESTER EXECUTIVE M. ARCH. (ADVANCED DESIGN)  
DEGREE EXAMINATION – NOVEMBER 2017****SUBJECT: ARM 703 E – NEWER BUILDING MATERIALS**

Saturday, November 11, 2017

Time: 14:00 – 17:00 Hrs.

Max. Marks: 50

**✍ Answer any FIVE full questions.**

1. Explain with examples how modern roofing alternatives have overcome many of the shortcomings of conventional roofing materials and methods. (10 marks)
- 2A. Briefly describe with examples, challenges that led to development of concrete with modified performance characteristics.
- 2B. Explain the basic concept of pre-stressed concrete and its advantages over conventional reinforced cement concrete. (5+5 = 10 marks)
3. Explain the special features of the following materials comparing with their conventional counterpart(s) and enlist the implications:
  - 3A. Laminated timber
  - 3B. u-PVC windows (5+5 = 10 marks)
4. How has the idea of curtain walls changed the perception of building envelop? Explain the modern trends with a few example. (10 marks)
5. Explain the consequences of modern counterparts replacing the old one the following cases:
  - 5A. Walling blocks
  - 5B. Laminates and wooden particle boards (5+5 = 10 marks)
6. Explain sustainability characteristics of the following materials:
  - 6A. Structural Steel
  - 6B. Timber
  - 6C. Burnt Clay Brick
  - 6D. Cement (2½ marks × 4 = 10 marks)

