

**MANIPAL UNIVERSITY****FOURTH SEMESTER EXECUTIVE M. ARCH. (ADVANCED DESIGN)  
DEGREE EXAMINATION – MAY 2017****SUBJECT: ARM 702 E – ADVANCED BUILDING SERVICES**

Tuesday, May 09, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✍ **Answer any FIVE of the following questions.**
- ✍ **Support the answers with neat sketches.**
- ✍ **Mention assumed data (if any).**

1. Explain the role of automation in controlling various systems in a high-rise building.  
(10 marks)
2. For a 10-storeyed residential apartment building, which has 4 units per floor and per floor area is 6000 sq.ft.:
  - 2A. Calculate the water capacity requirements for over-head tank, sump and fire-fighting.
  - 2B. What are the different capacities of pumps available and your selection for the above?
  - 2C. What do you mean by refugee area and what are the norms?  
Also mention the assumed data.  
(5+2½+2½ = 10 marks)
3. What are the considerations for lifts in the design of high-rise office buildings?  
(10 marks)
4. Write about the different types of air-conditioning systems.  
(10 marks)
5. How do you determine the capacity of the transformer including DG for a high-rise residential building (Consider calculations from an individual unit (2BHK) to shared facilities)?  
(10 marks)
6. **Answer the following:**
  - 6A. What is the purpose of cabling in buildings?
  - 6B. What is the difference between structured and unstructured cabling?
  - 6C. Through a schematic sketch, show the distribution and centralized network cabling system.  
(2+4+4 = 10 marks)

