Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

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

SUBJECT: ARC-14-409.3 - ADVANCED BUILDING SERVICES

(2014 SCHEME)

Saturday, February 02, 2019

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. What are the factors that heat gain or heat loss through a building depend upon?

(10 marks)

2A. Determine the number of lifts required for an office building of square plan. G+ 8 floors, Single occupancy, floor to floor height is 3.5 meters, area per floor is 1600 m.sq. Occupancy: 15 m.sq/person, RTT for 20 capacity car is 120 sec (estimated). Handling capacity shall not be less than 15% as per Standards.

2B. What are the various possible planning arrangements for 4, 6 and 8 lifts?

(6+4 = 10 marks)

3A. Explain the various options available for designing a firefighting system in a high rise building.

3B. Write about Automatic sprinkler system.

(7+3 = 10 marks)

4. For a residential building of G+8 floors high, Calculate the capacity for the transformer required. Considerations: floor to floor height is 3m, 4 units per floor, each unit is a 2BHK of 1250sq.ft. area.

(10 marks)

5. Discuss on the basic components processes of the sewage treatment plant.

(10 marks)

6. A high rise building (residential) of G+9 floors, has 3 units in each floor and area per unit is 1250 sq. ft. Consider a family size of 4, calculate the following:
   a) Over-head water tank and Underground water tank
   b) Types of Pumps used and their capacities
   c) Suggest a suitable firefighting system to be employed.

(6+2+2 = 10 marks)