

**MANIPAL UNIVERSITY****SEVENTH SEMESTER B. ARCH. DEGREE EXAMINATION – NOVEMBER 2017****SUBJECT: ARC-14-409.3 - ADVANCED BUILDING SERVICES  
(2014 SCHEME)**

Wednesday, November 15, 2017

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

 **Answer any FIVE Questions fully.**

 **Give neat sketches wherever relevant.**

1. A multistoried hostel building has two sources of water: Intermittent municipal supply and an open well of seasonally fluctuating water level. Explain the points to consider while taking decisions about:

1A. Size of underground water tank (UGT) and size of over-head water tank (OHT)

1B. Specifications of pump

1C. Diameters of Delivery pipe and distribution pipes

(4+3+3 = 10 marks)

2. Explain in brief the basic components processes of a sewage treatment plant (STP).

(10 marks)

3. Explain the necessity of approximate estimating and costing of building services in a multi-storied building project before the very starting of architectural design. Elaborate this in the case of electrical system design.

(10 marks)

4. Explain the method of estimation of heat gain in a building. Also explain various optimization decision architect has to take in the case of controlling indoor temperature by supply of cool air.

(10 marks)

5A. Explain the logic of arriving at the lift capacity requirements for a multistoried office building.

5B. Describe the pre-requisite of civil works completion for starting lift installation.

(6+4 = 10 marks)

6. **Explain the following:**

6A. Determination of requirement of number of electrical circuits in a residential building

6B. Chilled water system of air-conditioning

6C. Design decisions architect needs to take regarding fire-fighting by automatic sprinkler system

(3+4+3 = 10 marks)

