

## MANIPAL UNIVERSITY

FIFTH SEMESTER B. ARCH. DEGREE EXAMINATION – FEBRUARY 2016

SUBJECT: ARC 311 - BUILDING SERVICES III  
(2010 SCHEME)

Thursday, February 25, 2016

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✍ Answer any FIVE full questions.  
✍ Support with necessary sketches wherever necessary.

1. Write down the definition, equation and the unit of measurement of the following:

- 1A. Sound Intensity  
1B. Wavelength of sound wave  
1C. Velocity of sound wave  
1D. Frequency of sound wave

(2½ marks × 4 = 10 marks)

2. Explain four environmental noise control measures through strategies such as landscaping and architectural design with relevant sketches.

(10 marks)

3. What are the important factors to be followed in the design of an auditorium to attain good enjoyment of sound in the absence of sound amplification?

(10 marks)

4. Explain the following:

- 4A. Cooling and humidification process  
4B. Heating and humidification process

(5+5 = 10 marks)

5A. Explain in detail different components of psychrometric chart.

5B. Explain in detail the window air conditioning system with sketches.

(5+5 = 10 marks)

6A. Discuss in detail the following components:

- i) Compressor      ii) Condenser      iii) Evaporator      iv) Cooling Tower

6B. What is meant by Sick Building Syndrome?

(5 marks × 2 = 10 marks)

