

# CBCS Scheme



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15ARC6.3

## Sixth Semester B.Arch. Degree Examination, June/July 2018 Building Services III

Time: 3 hrs.

Max. Marks: 100

**Note: Answer any FIVE full questions, choosing one full question from each module.**

### Module-1

- 1 a. What do you mean by Mechanical Ventilation System? (03 Marks)
- b. What is the need for Mechanical Ventilation System for a 2<sup>nd</sup> basement in the building? (07 Marks)
- c. Explain, with proper sketches, the various types of ventilation systems in buildings. (10 Marks)

OR

- 2 a. What are the various External and Internal air conditioning loads for a building and how are they calculated? (10 Marks)
- b. What are the various ways of achieving energy efficiency in Mechanical Ventilation System? (10 Marks)

### Module-2

- 3 a. With sketches, explain the working principles of 'SPLIT AIR CONDITIONING' systems. (08 Marks)
- b. What are AIR HANDLING UNITS? Explain its various components and their functions with proper sketches. (12 Marks)

OR

- 4 a. What are HEPA filters? Explain its working processes and usability. (10 Marks)
- b. What are the various air flow patterns used for air conditioning of clean rooms? Explain with sketches. (10 Marks)

### Module-3

- 5 a. What are the various types of elevator systems, based on hoist mechanism, used in a building? (10 Marks)
- b. With neat sketches explain the various building components needed for a geared traction lift system with a machine room. (10 Marks)

OR

- 6 a. What are the various arrangements of escalators used in building design? Explain with sketches. (12 Marks)
- b. What are the various factors used for capacity calculation for an escalator? (04 Marks)
- c. What are the factors governing the location of an escalator in a public building? (04 Marks)

### Module-4

- 7 a. What is Fire? What is meant by fire triangle fire tetrahedron? How is this understanding of fire helpful in preventing loss of life? (10 Marks)
- b. How do you plan for evacuation and exits from the building while designing? Explain with sketches. (10 Marks)

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OR

- 8 Write short notes on:
- Fire doors
  - Fire sealants
  - Smoke curtains
  - Photo luminescent safety signage.

(20 Marks)

**Module-5**

- 9 a. What are the various stages of fire and which type of detector detects fire at which stage?  
(08 Marks)
- b. Explain the wet riser system and sprinkler system for a building.  
(12 Marks)

OR

- 10 What are the various fire protection and fire fighting requirements for a high rise building in India? Explain with sketches.  
(20 Marks)

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