

CBCS SCHEME



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18ARC63

Sixth Semester B.Arch. Degree Examination, Dec.2025/Jan.2026

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. Explain the function of Ventilation in Buildings. (08 Marks)
- b. Briefly explain any four types of Mechanical Ventilation Systems. (12 Marks)

OR

- 2 a. Briefly explain any two of the following terms and their representation on psychrometric charts:
i) Wet Bulb Temperature ii) Relative Humidity iii) Dew Point. (08 Marks)
- b. Calculate the cooling load of a cold storage in (Kwh/day) 6 m (length) × 5 m (width) × 4 m (height). The ambient outside temperature is 30°C at 50% Relative humidity. The internal air temperature is 1°C at 95% Relative humidity. The walls, roof and floor are all insulated with 80 mm polyurethane foam with a U value of 0.28 W/m² K. The ground temperature is 10°C. (12 Marks)

Module-2

- 3 a. Describe the following with sketches :
(i) Window Air Conditioner
(ii) Air Handling Unit (12 Marks)
- b. Draw the Air Conditioning layout including ducting and diffusers from the AHU to a room 14 m (Length) × 10 m (Width) × 4.5 m (Height). (08 Marks)

OR

- 4 a. Explain the functioning of specialized Air Conditioning Systems. (10 Marks)
- b. Describe with sketches the Air Conditioning and Ventilation systems of an Operation Theatre. (10 Marks)

Module-3

- 5 a. Write short notes on :
(i) Peak Handling Capacity
(ii) Lift Speed
(iii) Average Waiting Time
(iv) Automatic Rescue Devices (12 Marks)
- b. Sketch and label in detail the view of an elevator system showing the hauling mechanism and safety devices. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42 + 8 = 50, will be treated as malpractice.

OR

- 6 a. Explain briefly the application and functioning of Escalators. (08 Marks)
- b. Sketch in detail an escalator showing and labelling all its major component parts. (12 Marks)

Module-4

- 7 Explain briefly the various classifications of types of fire, their causes and hazards. (20 Marks)

OR

- 8 a. Explain the concept of passive fire protection in buildings. (08 Marks)
- b. Explain the significance of the following :
- (i) Fire refuge area
 - (ii) Travel distance
 - (iii) Fire tower
 - (iv) Signages
- (12 Marks)

Module-5

- 9 Write short notes on any five components of active fire fighting systems:
- (i) Fire Sprinklers
 - (ii) Fire Hydrants
 - (iii) Smoke Detectors
 - (iv) Fire Panel
 - (v) Fire Alarm
 - (vi) Fire Pumps
- (20 Marks)

OR

- 10 Write down the various requirements for horizontal exits / refuge areas which are mandated in the NBC Part 4 Annex – E for High Rise Buildings. (20 Marks)

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