

USN

--	--	--	--	--	--	--	--	--	--

LIBRARY

Parma 102

18ARC63

CBCS SCHEME

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) $6 \text{ m (length)} \times 5 \text{ m (width)} \times 4 \text{ m (height)}$. 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 $0.28 \text{ W/m}^2 \text{ K}$. 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 $14 \text{ m (Length)} \times 10 \text{ m (Width)} \times 4.5 \text{ m (Height)}$. (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)

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)

* * * * *