

# CBBCS SCHEME

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18ARC33

**Third Semester B.Arch. Degree Examination, Aug./Sept.2020**

## **Climatology**

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

1 Describe the following with relevant sketches:

- Atmosphere
- Weather and climate
- Earth sun relationship
- Weather station.

(20 Marks)

**OR**

- a. Define tropical climate. List major and subzone of tropical climate and briefly explain any one in detail. (12 Marks)
- b. With the help of sketches, explain urban climate and factors causing deviation from the regional microclimate. (08 Marks)

### Module-2

- a. Illustrate and explain sun path diagram and its components and also explain method of computing solar altitude and azimuth for given date and time. (10 Marks)
- b. Explain the process of thermo regulatory mechanism of human body. (10 Marks)

**OR**

- 4 Describe the heat exchange process of building with the out door environment. (20 Marks)

### Module-3

- 5 a. Define U-value (thermal transmittance). How U, K-value (thermal conductivity) and R-value (thermal resistance), related to each other. (10 Marks)
- b. Calculate U-value of a 20cm thick concrete block wall with 1.25cm thick cement plaster on both sides.

Given:

$$K(\text{block wall}) = 1.396 \text{ W/mK}$$

$$K(\text{cement plaster}) = 0.721 \text{ W/mK}$$

(10 Marks)

**OR**

- 6 a. What is periodic heat flow? (08 Marks)
- b. Describe with sketches time lag and decrement factor. (12 Marks)

### Module-4

- 7 Explain with sketches various air flow movement around building and how it affect ventilation. (20 Marks)

OR

- 8 Explain with sketches:
- Functions of ventilation
  - Types of shading device
  - Stack effect
  - Types of Lowris.

(20 Marks)

**Module-5**

- 9 a. Explain day light factor and its components. (08 Marks)  
b. Explain what are the different challenges in providing adequate day lighting in hot and dry climate and way of overcoming them? (12 Marks)

OR

- 10 With the help of literature study, explain the design consideration for building in warm and humid climate. Illustrate with plan, section and views. (20 Marks)

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