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## Third Semester B.Arch. Degree Examination, June/July 2024 Climatology

Time: 3 hrs.

Max. Marks: 100

**Note: 1. Answer any FIVE full questions, choosing one full question from each module.  
2. Draw sketches wherever necessary.**

### Module-1

- 1 a. Differentiate between weather and climate. (05 Marks)
- b. Classify climate based on scale. (05 Marks)
- c. Throw some light on the factors that affect site climate. (10 Marks)

OR

- 2 Write short notes on the following: (20 Marks)
  - a. Composite climate
  - b. Effective temperature
  - c. Climate change
  - d. Relative Humidity.

### Module-2

- 3 a. What is a psychrometric chart? Explain its usage with the help of a neat diagram. (10 Marks)
- b. Describe the types of solar radiation with the help of a diagram, as it passes through the atmosphere. (10 Marks)

OR

- 4 Differentiate between the following with the help of neat sketches:
  - a. Azimuth and Altitude angles (10 Marks)
  - b. Overheated and underheated period. (10 Marks)

### Module-3

- 5 a. Explain the concepts of time lag and decrements factor with the help of a diagram. (10 Marks)
- b. Throw some light on conduction, convection and radiation in relation to the human body. (10 Marks)

OR

- 6 a. Define thermal transmittance. (05 Marks)
- b. What do you understand by soil air temperature? (05 Marks)
- c. Find the u-value for cavity wall plastered on both sides.

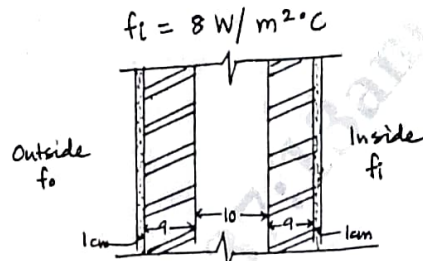
- K value of brick = 0.811 W/m°C
- thickness of brick = 9cm
- K value of plaster = 0.721W/m°C
- thickness of plaster = 1cm
- thickness of air space = 10cm
- Thermal conductance of air space = 6.05W/m<sup>2</sup>°C

Surface conductance's

$$f_o = 16W/m^2°C$$

$$f_i = 8W/m^2°C$$

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.



(10 Marks)

**Module-4**

- 7 Why are shading devices needed? Elaborate the different types of shading devices possible in a building. (20 Marks)

**OR**

- 8 What are the factors that affect indoor air flow in buildings? (20 Marks)

**Module-5**

- 9 a. What are the ways in which light can be distributed when it falls on a surface? (10 Marks)  
 b. Derive the relationship between reflectance, absorbance and transmittance, with respect to transparent, translucent and opaque objects. (10 Marks)

**OR**

- 10 Mention five passive design strategies that can be used to design a shelter in Jodhpur. Use sketches to support these. (20 Marks)

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