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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:
a. Composite climate
b. Effective temperature
c. Climate change
d. Relative Humidity. (20 Marks)

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 = $0.811 \text{ W/m}^\circ\text{C}$
- thickness of brick = 9cm
- K value of plaster = $0.721 \text{ W/m}^\circ\text{C}$
- thickness of plaster = 1cm
- thickness of air space = 10cm
- Thermal conductance of air space = $6.05 \text{ W/m}^2\text{C}$

Surface conductance's

$f_o = 16 \text{ W/m}^2\text{C}$

$f_i = 8 \text{ W/m}^2\text{C}$

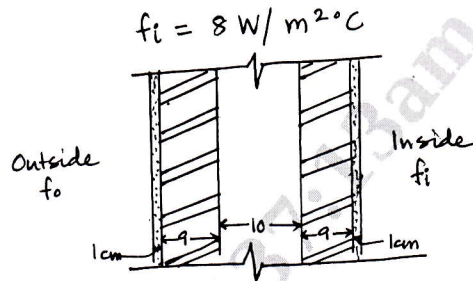


Fig.Q.6(c)

(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)
