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Third Semester B.Arch. Degree Examination, Dec.2023/Jan.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 Explain "Graphical representation of climate data" (climate graph) and its components taking as example of warm humid climate. (20 Marks)

OR

- 2 a. Explain the factors that affect the urban climate. (10 Marks)
b. Describe the Earth and Sun relationship. Explain the cause for the change of seasons. (10 Marks)

Module-2

- 3 a. Explain the Sun Path (Solar chart) diagram with a neat sketch and label all the contents of the chart. (10 Marks)
b. Explain solar azimuth and solar altitude angles with help of sketches. (10 Marks)

OR

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

Module-3

5 Write short notes on :

- a. Transmittance values (05 Marks)
b. Cavity resistance (05 Marks)
c. Surface conductance (05 Marks)
d. Time-lag (05 Marks)

OR

- 6 Find the U-value for the composite wall of a Westerly, normal exposure, consisting of the following :

114mm Engineering brickwork	k = 1.150 W/m deg C
50mm cavity	$R_c = 0.176 \text{ m}^2 \text{ deg C/W}$
100mm dense concrete blocks	k = 1.440 W/m deg C
25mm wood wool slab	k = 0.093 W/m deg C
12mm Plastering	k = 0.461 W/m deg C
Surface resistance	$1/r_0 = 0.076 \text{ m}^2 \text{ deg C/W}$
	$1/r_1 = 0.123 \text{ m}^2 \text{ deg C/W}$

(20 Marks)

Module-4

- 7 List and describe the types of shading devices. Explain the steps involved in the design of shading devices. (20 Marks)

OR

- 8 a. Explain the air flow around single storey buildings in rural setting in open country. (10 Marks)
b. Write short notes on : i) Wind Scoop (10 Marks) ii) Wind Simulators

Module-5

- 9 What are the sources of day lighting? Explain the Day light factor in detail. (20 Marks)

OR

- 10 Explain the design considerations for buildings in hot-dry climate. (20 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.