

2014

ENVIRONMENTAL SCIENCE (CLIMATOLOGY)

Paper : 3.8

Full Marks : 100

Time : 3 Hours

*The figures in the margin indicate full marks
for the questions.*

1. State true or false. 1×3
 - a) Tropical climate are those where heat is the dominant problem.
 - b) Sky Component (SC) contributes to the daylight factor.
 - c) Convective cooling is one of the three major functions of Ventilation.
2. Classify the following activities as leading to heat gain (HG) or heat loss (HL) in the body. 1×4
 - a) Sitting under the tree
 - b) Standing inside an air-conditioning room.
 - c) Playing football
 - d) Sitting near a fire place
3. Give the units of measurement and mention the instruments used to measure the following elements of climate: 1×2
 - a) Precipitation
 - b) Relative Humidity
4. Fill in the blanks : 1×6
 - a) The days where day and night are of equal length are called ____ days.
 - b) ____ is the collective term used for rain, snow, hail, dew and frost.
 - c) The shorter facades of a building should face ____ and ____ in order to avoid heat
 - d) What bodies can provide ____ cooling and hence reduce the temperature.
 - e) In a warm-humid climate, precipitation is ____ throughout the year.

(2)

5. Define the following terms in brief (any five) 2×5
- Egg crate devices
 - Air Temperature
 - Sun Path Diagram
 - Psychrometric chart
 - Fenestration
 - Solar Radiation
6. Write short notes on the following : (Any five) 3×5
- Daylight factor concept.
 - Evaporative cooling
 - Ventilation
 - Venturi effect
 - Stack effect
 - Earth cooling
7. Answer the following questions : (Any five) 4×5
- What are the major climate zones in India and what are their characteristics?
 - Why is it necessary for an Architect to be aware of climatology?
 - Differentiate between climate and weather
 - What do you understand by natural ventilation? Explain its functions.
 - What are the various local factors governing the climate of a zone? Explain
 - What do you understand by Thermal Comfort? Explain how it is evaluated.
 - Differentiate between Absolute Humidity and Relative Humidity.
8. Answer the following question : 4×5
- Give two methods of reducing heat gain by building from the following :
 - Roof
 - South wall
 - How is Earth's thermal balance obtained? What are the three processes by which Earth's surface releases heat?
 - Explain the form and planning of a traditional shelter in a warm-humid climate.
 - Explain the effect of Fenestration Pattern and configuration in Building Design.

(3)

9. Answer the following question (any two) : 2×10
- Draw a neat sketch of Wind scoop and explain the function.
 - What is the main problem with day lighting of interior space in.
 - Hot and dry climates
 - Warm and humid climatesGive solutions to the problems.
 - Give atleast three factors causing the deviations of the urban climate from the regional macro-climate.

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