

Total number of printed pages-4

43 (3) ENSC 3-8

2012

**ENVIRONMENTAL SCIENCE
(CLIMATOLOGY)**

Paper : ARC 3-8

Full Marks : 100

Pass Marks : 40

Time : Three hours

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

*Answer any ten questions from Part-A,
any six from Part-B, any five from Part-C*

PART-A

1. Write short notes on : (*any ten*) $10 \times 2 = 20$
- (a) Climatology
 - (b) Micro & Macro climate
 - (c) Air Temperature
 - (d) Ground Character

Contd.

- (e) Surface area to Volume ratio
- (f) Fenestration
- (g) Egg Crate devices
- (h) Temperature Inversion
- (i) Climate Responsive Architecture
- (j) Humidity
- (k) Perimeter / Area Ratio
- (l) Solar Radiation
- (m) Light shelves & Flywire Nets
- (n) Effective Temperature.

PART-B

(Answer any six) 6×5=30

2. What do you mean by Solar Azimuth Angle and Solar Altitude Angle?
3. What is Sun Path Diagram and how is solar chart used in climatic design?

4. What do you mean by Shading Devices? What are the various types of shading devices used?
5. What do you mean by Natural Ventilation? Explain the function of Natural Ventilation.
6. Explain the effect of Fenestration Pattern and configuration in Building Design.
7. Explain the effect of Courtyards and Verandas in Building Design with respect to Hot climate, Cold climate and Humid climate.
8. What are the two Atmospheric Factors which dominantly influence the Human Comfort? Explain.
9. What do you mean by Micro Climate? Explain the effect of Landscape elements on micro climate.

PART-C

(Answer any five) 5×10=50

10. What are the major Climatic Zones in India and what are their characteristics?
11. How is Earth's Thermal Balance obtained? What are the *three* processes by which Earth's surface releases heat?

12. What do you understand by Thermal Comfort ? Explain the process of body's heat exchange with the surrounding environment.
13. What are the various local factors governing the climate of a zone ? Elaborate.
14. What is shadow angle ? How many types of shadow angles are there and how is it used to design shading devices ?
15. What do you understand by Daylight Factor concept ? What are the *three* components of Daylight Factor ? Explain.
16. Explain the design considerations for buildings in tropical climates with special reference to hot-dry or warm-humid or composite climates.