

Total number of printed pages-3

43(ARC-3) 3·8

2018

ENVIRONMENTAL SCIENCE

Paper : ARC-3·8

(Climatology)

Full Marks : 100

Time : Three hours

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

1. Write short notes on : **(any ten)** 10×2=20

- (a) Climate Responsive Architecture
- (b) Micro and macro climate
- (c) SI unit of Humidity and Precipitation
- (d) Air Temperature
- (e) Shading device
- (f) Fenestration
- (g) Egg-crate device

Contd.

- (h) Light Shelves and Flywire Nets
- (i) Psychrometric Chart
- (j) Evaporative Cooling
- (k) Venturi effect.

2. Answer **any eight**: 5×8=40

- (a) What do you mean by Solar Azimuth and Solar Altitude angle?
- (b) What do you mean by Sun Path Diagram and how is solar chart used in climatic design?
- (c) What is natural ventilation? Explain the functions of natural ventilation.
- (d) Explain the effects of Courtyards and Verandas in building design w.r.t. Hot climate, Cold climate and Humid climate.
- (e) What is Kata thermometer and Globe thermometer? Explain with sketches.
- (f) What are the *two* Atmospheric factors which dominantly influence the Human comfort? Explain.

(g) What is thermal comfort? Explain the *three* processes by which earth's thermal balance is obtained.

(h) What are the various elements of climate and their units of measurement? Explain.

(i) Give *two* methods of reducing Heat gain by building from the following:

- (a) Roof
- (b) South Wall

3. Explain the effect of Fenestration Pattern and configuration in Building design w.r.t. Hot and Dry climate and Composite climate. 20

4. Explain the form and planning of a traditional shelter and site in a Warm and Humid climate. 20

Or

What do you mean by microclimate? Explain the effects of landscape elements on microclimate. Sketch and explain.