

Seat No. : _____

DA-126

December-2013

S.Y.B.Arch., Sem.-III

Climatology (AR-306)

(New Syllabus) (Regular)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :** (1) Attempt **all** questions.
(2) Figures on the right indicate full marks.
(3) Draw neat sketches wherever required.
(4) Assume suitable additional data if required.

1. (a) Explain fundamentals of earth-sun relationship, tilt of earth's axis, elliptical revolution responsible for seasonal cycle. Define climate & weather. **05**
(b) Temperature, Humidity, Rainfall, Wind, Radiation giving detail of devices used to measure each of these five elements. Explain with neat sketch. **05**
2. Write short on : (any **two**) **10**
(i) Bio climatic chart
(ii) Effects of Diurnal temp. difference.
(iii) Cause and types of Driving Rains.
(iv) Composite Climate passive devices.
3. (a) What are different comfort factors, what is thermal balance and which are the Subjective variable that contribute to body's thermal preferences ? **05**
(b) Draw Psychometric diagram with Effective temperature lines of comfort zone range. Explain comfort scale, Body Thermal Balance. **05**
- OR**
- (a) Explain term with calculation: periodic heat flow, thermal diffusivity and effect of cavity wall construction in relation to ventilation of cavities wall. **05**
(b) What are Solar control variables ? How should it be used to get maximum benefit from the solar radiation in all climates ? **05**
4. Differentiate between following : (any **two**) **10**
(i) Azimuth angle and Altitude angle shown in sun path diagram and it uses.
(ii) Wind shadow and Cross Ventilation and its uses in building.
(iii) Visual acuity range and Visual performance in lighting and its purpose.
(iv) Daylight factor and PSALI and its uses.
(v) Sound acoustic controls and threshold of audibility and Noise controls.

5. Answer in brief with neat sketches of following questions : (any **two**)

10

- (a) Working of wind towers in hot dry climate.
 - (b) Macro climate and micro climate in relation to building design considerations.
 - (c) Working of Noise barriers for the screening in planning , ventilators and ducts.
 - (d) Four different types of noise absorbents.
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Seat No. : _____

DA-126

December-2013

S.Y.B.Arch., Sem.-III Regular (ID/BCT)

Environmental Science-I

(Old Syllabus)

AR-306

Time : 2 Hours]

[Max. Marks : 50

Instruction : Please make neat sketches with each answer.

1. Answer any **two** from following : **18**
 - (a) Describe the elements of Climate and explain how each one is measured. Also specify the unit of measurement of each.
 - (b) Explain the characteristics of **any one** climate from the following. Also give the methods of passive control in building design in that climate. i) Hot Dry Climate ii) Warm Humid Climate iii) Composite Climate.
 - (c) Explain the Solar Geometry between the Sun and the Earth. How is it responsible for the formation of different climatic zones and various seasons ?
 - (d) What are the functions of Ventilation ? Explain with sketches how does building design help in generating better ventilation.

2. Differentiate between any **two** from following : **16**
 - (a) Solar Altitude and Solar Azimuth
 - (b) Bio Climatic Chart and Psychometric Chart
 - (c) Horizontal Shading Devices and Vertical Shading Devices
 - (d) Internally Reflected Component and Externally Reflected Component

3. Write short note on any **two** from following : **16**
 - (a) Subjective Variables and Acclimatization
 - (b) Wind Scoops and Wind Tunnels
 - (c) Noise Control in Buildings
 - (d) Daylight factor

