

**THIRD SEMESTER DIPLOMA EXAMINATION IN  
ARCHITECTURE — APRIL, 2017**

**CLIMATOLOGY**

[Time : 3 hours

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer the following questions in one or two sentences. Each question carries 2 marks.

1. Outline the influence of topography on air movement.
2. Define dry-bulb temperature.
3. Write on balancing-in time.
4. Define physiological cooling.
5. Define diurnal variation.

(5 × 2=10)

**PART — B**

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. Describe the data to be collected related to temperature in thermal design of buildings.
2. Define the following.  
(a) Tropical front      (b) Sub - Tropic High      (c) Sub - Polar front
3. Discuss on body's heat production process.
4. With the help of graph explain time-lag and decrement factor.
5. Describe earth coupling.
6. Illustrate with sketch stack effect.
7. Explain physiological objectives of thermal design in hot dry climate. (5 × 6 = 30)

## PART -- C

(Maximum marks : 60)

(Answer one full question from each unit. Each full question carries 15 marks.)

## UNIT -- I

- III (a) Define urban climate. 2  
 (b) Discuss the factors which cause deviations from macro climate. 6  
 (c) The leeward half of a hill receives much less rain than rain received by windward side. Explain with sketch. 7

OR

- IV (a) Define tropical climate. 2  
 (b) Classify tropical climatic zones. 6  
 (c) Write features of hot-dry desert climate. 7

## UNIT -- II

- V (a) Define thermal comfort indices. 2  
 (b) State the effect of climate on man. 4  
 (c) Write short notes on : ET Scale, CET Scale and Bioclimatic chart 9

OR

VI Define the following :

- (i) Mean Radiant Temperature (ii) Specific heat  
 (iii) Latent heat (iv) U-value  
 (v) k-value 15

## UNIT -- III

- VII (a) List out any three solar passive heating strategies. Explain. 12  
 (b) Define horizontal shadow angle. 3

OR

- VIII (a) List out problems associated with heating. Explain. 3  
 (b) Discuss on mechanical ventilation systems. 6  
 (c) Describe components of control systems in air conditioner. 6

## UNIT -- IV

- IX Illustrate features of shelters in tropical upland climate. 15

OR

- X Illustrate features of shelters in composite climate. 15