

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

CLIMATOLOGY

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define psychrometric chart.
2. Define dew point temperature.
3. Differentiate between basal metabolism and muscular metabolism.
4. State functions of ventilation.
5. Define thermal capacity.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe temperature inversion.
2. Write the features of tropical upland climate.
3. Discuss on Sol-air temperature concept. Write the formula to find it.
4. State the importance of balancing in time.
5. Illustrate with sketch wind effect.
6. Illustrate with sketch direct gain.
7. Explain physiological objectives of thermal design in tropical upland 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) Illustrate with sketch thermal balance of earth. 10
 (b) Discuss on causes of seasonal variation. 5

OR

- IV (a) Discuss on humidity as an element of climate. What are the data to be collected for thermal design ? 10
 (b) Define driving rain index. Write its relevance on climatology. 5

UNIT -- II

- V (a) Describe the regulatory mechanisms of body to achieve thermal balance. 8
 (b) State any seven subjective variables which influence human comfort. 7

OR

- VI (a) Illustrate with sketch heat exchange process of buildings. 10
 (b) Define solar heat gain factor. Give the formula to find it. 5

UNIT -- III

- VII (a) State any three solar passive cooling strategies. Explain. 9
 (b) Discuss on solar passive design. 6

OR

- VIII (a) Illustrate with sketch the pattern of air movement around buildings. 7
 (b) Discuss on methods for reduction of solar heat gain through windows. 8

UNIT -- IV

- IX Illustrate features of shelters in warm-humid climate. 15

OR

- X Illustrate features of shelters in hot - dry climate. 15