

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

COMMUNICATION SYSTEMS

[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. List the microwave frequency range of Electromagnetic spectrum.
2. Define geostationary satellite.
3. Draw the symbol of Tunnel diode and Gunn diode.
4. Define a cell.
5. List two optical sources used in fibre optic communication.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe the working principle of reflex klystron with a neat diagram.
2. Draw any four types of horn antenna structure.
3. List any three advantages and disadvantages of TDMA.
4. Draw any four types of satellite communication orbits.
5. Differentiate single mode, multimode and graded index mode fibres.
6. List any six advantages of bluetooth.
7. Describe numerical aperture and acceptance angle.

(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) Draw the block diagram of microwave transmitter and state the need of each block. 7  
 (b) Draw the block diagram of microwave repeater and describe each block. 8

OR

- IV (a) With a neat diagram illustrate the construction and operation of Travelling wave tube (TWT). 12  
 (b) Draw the VI characteristics of Tunnel diode and mark negative resistance region. 3

## UNIT — II

- V (a) Describe the principle of satellite communication with a neat diagram. 8  
 (b) List any seven advantages of satellite. 7

OR

- VI (a) Describe DTH TV system. 9  
 (b) List any six application of satellite. 6

## UNIT — III

- VII (a) Describe fibre optic communication with a neat block diagram. 10  
 (b) Describe cable losses in fibre optic communication with a neat block diagram. 5

OR

- VIII (a) Draw the symbol of LED and illustrate the working of LED with energy band diagram. 9  
 (b) List any six applications of fibre optics in communication. 6

## UNIT — IV

- IX (a) Describe GSM network architecture with a neat figure. 9  
 (b) State : (i) Frequency reuse (ii) Hand off (iii) Channel fading. 6

OR

- X (a) Compare Wi-Fi and Wi-Max. 8  
 (b) State Features of 3G and 4G. 7