TED (15) – 6042

(REVISION — 2015)

Reg. No.....

Signature .....

# DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

## 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. Define transit time of a carrier.
2. Define the terms apogee and perigee of satellite orbit.
3. List optical detectors used in optical communication.
4. Define numerical aperture of optical fiber.
5. State the term frequency reuse in mobile communication. (5×2 = 10)

### PART — B

(Maximum marks : 30)

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

1. With a block diagram explain about microwave receiver.
2. Define microwave communication. List few microwave bands used in microwave communication.
3. Describe about GPS (Global Positioning System) navigation system.
4. Make a comparison of FDMA and CDMA techniques used in satellite communication.
5. List and explain the various areas where optical data communication is used.
6. Describe about 3G technology used in mobile communication.
7. What is meant by hand off (hand over) in mobile communication. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Explain the working of magnetron. 8

(b) Define wave guides. Explain different types of wave guides used in microwave communication. 7

OR

IV (a) With a block diagram explain about microwave link repeater. 12

(b) Draw the symbol and structure of GUNN diode. 3

UNIT — II

V (a) Describe with a block diagram about satellite earth station. 8

(b) What are the advantages and disadvantages of using TDMA technique in satellite communication ? 7

OR

VI (a) What are geostationary satellites ? Write a short note on geostationary satellites. 8

(b) List and briefly explain various applications of satellite. 7

UNIT — III

VII (a) Draw a block diagram of fiber optic communication system and explain about it. 8

(b) Explain the working of optical source LED used in optical communication. 7

OR

VIII (a) Explain the working principle of avalanche photo diode. What is the advantage of avalanche photo diode over PIN diode when used as optical detector ? 8

(b) Draw fiber optic cable (OFC) structure and explain how signal is transmitted through the cable. 7

UNIT — IV

IX (a) Draw and explain the cellular concept of mobile communication. 8

(b) Compare GSM and CDMA technology used in mobile communication. 7

OR

X (a) Describe about Bluetooth wireless technology. 8

(b) Explain about wireless technology Wi-Fi. 7