



N19 - 00492

TED (15) – 5045

(REVISION — 2015)

Reg. No.

Signature

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

OPTICAL FIBRE COMMUNICATION

[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 Numerical Aperture.
2. Describe absorption.
3. Draw the structure of Surface Emmitting LED.
4. Draw the Block diagram of Optical receiver.
5. Describe dispersion.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain Fiber Bend Losses.
2. Briefly explain the Skew rays and Meridional rays.
3. Briefly explain advantages of Erbium Doped Fiber Amplifier.
4. Explain the structure and working principle of PIN photo diode.
5. Explain optical fiber communication system.
6. Briefly explain Optical Modulators.
7. Explain the theory of Laser action.

(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) Explain various Optical Fiber types. 8
(b) Briefly explain the advantages of Optical Fiber. 7

OR

- IV (a) Describe total internal reflection and acceptance angle. 9
(b) Briefly explain the optical fiber configurations and Modes. 6

UNIT — II

- V (a) Explain the Modulation of LED. 7
(b) Explain the structure and working principle of Avalanche photo diode. 8

OR

- VI (a) Briefly explain different types of LED Structures. 12
(b) Explain the principle of Photo detection. 3

UNIT — III

- VII (a) Briefly explain the Wave length Division Multiplexing. 9
(b) Explain the basic concept of optical Amplifiers. 6

OR

- VIII (a) Explain Optical Transmitters and Optical Receivers. 8
(b) Explain the working principle of Erbium Doped Fiber Amplifier. (EDFA) 7

UNIT — IV

- IX (a) Explain intra and inter mode dispersion losses in optical transmission. 8
(b) Explain the principle of Optical fiber directional coupler. 7

OR

- X (a) Explain the cut back method of measurement of attenuation losses in optical transmission. 7
(b) Describe Optical isolators and optical circulators. 8
-