TED (15) – 5045

(REVISION — 2015)

Reg. No. .....

Signature .....

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

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 acceptance angle.
2. Define the term population inversion.
3. List the types of optical amplifiers.
4. List two applications of beam splitters.
5. List the applications of optical isolators. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain step index and graded index optical fibres.
2. Explain the different type of light rays passing through the optical fibre.
3. Explain the principle of modulation of LED.
4. Describe the working of LASER diode.
5. Explain the properties of optical amplifiers.
6. Draw the block diagram of optical transceivers.
7. Explain insertion loss method for the measurement of attenuation loss in optical fibre.

(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) Write short notes on :
(i) Absorption (ii) Scattering (iii) Dispersion — 9

(b) Describe the principle of light transmission in optical fibre. — 6

OR

IV (a) Explain single mode and multimode optical fibres. — 8

(b) List the advantages of optical fibre communication. — 7

UNIT — II

V (a) Explain the working principle of avalanche photo diode. — 8

(b) Explain the theory of LASER. — 7

OR

VI (a) Explain the structure and working of edge emitting LEDs. — 8

(b) Explain the construction of laser diode. — 7

UNIT — III

VII (a) Explain the following optical amplifiers.
(i) SOA (ii) Raman Amplifiers — 8

(b) Explain the block diagram of optical transmitter. — 7

OR

VIII (a) Explain the principle of EDFA. — 9

(b) Explain the basic concept of optical amplifiers. — 6

UNIT — IV

IX (a) Write short notes on :
(i) Connectors (ii) Splicers — 8

(b) Explain inter and intra mode dispersion losses. — 7

OR

X (a) Explain bend losses occurred in optical fibre. — 8

(b) Explain the working principle and application of directional couplers. — 7
