24443

B.Tech. 7th Semester (F) Scheme (ECE) Examination,

December-2018

OPTICAL COMMUNICATION

Paper-ECE-415-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : ***Question no. 1 is compulsory*** *and attempt any* ***one*** *question from each section.*

1. Write short notes on the following :

(a) Advantages of optical communication

(b) Absorption Loss

(c) LED Vs LASER

(d) APD

Section-A

2. (a) Draw the block diagram of optical communication. 10

(b) Calculate the refractive Index of the core and cladding of a fiber whose NA = 0.204 and Δ=0.01. 10

3. (a) What is the basics of transmission of light rays ? 10

(b) Derive the expression for NA, ϕc, and acceptance angle. 10

Section-B

4. Describe various types of losses in optical fiber in detail. 20

5. (a) Compare Intramodal and Intermodal dispersion. 10

   (b) What are the types of couplers and connectors ? 10

Section-C

6. Describe various characteristics of LED in detail. 20

7. (a) Explain basic principle of Laser action in semi conductor. 10

   (b) Describe various Laser structures in detail. 10

Section-D

8. (a) What is the principle of optical detection ? 10

   (b) Define characteristics of optical detectors. 10

9. Write short notes on : 20

   (a) APD design

   (b) PIN photodetector