[Oct-17]

[EUREC-732A]
B.Tech. Degree Examination

Electronics & Communication Engineering
VII SEMESTER

FIBER OPTIC COMMUNICATIONS
(Effective from the admitted batch 2012–13)

Time: 3 Hours
Max.Marks: 60

Instructions: Each Unit carries 12 marks.
Answer all units choosing one question from each unit.
All parts of the unit must be answered in one place only.
Figures in the right hand margin indicate marks allotted.

UNIT-I

1. a) Draw the Optical fiber transmission link and explain function of each element in the link 8
   b) Discuss the advantages of optical fiber communication over conventional copper based systems 4

OR

2. a) Compare the fiber structure and Numerical Aperture in an Step Index and Graded Index Fibers 6
   b) Prove that the total number of modes entering the Step index Fiber is \( M = \frac{V^2}{2} \) 6

UNIT-II

3. a) Explain the different mechanisms of Attenuation of signals in Optical fibers 8
   b) Write short notes on "Core and Cladding losses" 4

OR

4. a) Explain about group delay and material dispersion in Optical wave guides 6
   b) what is Pulse broadening? Analyze pulse broadening in Graded index fibers 6
UNIT-III

5. a) Discuss the advantages and drawbacks of Fusion Splicing and the adhesive Splicing 6
   b) write short notes on "Connector Return Losses" 6

OR

6. a) Explain Source Power Coupling Techniques 6
    b) Explain about Laser diode to Fiber Coupling 6

UNIT-IV

7. a) Draw the Schematic of Fabry Perrot Resonator Cavity LASER diode and explain how the Optical radiations are generated 6
    b) Explain the operation of an PIN photo diode with a neat diagram 6

OR

8. a) Discuss the Error Sources in an optical receiver 6
    b) Write short note on "Analog Receiver" 6

UNIT-V

9. a) Discuss the System considerations in an Point to Point Link 4
    b) Explain the Link design Equations in an Point to point Link based on Power budget and Rise time budget 8

OR

10 a) Explain the Measurement of attenuation with a neat Schematic 6
     b) What is WDM? Explain how it is different from FDM technique 6

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