Reg. No. : | | | | | | | | | | |

Question Paper Code: 37402

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Seventh Semester

Electronics and Communication Engineering

01UEC702 - OPTICAL COMMUNICATION AND NETWORKS

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is total internal reflection?
2. Define phase and group velocity.
3. What do you mean by polarization dispersion in a fiber?
4. Draw the schematic representation of expanded beam connectors.
5. Define internal quantum efficiency of a LED.
6. What is avalanche effect?
7. Define quantum limit.
8. State the significance of maintaining the fiber outer diameter constant.
9. What is solitons?
10. What is optical CDMA?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) With diagram, explain acceptance angle and numerical aperture of fibers. (8)

(ii) Classify fibers and explain them. (8)

Or

(b) With diagram, explain acceptance angle and numerical aperture of fibers. (16)

12. (a) Discuss in detail about material and waveguide dispersion. (16)

Or

(b) (i) Describe the three types of fiber misalignment that contribute to insertion loss at an optical fiber joint. (8)

(ii) Explain the major categories of multiport fiber optic coupler. (8)

13. (a) (i) Describe the operation of a injection laser. (8)

(ii) Compare the optical sources LED and ILD. (8)

Or

(b) Explain in detail about construction and working principle of PIN Photodiode. (16)

14. (a) Explain the fundamental receiver operation in optical communication link. (16)

Or

(b) Derive the probability of fiber optic receiver. (16)

15. (a) Explain in detail SONET layers and frame structure with diagram. (16)

Or

(b) Discuss the following:

(i) WDM networks (8)

(ii) Ultra high capacity networks (8)