M 22905

Reg. No. : .....

Name : .....

VIII Semester B.Tech. Degree (Reg./Sup. – Including Part Time) Examination, April 2013
(2007 Admn. Onwards)
PT 2K6/2K6 EC 802 : OPTICAL COMMUNICATION

Time: 3 Hours Max. Marks : 100

PART – A

1. What is meant by normalized frequency ? Explain its significance. 5
2. What is meant by polarization maintaining fiber ? 5
3. Define Responsivity and Sensitivity. 5
4. Explain the temperature dependent behaviour of optical output power as a function of bias current for any optical source. 5
5. Explain the operation of heterodyne detection system with block diagram. 5
6. Briefly explain three shift keying technique used in coherent optical detection system. 5
7. Explain the principle of operation of Brillouin amplifier. 5
8. What are DWDM and CWDM ? 5

PART – B

9. a) Explain the propagation modes in step index Fiber. 7
   b) Define and explain :
      1) Acceptance cone
      2) Skew Ray
      3) Numerical Aperture
      4) Optical switch. 8

OR

P.T.O.

10. Define intermodal dispersion. Derive an expression for rms pulse width for a rectangular pulse propagating in a multimode fiber. **15**

11. a) Explain different types of LED with neat sketches. **9**

    b) Derive an expression for threshold condition of LASER. **6**

    OR

12. Draw a neat sketch of APD and explain its detection principle in detail. Explain the merits and demerits of APD Detector. **15**

13. a) Explain the principle of equalization. **5**

    b) Explain in detail about OOK and PSK homodyne system. **10**

    OR

14. Explain in detail the principle, merits and demerits of coherent systems using ASK and DPSK format. **15**

15. a) Explain the ring and star topology of optical network. **6**

    b) Write notes on FDDI and CDMA. **9**

    OR

16. Explain the principle of operation of :

    a) Raman Amplifier. **7**

    b) EDFA. **8**
