

Total No. of Questions : 10]

SEAT No :

**P3054**

**[5154]-623**

[Total No. of Pages :2

**B.E (E & TC)**

**BROAD BAND COMMUNICATION SYSTEM  
(2012 Pattern) (End Semester) ( Semester-II)**

*Time : 2½ Hours*

*Max. Marks : 70*

**Instructions to candidates:**

- 1) *All questions are compulsory*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks..*
- 4) *You are advised to attempt not more than 5 questions.*
- 5) *Your answers will be valued as a whole.*
- 6) *Use of logarithmic tables side rule, molliar charts, electronic pocket calculator steam tables is allowed.*

**Q1) a)** What are photodetectors? Explain with diagram working of Avalanche photodiode (APD) **[6]**

- b) What is linear scattering? Explain in brief. **[4]**
- i) Rayleigh Scattering?
  - ii) Mie Scattering.

OR

**Q2) a)** What are graded index fibers? Explain with diagram how does ray transmission takes place in the graded Index Multimode fiber. **[6]**

- b) A Multimode Graded index fiber exhibits total pluse broadening of 0.1  $\mu$ sec over a distance of 15km. Estimate. **[4]**
- i) The maximum possible Band width on the Link assuming no inter symbol Interference.
  - ii) The pulse dispersion per unit length
  - iii) the Bandwidth length product for the fiber.

**Q3) a)** What are various types of optical sources? Explain with diagram and characteristics working of LED. State its specifications, advantages and disadvantages. **[6]**

- b) What is EDFA? Explain. **[4]**

OR

**Q4) a)** What is the need of optical power budget? Explain Link power budget with the help of optical power loss model for a point to point communication. **[6]**

- b) What is multichannel transmission in optical (fibers) links? Explain any one method to achieve multichannel transmission. **[4]**

**P.T.O.**

- Q5)** a) What are the Elements of satellite communication? Explain with basic structure of satellite communication. [8]  
b) Compare LEO, MEO, & GEO satellite orbits with its application. [8]

OR

- Q6)** a) Explain various Look angles for satellite communication. [8]  
b) Describe the Launch sequence used in Inject satellite. [8]
- Q7)** a) What are various losses in uplink and downlink analysis? Explain. [10]  
b) What are orbital effects in communication system performance? Explain [8]

OR

- Q8)** a) What are different types of Antennas used in satellite systems? Explain importance of each. [8]  
b) Explain the following [10]  
i) Communication subsystem.  
ii) Antenna subsystem.
- Q9)** a) Explain the procedure for satellite communication link Design [8]  
b) Explain any two. [8]  
i) Attitude control system.  
ii) Orbital control system.  
iii) Tracking, telemetry and command system.

OR

- Q10)** a) State and Explain Kepler's three Laws of planetary motion. [8]  
b) Explain system noise temperature and  $\frac{G}{T}$  Ratio. [8]

