

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 µsec 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]

