

Total No. of Questions : 8]

SEAT No. :

P3123

[Total No. of Pages : 2

**[5354]-613**  
**B.E. (E & TC)**  
**BROADBAND COMMUNICATION**  
**(2012 Pattern)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) *Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *All questions carry equal marks.*
- 5) *Your answers will be valued as a whole.*
- 6) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 7) *Assume suitable data, if necessary.*

- Q1)** a) What are Optical Transmitters? Explain with diagram working of LED with its characteristics. State its specifications & limitations over LASER. **[8]**
- b) What are the key requirements of point to point link in FOC? Explain link design with respect to choice of components & its characteristics. **[6]**
- c) Explain Rise time budget in OFC systems. **[6]**

OR

- Q2)** a) What is Multichannel Transmission System? Explain with diagram Multi-channel Amplitude Modulation technique. **[8]**
- b) What is EDFA? Explain the principle & operation of EDFA. **[6]**
- c) Compare PIN photo diode with APD. **[6]**

- Q3)** a) What is the need of satellite communication? Explain with diagram basic structure of satellite communication. **[8]**
- b) What are the various orbital effects in communication system performance? Explain. **[8]**

**P.T.O.**

OR

**Q4)** a) Explain with relevant details, satellite communication link design. Comment on important issues in Link design. [8]

b) What is link budget? Explain performance objective for Digital Link. Derive the equation for Received power ' $P_r$ '. [8]

**Q5)** a) What is Reliability & Space qualification? Explain with bath tub curve. [8]

b) What is TTC? Explain in brief. [6]

c) What is look angle determination? Explain. [4]

OR

**Q6)** a) Explain with diagram Uplink design of satellite communication. [6]

b) Compare LEO, MEO, GEO satellite orbits. [6]

c) What LNA? Explain. [6]

**Q7)** a) What is system noise temperature &  $\frac{G}{T}$  Ratio? Explain in detail. [8]

b) State & explain the design considerations for downlink design of satellite communication. [8]

OR

**Q8)** a) Write short notes [10]

i) Satellite Antennas.

ii) Synchronous satellites.

b) What is equivalent Isotropic Radiated Power? (EIRP) explain in brief. [6]

