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 '<u>Pr</u>'. **[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]**

● ● ●