

- 3** (a) Explain the different data transmission modes with example. **5**

OR

- (a) Explain satellite and terrestrial microwave transmission. **5**
- (b) What is modulation ? Explain AM, FM and PM with waveforms. **5**

OR

- (b) Explain physical topologies with diagram. **5**

- 4** Answer the following : (any **five**) **10**

- (i) What is data compression technique ?
- (ii) A 4-6 cost signal is naturally sampled at the rate of 56 kHz using 1.50 micro second sampling pulses. What is the value of the reconstructed output signal ?
- (iii) Explain Bit stuffing technique. How 110111111110 frame will be transmitted using this technique ?
- (iv) Explain different rate access techniques in ISDN.
- (v) State the advantages of fiber optic cable.
- (vi) Explain Active Repeater.
- (v) Enlist three components of satellite and what is the main function of space component ?

- 5** (a) Explain PCM with block diagram. **5**

OR

- (a) Explain FDDI in detail. How does the backup system work in case of one or both rings are broken. **5**
- (b) Explain Data link, Network and Transport layer in detail. **5**

OR

- (b) Explain optical scanning method with functional diagram. **5**