

**Total No of Questions: [12]****SEAT NO. :** **[Total No. of Pages : 2]****T.E. 2008 (Data Communication)****Subject Code: 310242****(Semester - I)****Time: 3 Hours****Max. Marks : 100****Instructions to the candidates:**

- 1) Answers to the two sections should be written in separate answer books.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Assume Suitable data if necessary

**SECTION I**

- Q1) a) How BPSK Signal is generated? Explain the scheme to recover baseband signal in BPSK [10]  
 b) Explain SNR; channel Bandwidth & Rate of Communication. The Power of Signal is 10mW & the Power of Noise is 1mW. What are the values of SNR, SNR<sub>dB</sub>? [8]  
 OR
- Q2) a) Explain the effect of Gaussian noise on digital transmission. [10]  
 b) Explain Quadrature Amplitude Modulation & Phase Modulation. [8]
- Q3) a) Find BW for error free transmission of output of source if S/N=20dB. [8]  
 b) What is uniform quantization? What is the drawback in it. How to overcome this drawback? [8]  
 OR
- Q4) a) Explain the sampling theorem & details of reconstructing a signal from its samples. [8]  
 b) With the help of block diagram explain working of Adaptive Delta Modulation. [8]
- Q5) a) What is ARQ? Explain in short go-back-n and Selective Repeat Methods. [8]  
 b) Define Shanons Information Rate? Why it is difficult to achieve? [8]  
 OR
- Q6) a) Write short note on linear block codes. [8]  
 b) Explain cyclic redundancy check code and explain why error detection and correction is required. [8]

**SECTION II**

- Q7) Write short note on (any three): [18]  
 a) Cellular telephony  
 b) Frame Relay  
 c) Bluetooth  
 d) Network Topology  
 OR
- Q8) a) Comment on TCP/IP protocol stack. How it is different than OSI/ISO seven layers Model? [10]  
 b) Explain in brief the categories of standard Ethernet. [8]
- Q9) a) Compare optical fiber with coaxial and twisted pair cable. [8]  
 b) Write the functions of Repeater, Hub, NIC, Media Converter, Router, Bridge & Switch. [8]

- Q10) a) What are the different data rates & its uses for unshielded twisted pair cables? [8]  
b) Explain different types of frequency hopping. [8]
- Q11) a) What is static and dynamic channel allocation? [8]  
b) How does pure ALOHA prevent congesting the channel? Explain in Detail. [8]
- OR
- Q12) a) Compare and contrast the controlled access protocol. [8]  
b) Define Channelization. List & explain 3 protocols in this category [8]