Total No. of Questions : 12]

SEAT No. :

P1415

[Total No. of Pages : 3

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T.E. (Computer Engineering)

DATA COMMUNICATIONS

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates :-

1) ***In Section I, attempt Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4, Q. No. 5 or Q. No. 6.***
2) ***In Section II, attempt Q. No. 7 or Q. No. 8, Q. No. 9 or Q. No. 10, Q. No. 11 or Q. No. 12.***
3) ***Answers to the two Sections must be written in separate answer books.***
4) ***Neat diagram must be drawn whenever necessary.***
5) ***Figures to the right indicate full marks.***
6) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Explain in detail digital Communication System. **[8]**

b) Explain difference in Bit rate and baud rate. **[4]**

c) Write short note on modem. **[6]**

OR

Q2) a) Explain SNR, channel bandwidth and rate of Communication The power of a signal is 10mW and the power of noise is 1mW. What are the values of SNR, SNRdB? **[8]**

b) Explain the different frequency Components present in 1kHz since and 1kHz Square waveform? **[4]**

c) Explain simplified Communication System and mention various parts of Communication System **[6]**

P.T.O.

Q3) a) Explain in detail what is delta modulation. Draw diagram for delta modulator and demodulator. What are its advantages over PCM? **[8]**

b) Explain with diagram operation of DPCM transmitter. **[8]**

OR

Q4) a) Explain Pulse code modulation technique. **[8]**

b) Represent Binary 01001110 in NRZ-L, NRZ-I, RZ, manchester and differential Manchester, AMI. **[8]**

Q5) a) What is the significance of Quantization in A/D Conversion. What is Uniform Quantization? What is the drawback associated with it and how to overcome this drawback. **[10]**

b) A Signal m(t) of Band width B = 4 kHz is transmitted using a binary Companded PCM with $\mu = 100$. Compare the case of L = 64 with the case of L = 256 from the point of view of transmission bandwidth and the Output SNR. **[6]**

OR

Q6) a) Draw and explain Schematic diagram of T1 carrier System. What is the Data rate Supported? **[6]**

b) List and explain all types of ARQ System. **[10]**

SECTION - II

Q7) Write short notes on (any three) : **[18]**

a) Bluetooth

b) Frame Relay

c) Ethernet

d) PSTN

OR

Q8) a) Write note : **[8]**

i) wireless LAN

ii) Virtual LAN

b) Explain the layers in OSI-ISO reference model what is the difference between TCP/IP model and OSI model. **[10]**

Q9) a) Explain the switching techniques used in computer data communication. **[8]**

b) Explain wireless transmission media is detail. **[8]**

OR

Q10) a) Define digital hierarchy used by telephone companies. List and explain different levels of hierarchy. **[8]**

b) Explain Network Hardware Components viz connectors, repeaters, hubs, NICS, Bridges and switches. **[8]**

Q11) a) Explain different data link layer design issues. **[8]**

b) Explain stop and wait protocol. **[8]**

OR

Q12) a) Write note on : **[8]**

i) ALOHA

ii) CSMA

b) Explain sliding window protocol. **[8]**

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