Seat
No.

T.E. (Computer) (Semester – I) Examination, 2014
DATA COMMUNICATIONS
(2008 Course)

Time : 3 Hours   Max. Marks : 100

SECTION – I

1. a) What is Communication System ? With neat diagram explain the Simplified Communication System. **6**

   b) What is SNR ? Explain in detail. We have a channel with 5 KHz bandwidth if we want to send data at 150 kbps, what is minimum SNR_{dB} and SNR ? **6**

   c) Differentiate between analog and digital signals. Explain any two analog modulation techniques. **6**

               OR

2. a) Distinguish between multilevel TDM, multiple slot TDM and Pulse-stuffed TDM. **6**

   b) Which of the three multiplexing techniques is common for fiber optic links ? Explain the reason. **6**

   c) An analog signal has a bit rate of 8000 bps and a baud rate of 1000 baud. How many data elements are carried by each signal element ? How many signal element do we need ? **6**

3. a) State and explain Sampling Theorem. What is aliasing ? When does it occur ? **8**

   b) Distinguish between forward error correction versus error correction by retransmission. **8**

               OR

4. a) Explain following line coading techniques with example i) NRZ-L ii) NRZ-I iii) RZ iv) Manchester. **8**

   b) Explain stop-and -wait ARQ Protocol. State its limitation and compare it with Go-Back-N ARQ Protocol. **8**

5. a) Discuss the concept of redundancy in error detection and correction. **8**

   b) With neat diagram explain the working of Selective Repeat Protocol. State its applications. **8**

               OR

6. a) Write a short note on Channel througput and efficiency. Explain Shannon's theorem on channel capacity. **8**

   b) Explain Hamming code as error correcting code. What is minimum Hamming distance and Hamming weight of code word ? **8**

SECTION – II

7. Write short note on (**any three**). **18**

   i) Network topology

   ii) SONET

   iii) ATM adaption layer

   iv) DSL classification.

   OR

8. a) Explain the architecture of Bluetooth protocol with neat diagram. State the applications and limitations of Bluetooth. **10**

   b) Draw and explain the MAC sublayer frame format of standard ethernet. **8**

9. a) What is wireless media ? Describe the classification. **8**

   b) What is TSI ? Describe its role in Time Division Switching. Compare space division and time division switches. **8**

   OR

10. a) What is Frequency hopping ? Explain the types of frequency hopping. **8**

    b) Give a brief description of following :
       i) Co-axial cable
       ii) Twisted pair cable
       iii) Fiber optic cable

    List the advantages of fiber optic cables. **8**

11. a) Write short note on persistent and non persistent CSMA. **8**

    b) What is channel allocation ? Describe in brief the channel allocation methods. **8**

    OR

12. a) What is HDLC ? Draw and explain the frame types of HDLC. **8**

    b) Explain random access protocol. Why collision is an issue in random access protocol as opposed to controlled access protocols ? Justify. **8**

——————