Roll No .....

CS - 501

B.E. V Semester

Examination, June 2015

Data Communication

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

1. a) Compare and contrast serial and parallel transmission.
   b) Draw and explain the properties of Bipolar line coding.
   c) What are simplex, half duplex and full duplex data transmission.
   d) Explain with the help of diagram a data communication model.

OR

Explain the importance of data compression. Distinguish between lossless compression and lossy compression.

Unit-II

2. a) What is FDM? Compare FDM and TDM Systems.
   b) What is packet switching? What are different types of packet switching?
   c) What is spread spectrum modulation? What is its significance?
   d) Draw and explain the block diagram for generation of frequency hopping spread spectrum signal.

OR

What is TDM? Explain synchronous and statistical TDM.

Unit-III

3. a) What is Ring Topology? Enlist its advantages and disadvantages.
   b) What is a Hub? What are active and passive hubs?
   c) What is the function of a repeater? Is it an amplifier?
   d) What is a modem? Explain the working of a modem. Which modulation techniques are used in modem?

OR

Give a detailed account of EIA-232-D.

Unit-IV

4. a) What is the difference between unshielded and shielded twisted pair cables?
   b) What is the effect of cladding in optical fiber cables?
   c) What is meant by Digital subscriber line?
   d) What is VDSL? Enlist the salient features of VDSL? How does it differ from HDSL?

OR

Explain the following associated with wireless media.

i) Radiation ii) Propagation
iii) Absorption iv) Polarization

Unit-V

5. a) What is CRC? Why is it used?
   b) What is the difference between error detection and error correction?
   c) Explain how parity checking is used for error detection?
   d) Calculate CRC for the sequence 1010011110. The generator polynomial is x^3+x+1.
   Also explain how this CRC is used at the receiver for error detection?

OR

What are Hamming Codes? What are the basic parameters of Hamming codes? What is the error detection and error-correcting capabilities of Hamming codes?

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