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**Fifth Semester B.E. Degree Examination, June/July 2016**  
**Computer Networks – I**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting  
atleast TWO questions from each part.**

**PART – A**

- 1 a. What is data communication? Explain with neat sketch three types of communications between the devices considering data flow. (06 Marks)
- b. With sketch, explain two types of wide area network in use. (04 Marks)
- c. List out the functionalities of physical layer, data link layer and network layer. Explain in brief. (06 Marks)
- d. Give four levels of addresses used in TCP/IP protocol and give its significances. (04 Marks)
- 2 a. Define the following :
  - i) Frequency shift keying
  - ii) Band width of composite signal
  - iii) Base band transmission
  - iv) Broad band transmission
  - v) SNR
  - vi) Nyquist bit rate. (06 Marks)
- b. What is latency? List out its components. Find the total delay in a line of length 2000 km, to transfer 5 M bytes of data if band width is 1 Gbps. (04 Marks)
- c. What is line coding? Draw line code of the sequence 01001110 in NRZ\_L, Manchester, differential Manchester, RZ and AMI coding scheme. (06 Marks)
- d. Give the block diagram of PCM encoder and state the role of each processes. (04 Marks)
- 3 a. What is multiplexing? Differentiate synchronous TDM with statistical TDM giving the working of both procedures in brief. (06 Marks)
- b. State and explain the data rate management to handle disparity in input data rates in TDM. (04 Marks)
- c. Explain in brief FHSS technique. (06 Marks)
- d. List out the differences between datagram switching and virtual circuit switching. (04 Marks)
- 4 a. What is hamming code? With the structure of the encoder and decoder for hamming code C(7, 4), explain how it can find the error and corrects the same. (06 Marks)
- b. Find codeword, using cyclic redundancy code given generator 1011, data word 1001 and show how it is used to check for error detection in the receiver side. (08 Marks)
- c. Write note on error detection method using 16 bit check sum used in internet. Calculate check sum for a text 'Food' given ASCII values of F is 46, o is 6F and d is 64. (06 Marks)

**PART – B**

- 5 a. With neat sketch, explain two approaches used in variable size framing. (06 Marks)
- b. What should be send window size in Go-Back-N ARQ? Justify your answer. (06 Marks)
- c. What are the 3 types of HDLC frames used in HDLC bit oriented protocol? Explain its significance with its structure. Show how that frames can be used for exchange of data using piggy backing. (08 Marks)

- 6 a. With flow diagram, explain the working of CSMA/CD. (08 Marks)
- b. Explain working of CDMA with suitable example. (06 Marks)
- c. Give the details of minimum and maximum length of Ethernet frame. With an example, explain the format of Ethernet address. (06 Marks)
  
- 7 a. With neat sketch, explain BSS and ESS. (06 Marks)
- b. Explain with necessary sketch IEEE 802.11 addressing mechanism. (08 Marks)
- c. Show two types of networks used in Bluetooth. Explain in brief the same. (06 Marks)
  
- 8 a. Write note on five classes of address used in IPV4 addressing. Give the details of address space. (10 Marks)
- b. Give the IPV4 datagram format and brief description of each field. (10 Marks)

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