USN

Fifth Semester B.E. Degree Examination, June/July 2019
Computer Networks – I

Time: 3 hrs.   Max. Marks:100

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

PART – A

1   a. Explain with a neat diagram the TCP/IP protocol suite and different protocols used in different layers.   **(10 Marks)**
    b. Explain different levels of addressing used in an internet employing TCP/IP protocol with example for each.   **(10 Marks)**

2   a. List the factors on which data rate depends upon and describe the two formulas developed to calculate the data rate.   **(08 Marks)**
    b. Calculate the propagation time and transmission time for a 5mB message if eth BW of the optical network is 1mbps. The distance between sender and receiver is 12000kms. **(04 Marks)**
    c. Represent the given sequences 01101101 using NRZ – L, NRZ – I differential Manchester, AMI and pseudo ternary line coding schemes.   **(08 Marks)**

3   a. Explain FDM and synchronous TDM with an example for each.   **(10 Marks)**
    b. Explain briefly QPSK with implementation and constellation diagram.   **(06 Marks)**
    c. Differentiate between circuit switched, datagram network and virtual circuit networks. **(04 Marks)**

4   a. Explain the different types of errors and redundancy.   **(04 Marks)**
    b. What is internet checksum? With an example explain the steps taken by sender and receiver to error detection.   **(06 Marks)**
    c. Find the code word using CRC if dataword is 1010 and generator is 1011 and retrieve the dataword from codeword using decoder.   **(10 Marks)**

PART – B

5   a. Explain with neat diagram, design and concept of GO BACK N ARQ protocol.   **(10 Marks)**
    b. What is framing? Explain with diagram character oriented protocol and bit oriented protocols with example.   **(06 Marks)**
    c. Explain the transition phase of PPP.   **(04 Marks)**

6   a. Explain CSMA/CA with flow diagram.   **(07 Marks)**
    b. Explain with neat diagram the three popular controlled access methods.   **(09 Marks)**
    c. A pure ALOHA network transmits 200 bit frames on a shared channel of 200kbps. What is the through put if the system produces i) 1000 frames/sec ii) 500 frames/sec.   **(04 Marks)**

7   a. Explain hidden and exposed station problems in IEEE 802.11.   **(06 Marks)**
    b. Explain with neat diagram the three major systems of second generation cellular phone system.   **(08 Marks)**
    c. Explain repeaters, bridges and routers and the differences between them.   **(06 Marks)**

8   a. Explain in detail the IPV6 packet format with its extension headers.   **(10 Marks)**
    b. Give the comparison between IPV6 and IPV4.   **(05 Marks)**
    c. Write notes on piconet and scatternet Bluetooth network.   **(05 Marks)**

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