Fifth Semester B.E. Degree Examination, June/July 2015
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? What are the five components of data communication system?
      (06 Marks)
   b. Explain the OSI reference model, listing the functions of each layer in brief. **(10 Marks)**
   c. What are the four level of addresses used in internet employing TCP/IP. **(04 Marks)**

2. a. Using Shannon's theorem, compute the maximum bit rate for a channel having a band width of 3100 H_2 and signal to noise ratio of 20 db. **(06 Marks)**
   b. Sketch the signal waveforms when 01001110 is transmit using following line coding schemes : i) R_2 ii) NRZ – L   iii) Manchester coding. **(06 Marks)**
   c. Explain different types of transmission modes. **(08 Marks)**

3. a. Four 1 – kbps connections are multiplexed together a unit is 1 bit. Find : i) the duration of 1–bit before multiplexing ii) the duration of a timeslot, iii) the duration a frame. **(06 Marks)**
   b. Define direct sequence spread spectrum (DSSS) and explain how it achiever band with spread using relevant sketch. **(08 Marks)**
   c. What is virtual circuit network? List the five characteristics of the same. **(06 Marks)**

4. a. Given the data word 1001 and divisor 1011 :
      i) Show the generation code word at the sender site
      ii) Show the checking of code word at receiver site (assume no error). **(10 Marks)**
   b. Explain process of error detection and error detection using block coding. **(06 Marks)**
   c. What is internet check sum? List the steps under taken by sender to calculate check sum.lss.
      (04 Marks)

PART – B

5. a. With neat diagram of point – to point protocol (PPP) frame format, explain each of the fields. **(08 Marks)**
   b. Explain stop and wait automatic repeat request protocol. **(06 Marks)**
   c. What is framing? With necessary sketches explain bit stuffing and unstuffing. **(06 Marks)**

6. a. With neat diagram explain TDMA. **(06 Marks)**
   b. Mention different categories of standard Ethernet and explain implementation of 10 base 5 – thick Ethernet. **(08 Marks)**
   c. Mention the five goals of fast Ethernet. And give the importance of "AUTONEGOTIATION". **(06 Marks)**

7. a. What is blue tooth? Explain its architecture. **(06 Marks)**
   b. Explain the following connecting devices :
      i) Hub   ii) Bridge   iii) Router   iv) Gateway. **(08 Marks)**
   c. Discuss cellular telephone in brief. **(06 Marks)**

8. a. List the deficiencies of IPV4 and advantages of IPV6 over IPV4. **(10 Marks)**
   b. Draw format of an IPV6 datagram and explain. **(10 Marks)**

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