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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 Hz 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) R₂ 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 achieves 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. (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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Important Note : 1. On completing your answers, cursorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50 will be treated as malpractice.