

--	--	--	--	--	--	--	--	--	--

Fifth Semester B.E. Degree Examination, December 2011
Computer Networks – I

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. What is data communication? Explain the fundamental characteristics on which effectiveness of data communication depends. (06 Marks)
- b. Differentiate between LAN, WAN and MAN. (04 Marks)
- c. Explain the OSI reference model for computer networks. (10 Marks)

- 2 a. What are the factors on which data rate depends in data communications? (04 Marks)
- b. Explain the different causes for transmission impairments during signal transmission through media. (06 Marks)
- c. Explain with a neat diagram, the components of a PCM encoder. (10 Marks)

- 3 a. With the help of a neat diagram, explain the ASK, FSK and PSK. Discuss the bandwidth requirement in each case. (10 Marks)
- b. What is spread spectrum? Explain the following techniques for spread spectrum: FHSS and DSSS. (10 Marks)

- 4 a. Explain the principles of optical fiber communication. Discuss the advantages and disadvantages of optical fibers. (06 Marks)
- b. Obtain the CRC code word using generator polynomial $g(x) = x^3 + x + 1$, for the data [1001]. Give the hardware realization of CRC divisor. (08 Marks)
- c. With the help of an example, explain the computation of internet checksum. Explain how the error detection is done, using internet checksum. (06 Marks)

PART – B

- 5 a. Explain with the help of examples, the concepts of bit stuffing and byte stuffing. (04 Marks)
- b. Explain stop and wait ARQ protocol, with the help of a neat diagram. (06 Marks)
- c. Explain the frame formats and control fields for different types of HDLC frames. (10 Marks)

- 6 a. An ALOHA network transmits 200 bit frame on a shared channel of 200 kbps. If the system produces 1000 frames per second, obtain the throughput. (06 Marks)
- b. What is CSMA? Explain the different persistence methods of CSMA. (06 Marks)
- c. Explain the 802.3 MAC frame format. (08 Marks)

- 7 a. Explain the different types of addressing mechanisms in IEEE 802.11. (10 Marks)
- b. Write short notes on: i) TDD TDMA ii) Virtual LAN. (10 Marks)

- 8 a. Explain w.r.t SONET, the following:
i) SONET layers ii) SONET frame format iii) STS multiplexing. (12 Marks)
- b. Explain w.r.t ATM, the following: -
i) ATM network architecture ii) ATM frame formats. (08 Marks)
