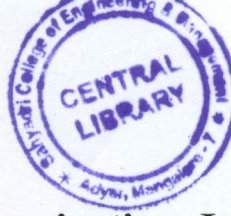


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Fifth Semester B.E. Degree Examination, June/July 2017
Computer Networks – I

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. Define protocol. List and explain key elements of a protocol. (05 Marks)
 b. With a necessary diagram correlate TCP/IP with layers of OSI model. (10 Marks)
 c. List and explain different addresses in TCP/IP. (05 Marks)
- 2 a. The signal-to-noise ratio is often given in decibels. Assume that $SNR_{dB} = 36$ and the channel bandwidth is 2 MHz. Calculate the channel capacity. (06 Marks)
 b. Define line coding. Describe RZ encoding by applying on the information sequence 01001001. (08 Marks)
 c. Distinguish between parallel and serial transmission. List and explain different ways of serial transmission. (06 Marks)
- 3 a. Define spread spectrum and its goal. List and explain two spread spectrum techniques. (10 Marks)
 b. Compare and contrast a circuit switched network and a packet switched network. (06 Marks)
 c. List and explain two types of addressing of virtual circuit network. (04 Marks)
- 4 a. Given dataword "1010" and divisor "1011". Using CRC find the codeword. (06 Marks)
 b. With a necessary diagram, explain structure of the encoder and decoder for Hamming code with 4 bit dataword. (10 Marks)
 c. Consider the table shown to represent code.

Dataword	Codeword
0	00000
1	01011
2	10111
3	11111

Check whether the code is linear code or non-linear code.

(04 Marks)

PART – B

- 5 a. List and explain three types of HDLC frames. How HDLC is different from PPP? (10 Marks)
 b. Explain the importance of framing and piggybacking technique. (04 Marks)
 c. Explain simplest protocol with a neat diagram. (06 Marks)
- 6 a. A pure ALOHA network transmits 200 bit frames on a shared channel of 200 kbps. What is the throughput if system produces (i) 1000 frames/sec (ii) 500 frames/sec (iii) 250 frames/sec. (06 Marks)
 b. Explain 802.3 MAC frame format. (08 Marks)
 c. What is the difference between Unicast, multicast and broadcast address? Define the type of the following destination addresses:
 (i) 47 : 20 : 1B : 2E : 08 : EE
 (ii) 4A : 30 : 10 : 21 : 10 : 1A
 (iii) FF : FF : FF : FF : FF : FF (06 Marks)
- 7 a. Explain different kinds of services defined by IEEE 802.11 architecture. (10 Marks)
 b. With a neat diagram, explain different categories of connecting devices. (10 Marks)
- 8 a. Draw format of an IPV6 datagram and explain. (08 Marks)
 b. Explain the concept of tunneling in IPV6 communication. (04 Marks)
 c. Draw IPV4 header format and explain. (08 Marks)

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