USN ☐☐☐☐☐☐☐☐☐☐ **10CS55**

Fifth Semester B.E. Degree Examination, April 2018
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. Explain the following terms briefly :
　　　Simplex, full duplex, reliability, point-to-point, jitter, distributed processing. **(06 Marks)**
　b. Explain the different categories of topology in a computer network. **(08 Marks)**
　c. Explain the OSI model. **(06 Marks)**

2　a. Explain the causes of transmission impairements with appropriate illustrations and examples. **(09 Marks)**
　b. Explain the various performance metrics used in networks. **(06 Marks)**
　c. Explain the Non-Return-to-Zero-L and Non-Return-to-Zero-I schemes with examples. **(05 Marks)**

3　a. Explain in detail synchronous time division multiplexing. **(08 Marks)**
　b. Explain the different characteristics of virtual circuit networks. **(05 Marks)**
　c. Explain frequency hopping spread spectrum and indicate how bandwidth is shared. **(07 Marks)**

4　a. Given the dataword 1010011010 and the divisor 10111,
　　　i) Show the generation of the codeword at the sender site.
　　　ii) Show the checking of the codeword at the receiver site (assume no error). **(08 Marks)**
　b. State the algorithm for computing internet checksum. **(04 Marks)**
　c. Explain the structure of the encoder and decoder for a Hamming code. Explain the method. **(08 Marks)**

PART – B

5　a. Design the stop and wait protocol. Also write the sender-site algorithm and receiver-site algorithm. **(12 Marks)**
　b. With a neat block diagram, explain the PPP frame format. **(08 Marks)**

6　a. Explain with a flow chart the working of pure ALOHA protocol. **(08 Marks)**
　b. Explain with appropriate flow diagrams, the three persistence methods. **(08 Marks)**
　c. State any four differences between TDMA and FDMA. **(04 Marks)**

7　a. Explain Bluetooth architecture. **(08 Marks)**
　b. Discuss the hidden station and exposed station problems in wireless networks. **(08 Marks)**
　c. Explain L2CAP data packet format. **(04 Marks)**

8　a. Explain the different classes of IP addresses. **(08 Marks)**
　b. State any six differences between IPV4 and IPV6. **(06 Marks)**
　c. An IPV4 datagram has arrived with the following information in the header (in hexa decimal): 0X450000540003585020060000 7C4E0302B40E0F02.
　　　i) Are there options?　　　　　　ii) Is the packet fragmented?
　　　iii) What is the size of data?　　　iv) What is the identification of the packet?
　　　v) Is the packet corrupted? **(06 Marks)**

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