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10CS55

**Fifth Semester B.E. Degree Examination, Aug./Sept. 2020**  
**Computer Networks – I**

Time: 3 hrs.

Max. Marks:100

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

**PART – A**

- 1 a. Explain the five components of data communication system with simple diagram. (06 Marks)  
 b. List the 3 criteria necessary for an effective and efficient network. (04 Marks)  
 c. Write and explain OSI reference model. (10 Marks)
- 2 a. Explain the causes of transmission impairment. (08 Marks)  
 b. Define : i) Bandwidth ii) Latency iii) Transmission time. (06 Marks)  
 c. Represent the given sequence 010011 in  
 i) Unipolar ii) Manchester iii) AML schemes. (06 Marks)
- 3 a. Explain FDM technique with a simple diagram. (08 Marks)  
 b. Explain omnidirectional and unidirectional antenna with 2 applications. (08 Marks)  
 c. List the 3 phases of a circuit switched network. (04 Marks)
- 4 a. Explain the working of encoder and decoder for hamming code, with a neat diagram. (10 Marks)  
 b. Find the codeward, using CRC given dataword '1001' and generator '1011'. (10 Marks)

**PART – B**

- 5 a. Explain stop and wait protocol with sender and receiver algorithm. (10 Marks)  
 b. Explain frame format and transition phases of point – to – point protocol. (10 Marks)
- 6 a. Explain :  
 i) Reservation controlled access  
 ii) FDMA. (12 Marks)  
 b. Explain 802.3 MAC frame format. (08 Marks)
- 7 a. Write short note on :  
 i) IEEE 802.11 architecture  
 ii) Bluetooth. (10 Marks)  
 b. With respect to the functionality define repeaters, bridges, routers, gateways. (10 Marks)
- 8 a. Draw IPv4 address format and explain. (10 Marks)  
 b. Briefly discuss the advantages of IPv6. (06 Marks)  
 c. Find the class of each address.  
 i) 0000001 00001011 00001011 11101111  
 ii) 11000001 10000011 00011011 11111111  
 iii) 14.23.120.8  
 iv) 252.5.15.111 (04 Marks)

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Important Note : 1. On completing your answers, compulsorily 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.