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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) AMI 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 deceder for hamming code, with a neat diagram. (10 Marks)
- b. Find the codeward, using CRC given dataward '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) 00000001 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.

