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10CS55

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020

**Computer Network – 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? List and explain five components of data communication. (06 Marks)  
b. Give the comparison between LAN, WAN, MAN. (06 Marks)  
c. Explain the OSI Reference Model for computer Networks. (08 Marks)
- 2 a. Write a descriptive note on three causes of transmission impairments. (08 Marks)  
b. Discuss Nyquist bit rate and Shannon's channel capacity. (06 Marks)  
c. Explain the transmission modes. (06 Marks)
- 3 a. What is multiplexing? Explain with a neat diagram FDM. (06 Marks)  
b. What is switching? Explain Datagram Networks and Virtual Circuit Networks. (08 Marks)  
c. What is spread spectrum? Explain the Frequency Hopping Spread Spectrum (FHSS). (06 Marks)
- 4 a. Explain error detection and error correction with respect to block coding. (10 Marks)  
b. Draw a CRC encoder and decoder for CRC code with  $C(7, 4)$ . Also explain how this CRC design works, with an example. (10 Marks)

**PART – B**

- 5 a. Explain salient features of:  
i) Stop-and-wait protocol  
ii) Stop-and-wait ARQ protocol (10 Marks)  
b. Explain the frame format and transition phases of PPP. (10 Marks)
- 6 a. What is Random Access? Explain following Random Access Protocols:  
i) Slotted ALOHA  
ii) CSMA/CD (10 Marks)  
b. Describe Frame format of IEEE 802.3MAC frame. What are salient features of fast Ethernet? (10 Marks)
- 7 a. Explain IEEE 802.11 and Bluetooth architecture. (10 Marks)  
b. With neat diagram, explain cellular system. (10 Marks)
- 8 a. Explain with respect to IPV4, class full addressing and classless addressing. (10 Marks)  
b. Explain in detail IPV6 packet format and also briefly explain the advantages of IPV6. (10 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.

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