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10CS55

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024

**Computer Networks – 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. Discuss in detail about the layers in OSI model with a neat diagram. (10 Marks)  
b. Briefly explain different addressing modes used in TCP/IP protocol suite. (05 Marks)  
c. Define protocol and identify the different elements of a protocol. (05 Marks)
- 2 a. Explain about the causes of transmission impairment. (08 Marks)  
b. Briefly explain the three parameters of the sine wave with waveform and write the units for each. (06 Marks)  
c. An analog signal has a bit rate of 10000 bps and bandwidth of 2000 baud. How many data elements are carried by each signal element? How many signal elements do we need? (06 Marks)
- 3 a. Explain FDM and synchronous TDM with an example for each. (10 Marks)  
b. Explain briefly QPSK with implementation and constellation diagram. (06 Marks)  
c. Differentiate between circuit switched, datagram network and virtual circuit networks. (04 Marks)
- 4 a. What is internet checksum? List the steps undertaken by the sender and the receiver for error detection. (08 Marks)  
b. With a neat diagram, explain CRC encoder and decoder C(7, 4). (12 Marks)

**PART - B**

- 5 a. Compare and contrast the Go-Back N-ARQ protocol with selective repeat ARQ. (10 Marks)  
b. Define framing and explain its need in data link layer. (05 Marks)  
c. Assume that, in a stop and wait ARQ system, the bandwidth of the line is 1 Mbps and 1 bit takes 20 ms to make a round trip. What is the bandwidth delay product? (05 Marks)
- 6 a. List out the different channelization protocols. Explain CDMA. (12 Marks)  
b. Explain 802.3 frame format and addressing. (08 Marks)
- 7 a. Explain the architecture used in IEEE 802.11 protocol. (10 Marks)  
b. How is a repeater different from amplifier? (05 Marks)  
c. What is GSM and explain its features. (05 Marks)
- 8 a. Explain in detail the IPV6 packet format with its extension headers. (10 Marks)  
b. Give the comparison between IPV6 and IPV4. (05 Marks)  
c. Write notes on piconet and scatternet Bluetooth network. (05 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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