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10CS55

Fifth Semester B.E. Degree Examination, July/August 2022
Computer Networks - I

Time: 3 hrs. Max. Marks:100

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

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.

PART – A

1 a. What is Data Communication? What are its important fundamental characteristics? List and explain the five components of a Data Communication system, with examples. **(12 Marks)**

b. List out the layers in OSI reference model and explain any two layers in detail. **(08 Marks)**

2 a. For the given string 11011001 represent the unipolar, polar NRZ, Manchester and differential Manchester encoding techniques. **(05 Marks)**

b. Identify the different transmission impairments observed in data transfer. **(05 Marks)**

c. A telephone line has a bandwidth of 3000 Hz assigned for data communication. The SNR ratio is 3162. Calculate the capacity of the channel. (SNR refers to signal to noise ratio). **(05 Marks)**

d. Explain the concept of Shift keying. **(05 Marks)**

3 a. What is spread spectrum? Explain the following techniques for spread spectrum : FHSS ad DSSS. **(14 Marks)**

b. Briefly discuss about delay in Virtual Circuit Networks. **(06 Marks)**

4 a. What do you mean by Virtual Circuit Network? Explain the establishment phase of Virtual Circuit Network. **(08 Marks)**

b. Which are the two types of Transmission errors? Explain. **(04 Marks)**

c. Discuss the Error detection and Correction techniques in block coding. **(08 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)**

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8 a. Compare IPV_4 over IPV_6. **(04 Marks)**

b. What is NAT? Explain with an example. **(08 Marks)**

c. What is the need IP addressing scheme? Explain IPV_4.. **(08 Marks)**

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