Printed Pages:02 Sub Code:KCS-603

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B.TECH.
(SEM VI) THEORY EXAMINATION 2022-23
COMPUTER NETWORKS

Time: 3 Hours *Total Marks: 100*

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. Explain the differences between point to point and point to multipoint.

b. Define bit rate and baud rate.

c. Compare OSI with TCP/IP protocol suit.

d. Construct the Polar NRZ-L and NRZ-I schemes for the following Data: 01001110

e. Describe piggybacking?

f. Explain ICMP BGP protocol and its application in real-world scenarios.

g. If a 7-bit hamming code received as 1110101, show that the code word has error. Also, rectify error in this code.

h. Define QoS.

i. State difference between HTTP and

j. Describe the " count to infinity problem" with an example.

SECTION B

2. Attempt any *three* of the following: 10x3=30

a. Name and Explain 4 network devices, and write about transmission Impairment in brief.

b. Explain CSMA/CD with CSMA/CA with diagram.

c. Explain the working principle of the Congestion Control mechanism with a well-labeled diagram.

d. Explain the following terms by taking real-world examples:
i) Go Back-N
ii) Selective repeat.

e. Explain Asymmetric cryptography. Also, write the steps used in RSA algorithm, demonstrate the transmission of character "F" using RSA.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a. Describe all the layers of the OSI model with a well-labeled diagram.

b. Differentiate between various topologies with well labeled diagram.

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4. Attempt any *one* part of the following: 10x1=10

a. A bit stream 10011101 is transmitted using x^3+1 generator polynomial. Generate the CRC code word for this message.

b. Explain error control mechanism in Data link layer and giving example of each method.

5. Attempt any *one* part of the following: 10x1=10

a. Illustrate the difference between IPv4 and IPv6.

b. The IP network 200.198.160.0 is using subnet mask 255.255.255.224. Draw the subnets.

6. Attempt any *one* part of the following: 10x1=10

a. Explain the following terms:
(i) FTP (ii) SMTP (iii) DNS (iv)ARP

b. Differentiate TCP and UDP in context of the header format.

7. Attempt any *one* part of the following: 10x1=10

a. Explain DNS.

b. Define SNMP Protocols and working scenario.

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