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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION- May, 2019

B. Tech VI Semester

COURSE CODE: 10B11CI611 MAX. MARKS: 35

COURSE NAME: Computer Networks

COURSE CREDITS: 3 MAX. TIME: 120 Minutes

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

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1. Write short notes on any four: (4) (CO2)
   a) Transmission impairment b) Baud rate c) SNR d) Techniques used for digital data to digital signal conversion e) Shannon Capacity
2. In Go-Back-3, if every 5th packet is lost and we need to send 10 packets, so how many retransmissions is required? (3) (CO3)
3. A network has a data transmission bandwidth of 20×10^6 bits per second. It uses CSMA/CD in the MAC layer. The maximum signal propagation time from one node to another node is 40 microseconds. What is the required minimum size of a frame in the network? (4) (CO3)
4. An ISP is granted a block of addresses starting with 150.80.0.0/16. The ISP wants to distribute these blocks to 2600 customers as follows. (4) (CO4)
   a. The first group has 200 medium-size businesses; each needs 126 addresses.
   b. The second group has 400 small businesses; each needs 14 addresses.
   c. The third group has 2000 households; each needs 5 addresses.
   Design the sub-blocks and give the slash notation for each sub-block. Find out how many addresses are still available after these allocations.
5. Describe the Count-to-infinity problem in Distance Vector Routing algorithm. (3)(CO4)
6. In hierarchical routing with 4800 routers, what region and cluster sizes should be chosen to minimize the size of the routing table for the three-layer hierarchy? Write solution steps for all the four cases (a-d). (3) (CO4)
   a. 10 clusters, 24 regions and 20 routers
   b. 12 clusters, 20 regions and 20 routers
   c. 16 clusters, 12 regions and 25 routers
   d. 15 clusters, 16 regions and 20 routers
7. Let the size of congestion window of a TCP connection be 32 KB when a timeout occurs. The round trip time of the connection is 100 msec and the maximum segment size used is 2 KB. What is the time taken (in msec) by the TCP connection to get back to 32 KB congestion window? (3) (CO5)
8. In a leaky bucket system if the output is 5KB/sec for 10 sec and 10KB/sec for 50 sec then what is the bucket size in KB? (3) (CO5)
9. Describe recursive resolution and iterative resolution for mapping addresses to names in DNS. (4) (CO6)
10. Describe the client-server application program TELNET that lets a user access any application program on a remote computer. Draw a neat and clean diagram also to explain the working. (4) (CO6)