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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING) DEGREE EXAMINATIONS, NOV/DEC-2018

SUBJECT : COMPUTER NETWORKS(CSE 3103)

REVISED CREDIT SYSTEM

DATE: 21-11-2018

TIME:03 HOURS MAX.MARKS : 50

Instructions to Candidates:

- Answer ALL FIVE FULL questions.
- Missing data, if any, may be suitably assumed.

1A. Explain how telnet handles following issues i) Heterogeneity ii) Secured remote login. 5M

1B. With a diagram explain the working of POP based Message Access agent to download the email from mail box. Why do they not use SMTP? 3M

1C. Suppose you wanted to do a transaction from a remote host as fast as possible. Would you use UDP or TCP? Why? 2M

2A. With neat diagrams, explain two types of TCP connection termination. 4M

2B. Compare the TCP header and the UDP header. List the fields in the TCP header that are not part of the UDP header. Give reasons for each missing field. 4M

2C. Compare a timeout event and the three-duplicate-ACKs event. Which one is a stronger sign of congestion in the network and why? 2M

3A. The routing table of an organization's router contains following entries: What does the router do if a packet with following IP addresses arrives? Discuss the steps taken by router for each of the IP address packets. 5M

Address/Net Mask	Next Hop
135.46.56.0/22	Interface 0
135.46.60.0/22	Interface 1
172.53.240.192/27	Interface 2
192.53.40.0/23	Router 1
Default	Router 2

(i) 135.46.63.10
(ii) 135.46.52.2
(iii) 172.53.240.224
(iv) 172.53.240.200
(v) 192.53.56.7

3B. For a source & destination with a distance of 3 hops, describe how the traceroute tool uses various ICMP messages to trace the route. 3M

3C. Compare multicasting and multiple unicasting. What are the disadvantages of multiple unicasting? 2M

4A. Explain the inefficiencies of Mobile IP with suitable diagram. What are the the solutions to handle them? 5M

4B. With an example explain bit-Oriented Framing. What is the significance of Bit stuffing and unstuffing in it? 3M

4C. With suitable expression, explain Shannon Capacity in a Noisy Channel. 2M

5A. Explain the various timers used by TCP. How the values of these timers are calculated? In a TCP connection, assume the old RTT_D = 7ms. If the new RTT_S = 17ms and the new RTT_M = 20ms, calculate the new value of RTT_D. Let β=0.25 5M

5B. For a Message Frame= 1101011111 Generator = 10011 compute CRC checksum and give transmitted stream. 3M

5C. With a neat diagram explain the hidden station problem in a wireless LAN and how it can be solved? 2M