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T.E. (Computer) (Semester – II) Examination, 2010
COMPUTER NETWORKS
(2003 Course)

Time : 3 Hours Max. Marks : 100

Instructions *: 1) Answer* ***any 3*** *questions from* ***each*** *Section.*
2) Answers to the ***two*** *Sections should be written in* ***separate*** *books.*
3) ***Neat*** *diagrams must be drawn* ***wherever*** *necessary.*
4) Black figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

1. a) What is frame relay ? Give some application of frame relay. **8**

   b) What does negotiation means when discussing network protocol ? **8**

OR

2. a) What are the reason for using layered protocol ? **8**

   b) Explain the physical layer access mechanisms and the MAC layer frame format for wireless LAN 802.11. **8**

3. a) If the unit exchanged at the data link level is called a frame and the unit exchanged at the network level is called a packet, do frames encapsulate packets or do packet encapsulate frames. Explain your answer. **8**

   b) Calculate the utilization of channel when communication parties using stop and wait protocol if the following parameter are known

      1) Packet size 8000 bits
      2) Transmission rate 1 Gbps
      3) Distance bet two parties 3000 km
      4) Signal speed 200000 km/s
      5) Acknowledgement packet 16 bits

      What is the throughput and how to improve Utilization ? **8**

OR

P.T.O.

4. a) Explain at least three services implemented by sliding window protocol. 8

   b) Explain with the help of phase diagram, working of PPP. List all the activities carried out during each phase. 8

5. a) What is bridge ? Explain the operation of a LAN bridge from 802.3 to 802.4. 9

   b) Let G 0.5 [frames/slot] be the total rate at which frames are transmitted in a slotted ALOHA system. What proportion of slots will be collision free ? What proportion of slots will be collision free when the system is operating at its maximum throughput ? 9

OR

6. a) Discuss the connection management followed in Bluetooth technology. 9

   b) What will be the throughput if slotted ALOHA is used in place of ALOHA ? Justify the variation in the throughput of ALOHA and slotted ALOHA through mathematical derivations. 9

SECTION – II

7. a) A class B network on the internet has subnet mask of 255.255.255.0 what is the maximum no. of host per subnet ? 8

   b) Explain in detail Firewall operation. 8

OR

8. a) Explain the following routing algorithm with example : 8

      a) Flooding routing algorithm

      b) Hierarchical routing algorithm

   b) What is choke packet ? How congestion is controlled over here ? 8

9. a) Define Quality of Service and list the parameters typical to transport layer. **8**

   b) Explain in detail about the functions of transport layer including Connection establishment and release procedure. **8**

OR

10. a) What are the function of UDP ? Explain the UDP header format in detail. **8**

   b) What is silly window syndrome problem ? Suggest two solution to recover this problem. **8**

11. a) Explain, in detail principal DNS resource record types. **9**

   b) Does FTP and TFTP perform error recovery ? If so describe the basics of how this occurs. **9**

OR

12. a) Explain Email architecture and services. **9**

   b) Write short notes on : **9**

      1) POP3 and IMAP4

      2) WWW
