

May - June - 2011

TE - COMP

Sem - II

[3963] - 357

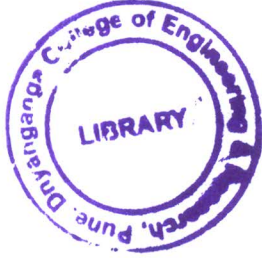


T.E. (Computer Engineering) (Semester - II) Examination, 2011  
COMPUTER NETWORKS (New)  
(2008 Pattern)

Time: 3 Hours

Max. Marks: 100

*Instructions : 1) Answers to the two Sections should be written in separate books.*



*2) Neat diagrams must be drawn wherever necessary.*

*3) Figures to the right indicate full marks.*

*4) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam table is allowed.*

*5) Assume suitable data, if necessary.*

SECTION - I

1. a) Explain difference between message switching and packet switching with suitable examples. 8
- b) Explain three fundamental models that help to reveal key problems for the designers of distributed systems. 6
- c) What are reasons for using layered protocol ? 4

OR

2. a) What is the principle difference between connection oriented and connectionless communication ? 8
- b) Explain advantages and disadvantages of having international standards for network protocols. 6
- c) Why does ATM use small, fixed-length cells ? 4
3. a) A channel has a bit rate of 4 kbps and a propagation delay of 20 m. sec. For what range of frame sizes does stop and wait give an efficiency of at least 50 percent ? 8
- b) Imagine a sliding window protocol using so many bits for sequence numbers that wraparound never occurs. What relations must hold among the four window edges and the window size ? 8

OR

P.T.O.



4. a) Enlist and explain data link layer design issues. 8
- b) What is the minimum overhead in sending an IP packet using PPP ? Count only the overhead introduced by PPP it self, not the IP header overhead. 8
5. a) In an infinite-population slotted ALOHA system, the mean number of slots a station waits between a collision and its retransmission is 4. Plot the delay versus throughput curve for the system. 8
- b) Explain different approaches for receiver to unambiguously determine the start, end, or middle of each bit without reference to an external clock. 8

OR

6. a) Measurements of a slotted ALOHA channel with an infinite number of users show that 10 percent of the slots are idle. 8
- a) What is the channel load,  $G$  ?
- b) What is the throughput ?
- c) Is the channel underloaded or overloaded ?
- b) In a token ring the sender removes the frame. What modifications to the system would be needed to have the receiver remove the frame instead and what would the consequences be ? 8

## SECTION – II

7. a) For hierarchical routing with 4800 routers, what region and cluster sizes should be chosen to minimize the size of the routing table for a three-layer hierarchy ? 8
- b) Describe a way to do reassembly of IP fragments at the destination. 6
- c) Give examples of protocol parameters that might be negotiated when a connection is set up ? 4

OR

8. a) Explain with suitable examples, how do IP addresses get mapped onto data link layer address ? 8
- b) When the IPv6 protocol is introduced, does the ARP protocol have to be changed ? Explain the changes in brief and its nature. 6
- c) Is fragmentation needed in concatenated virtual circuit internets, or only in datagram systems ? 4

