First Semester M.Tech. Degree Examination, June 2012
Computer Networks

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. What is layering? Describe the relationship and list of protocols used in each layer of OSI architecture. **(08 Marks)**
   b. Define sockets, explain the list of socket functions for API. **(08 Marks)**
   c. Calculate the total time required to transfer a 1.5 MB file in the following cases. Assuming an RTT of 80 ms, a packet size of 1 KB data and initial $2 \times$ RTT of "hand shaking" before data is sent if the bandwidth is 10 Mbps and data packets can be sent continuously. **(04 Marks)**

2 a. List the different type of network links explain, with suitable example. **(10 Marks)**
   b. Explain the datagram and virtual circuit switching, with suitable example. **(10 Marks)**

3 a. Define and explain the spanning tree algorithm, in detail. **(05 Marks)**
   b. Explain in detail, the packet cell format of ATM architecture. **(05 Marks)**
   c. Describe switch fabrics and explain the types. **(10 Marks)**

4 a. Explain the packet format of IPV4 packet header and the fragmentation and reassembly, with respect to IP protocol. **(10 Marks)**
   b. Derive link state routing algorithm and how it differ from distance vector, with an example. **(10 Marks)**

5 a. What is subnetting? Explain with example. **(05 Marks)**
   b. What is MPLS? Explain the destination based forwarding in MPLS. **(05 Marks)**
   c. Explain the reliable ordered delivery and flow control mechanism for reliable byte stream (TCP). **(10 Marks)**

6 a. Describe RPC, explain with a neat diagram. **(08 Marks)**
   b. Explain the RTP header format. **(06 Marks)**
   c. Explain the additive increase/ multiplicative decrease for TCP congestion control. **(06 Marks)**

7 a. List the different techniques for congestion. Avoidance, explain the example. **(10 Marks)**
   b. Explain any four integrated services (RSUP). **(10 Marks)**

8   Write a short notes :
   a. HTTP (Hyper Text Transport Protocol)
   b. SIP(Session Initiation Protocol)
   c. Simple Network Management Protocol
   d. Overlay Networks. **(20 Marks)**

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