

**Set  
A**

**14CS3024 Internetworking**

**Time : 3 hrs  
Total Marks: 100**

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1. a) For the given IP address and subnet mask 178.215.176.150/25 calculate the network address, broadcast address and usable IP addresses.(10)  
b) List and explain the various ICMP messages with their type and code.(10)
- OR**
2. a) List the various special case IP addresses. Describe the use of loop back interface with a neat sketch. (8)  
b) Consider a host sun that is to be configured as a router. With suitable examples discuss the various routing decisions to be deployed in the router sun, to successfully relay the incoming datagrams. (12)
3. a) Explain with necessary diagrams the process of encapsulation and demultiplexing of an internet datagram.(5)  
b) Draw and explain the TCP header and state transition diagrams. (15)
- OR**
4. a) Suppose a TCP connection is transferring a file of 5,000 bytes. The first byte is numbered 10,001. What are the sequence numbers for each segment if data are sent in five segments, each carrying 1,000 bytes? (5)  
b) Discuss any one dynamic routing protocol which is used to exchange routing information among two routers in different autonomous systems. (15)
5. a) Describe the three way handshake protocols to open and close a TCP connection with a neat sketch. (5)  
b) Write short notes on ICMP redirect and router discovery messages with necessary diagrams. (5)  
c) Discuss the various SNMP message formats exchanged between a network manager and a network element. (10)
- OR**
6. a) A SMTP client Vangosh wanted to send an email with the message "Hello! Hi!" from the email account rstevens@sun.tuc.noao.edu to the email account rstevens@noao.edu. Write and explain the various commands and messages executed by user agent and mail transfer agent to accomplish this mail transfer. (10)  
b) Explain the Sun Remote Procedure Call message format with suitable diagram. (10)
7. a) Discuss the MPLS domain architecture and packet forwarding mechanism with a neat sketch. (15)  
b) Explain MPLS label stack with a sample MPLS architecture. (5)
- OR**
8. a) Explain the MPLS header structure and the significance of labels with suitable diagrams. (10)  
b) Discuss the various types of label distribution in MPLS with necessary diagrams.(10)
9. a) Suggest some guidelines to a MPLS network administrator for employing OSPF in MPLS. (15)  
b) Write short notes on MPLS traffic shaping. (5)
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**Wishing you All the Best**

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