2011
INTERNET TECHNOLOGY

Time Allotted : 3 Hours   *Full Marks* : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any **ten** of the following :

    $$10 \times 1 = 10$$

    i) The transport layer port address uniquely indentifies a

        a) Process   b) Host

        c) Server   d) all of these.

    ii) If address with host part containing all 1's is

        a) Broadcast address   b) Multicast address

        c) Base address   d) none of these.

    iii) Which one of the following is not a Dynamic Routing Protocol ?

        a) IGRP   b) RIP

        c) ICMP   d) OSPF.

iv) For sending non-ASCII data through mail, the protocol we use is

    a)   SMTP   b)   MIME ?

    c)   POP   d)   none of these.

v) For a class B subnetted IP address, which will be the proper mask from the following ?

    a)   255.0.0.0   b)   255.255.255.0

    c)   255.255.0.0   d)   201.34.12.72.

vi) A datagram is fragmented into 3 smaller datagrams. Which of the following is true ?

    a)   The 'do not fragment' bit is set to 1 for all 3 datagrams.

    b)   The 'more fragments' bit is set to 0 for all 3 datagrams.

    c)   The 'identification' field is same for all 3 datagrams.

    d)   all of these.

vii) H.323 is a standard for

    a)   BOOTP   b)   LAN

    c)   IPv6   d)   VOIP.

viii) What is the supernet mask for a supernet composed of 16 class C addresses ?

a)   255.255.240.16   b)   255.255.16.0

c)   255.255.248.0   d)   255.255.240.0.

ix) The process-to-process delivery of the entire message is the responsibility of .... layer.

a)   Network   b)   Transport

c)   Application   d)   Physical.

x)   BGP is based on

a)   Distance vector routing

b)   Link state routing

c)   Path vector routing

d)   Both (a) and (b).

xi) A subnet mask in class A has fourteen 1's. How many subnets does it define ?

a)   32   b)   64

c)   8   d)   128.

xii) SSL is located between

    a) Network, Data Link

    b) Application, Transport

    c) Transport, Network

    d) Data Link, Physical.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is a firewall ? Discuss each type of firewall briefly. 2 + 3

3. a) Discuss the concept of subnet addressing. Why is it used ? 2 + 1

    b) What is limited broadcast ? How does it differ from directed broadcast ? 1 + 1

4. a) What do you mean by Fully Qualified Domain Name and Partially Qualified Domain Name ?

    b) Define Root Server. 3 + 2

5. Differentiate between connection oriented and connection-less delivery systems ? Differentiate between Reliable and Unreliable delivery systems with respect to TCP and UDP.

2 + 3

6. Describe link state routing algorithm and also state its advantages and disadvantages.

5

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following.   3 × 15 = 45

7. What is DHCP ? How many different types of messages are there ? Explain DHCP message format. Explain the least renewal process./ What are interior routing and exterior routing ?

2 + 2 + 3 + 4 + 4

8. What is Broadboad Communication ? How is it different from Dial up Connections ? Differentiate between High speed dedicated WAN services and switched WAN services. What is VPN ? What is DSL ?

3 + 3 + 4 + 3 + 2

9. a) In class B subnet, the IP address of one of the hosts and the mask are given below :

    IP Address : 125.134.112.66

    Mask : 255.255.224.0

    What is the first address (network address) and the last address (broadcast address) in this subnet ?

    b) An organization granted a block of address with the beginning address 14.24.74.0/24. There is 256 addresses in this block. The organization needs to have 11 sunets. 2 subnets each have 64 addresses. 2 subnets each have 32 addresses. 3 subnets each have 16 addresses. 4 subnets each have 4 addresses. Design the subnets.

    c) What is the size of an Ethernet frame carrying an ARP packet ? Is the size of ARP packet fixed ? Explain.

    d) What is multicast addressing ? Describe the working principle of transport gateway ?   2 + 5 + (1 + 3) + (1 + 3)

10. a) Differentiate between circuit switching and packet switching.

    b) What is VIN ?

    c) What is Digital Signature ? Explain.   5 + 4 + 6

11. Write short notes on any three of the following : 3×5

   a)   Telnet

   b)   ATM

   c)   BGP

   d)   B-ISDN

   e)   DNS.