Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech(ECE)/SEPARATE SUPPLE/SEM-8/EC-804A/2011

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 × 1 = 10

i) Maximum size of IP Dtatagram is equal to MTU of

a) Hyperchannel b) Ethernet

c) Token Ring d) Wireless Lan.

ii) Distance vector routing protocol is an example of

a) Next hop routing

b) Source routing

c) LLC

d) Network.

iii) The ICMP is a ..... protocol.

a) Network layer

b) Tranport layer

c) Application Layer

d) Physical Layer.

iv) RARP server send the RARP reply to

a) Unicast address

b) Broadcast address

c) Multicast address

d) None of these.

v) ..... protocol used for exterior routing.

a) RIP b) OSPF

c) BGP d) None of these.

vi) ..... is a switched WAN technology which has 53 byte cell as end product.

a) ATM b) X.25

c) ISDN d) Frame Relay.

vii) Which of the following can be the begining address of a block that contrains 1024 addresses ?

a) 205.16.37.32

b) 190.162.42.0

c) 17.17.32.0

d) 123.45.24.52.

viii) DNS protocol is a

a) Data link layer protocol

b) Network layer protocol

c) Transport layer protocol

d) Application layer protocol.

ix) Internet Protocol datagram Time to Live field is used for

a) Discard datagram

b) routing

c) Type of service selection

d) error detection.

x) Direct Delivery use for routing between two

a) Host

b) Physical network

c) Internet

d) None of these.

xi) Internet Protocol datagram differentiated services field is used for

a) discard datagram

b) routing

c) type of service selection

d) error detection.

xii) DHCP has similar purpose as

a) ARP b) RARP

c) TELNET d) BOOTP.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What is the broadcast address for Ethernet ? What are the advantages of Classless IP address over Class-full IP address ?

2 + 3

3. What is the difference between unicast and multicast routing ? Why would an Internet need an Autonomous System ? 2 + 3

4. The ATM standard defines how many layers ? Briefly explain each of them ? 1 + 4

5. What is the main drawback of RARP ? How BOOTP overcome those drawback ? 1 + 4

6. Briefly describe different types of packet format of Border Gateway Protocol's messages.

GROUP – C
(Long Answer Type Questions)

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

7. a) An ISP is granted a block of address starting with 150.80.0.0/16. The ISP wants to distributes these blocks to customers as follows :

   i) The first group has 200 medium-size business, each needs 128 addresses.

   ii) The second group has 400 small businesses, each needs 16 addresses.

   iii) The third group has 2048 households, each needs 4 addresses.

   Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after this allocations.

b) What is the difference between subnetting and supernetting ? Which one is suitable, when an organization wants to divide its own network into some small networks ? Explain your answer.

c) Explain the RARP frame format. What is the size of an RARP packet when the protocol is IP and the hardware is Ethernet ? 5 + (2 + 2) + (4 + 2)

8. a) What is the minimum length of a BOOTP packet ? A BOOTP packet is encapsulated in a UDP packet, which is encapsulated in an IP packet, which is encapsulated in frame. A RARP packet, on the other hand, is encapsulated only in a frame. Find the efficiency of a BOOTP packet versus a RARP packet.

b) Briefly describe TCP segment format.

c) What are the drawbacks of routing with partial information ? What is Core Routers ? What is the necessity of automatic route propagation ?

(2 + 4) + 3 + (2 + 2 + 2)

9. a) List RIP shortcomings and their corresponding fixes. Describe the message format of RIP1 ?

b) Why OSPF is much more efficient than RIP ? What is the basis of classification for the four types of links defined by OSPF ?

c) Describe the link state routing algorithm and also state the advantages of link state routing algorithm ?

(2 + 3) + (2 + 2) + (4 + 2)

10. a) How switched WAN technology differs from LAN technology ?

    b) What is ISDN ? Draw and explain the B-ISDN functional architecture.

    c) Explain how security Association in IPSec is used in VPN Technology.

    d) What are the sub-protocols used by SSL ? Briefly describe the working principle of Handshake protocol of SSL ? 2 + (1 + 3) + 4 + (1 + 4)

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

    a) ATM

    b) DHCP

    c) DNS

    d) VOIP

    e) FRAME RELAY.