Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.C.A.- SEMESTER – V • EXAMINATION – WINTER 2012

Subject code: 650010 Date: 29-12-2012

Subject Name: Advanced Networking

Time: 10:30 am – 1:00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** State whether following statements are true or false. Justify your answer. **07**

1 The ARP request is broadcasted across LAN.

2 The IP address with all zeroes is a special address required at the time of booting.

3 The ICMP messages are used to handle errors like expiry of time to live.

4 The Internet data transmission mechanism uses next hop routing.

5 The protocol field in the IP header determines the recipient.

6 The host machines should not route datagram's not destined for them.

7 Sender side Silly Window Syndrome is possible if applications read small amount of data.

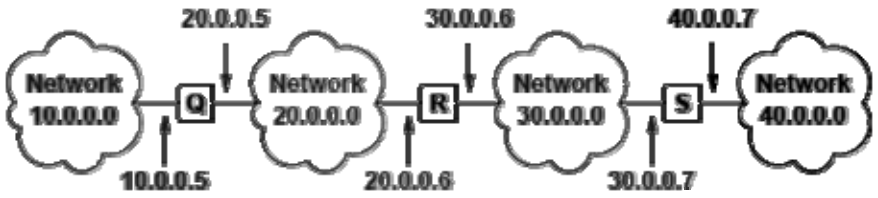
(b) Answer the following:

1 Draw block diagram of different classes of IP addresses available and explain purpose of each of the classes. **04**

2 Explain the significance of ARP cache with example. **03**

Q.2 **(a)** Explain the concept of fragmentation giving suitable example. **07**

(b) Explain the concept of next-hop forwarding. For a given scenario generate the routing table for router Q, R and S. **07**



OR

(b) Draw the block diagram of UDP pseudo-header and explain its significance. **07**

Q.3 **(a)** Draw the TCP finite state machine and explain each state in brief. **07**

(b) Explain the following concepts: **07**

- VPN
- NAT

OR

Q.3 **(a)** Explain the following concepts w.r.t. TCP in brief: **07**

- Endpoints
- Passive Open
- Stream
- Window Advertisement
- Out of band data

- Karn's algorithm
- SACK

(b) Draw the block diagram of address acquisition states of DHCP client and explain each state in brief. **07**

Q.4 **(a)** Answer the following: **07**

1. State the importance of alias expansion phase in incoming mails.
2. Is inverse mapping provided in DNS? If yes, show how is it provided using appropriate example.

(b) Answer the following: **07**

1. What is the need for NVT in Telnet protocol?
2. Why FTP requires two ports to work?

OR

Q.4 **(a)** Answer the following: **07**

1. What is the significance of MIME?
2. Is the name of the domain sent in a compressed form? If yes, show compression is done using appropriate example.

Q.4 **(b)** Answer the following: **07**

1. What is the role of RPC in NFS?
2. Write a brief note on ssh.

Q.5 **(a)** List and explain the characteristics of HTTP. **07**

(b) Answer the following:

1 List and explain the fields of IPv6 base header in brief. **04**

2 Write a brief note on IPsec. **03**

OR

Q.5 **(a)** Explain the following concepts w.r.t. HTTP: **07**

- Persistent Connection
- Negotiation

(b) Answer the following:

1 List and explain the features of IPv6. **04**

2 Write a brief note on firewall. **03**

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