CS-69

BACHELOR IN COMPUTER APPLICATIONS

Term-End Examination

June, 2007

CS-69 : TCP/IP PROGRAMMING

Time : 3 hours *Maximum Marks : 75*

Note : *Question no. 1 is* ***compulsory****. Answer any* ***three*** *questions from the rest.*

1. (a) Compare TCP/IP model with OSI model. 4

(b) What is the possible range of IP addresses for the different classes ? 5

(c) A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle ? 2

(d) Describe the functions of the two connections used in FTP. 2

(e) How does TCP handle multiplexing issue ? 4

(f) How is the IPv4 header checksum calculated ? 2

(g) What is the purpose of ICMP ? Briefly describe the two broad categories of ICMP messages. 5

(h) What are unicast, multicast and broadcast IP addresses ? Give one example of each. *6*

2. (a) Briefly explain connection establishment and termination in 3-way handshake mechanism used by TCP. *5*

(b) Describe the purpose of the following fields of the TCP header format : *10*

(i) Window size

(ii) Urgent pointer

(iii) Sequence number

(iv) Acknowledgement number

(v) Destination port address

3. (a) "IP is an unreliable, best-effort, connectionless protocol." Justify the statement. *5*

(b) Is there any relation between the MAC address and IP address of a host ? How is an IP address represented ? What are its components ? *4*

(c) How does ARP resolve an IP address to an Ethernet MAC address ? Also, write how it differs from RARP ? *6*

4. (a) List the characteristics of UDP. Why is it used ? What is the chief advantage of using protocol port numbers instead of process identifiers to specify the destination within a machine ? *8*

(b) What do you mean by DNS ? Discuss the following issues related to DNS : 7

(i) Name-Address resolution

(ii) Distribution of name-space

(iii) DNS messages

5. Differentiate between the following : $5 \times 3 = 15$

(a) Class B and Class C IP addressing

(b) IPv4 and IPv6

(c) UDP and TCP

(d) BOOTP and DHCP

(e) Transport layer of OSI model and Transport layer of TCP/IP model