Course Code : CST 414-1 **CXDW/RW – 18 / 5108**

Seventh Semester B. E. (Computer Science and Engineering) Examination

Elective - II

INTERNETWORKING AND TCP/IP

Time : 3 Hours] [Max. Marks : 60

Instructions to Candidates :—

(1) Attempt all questions compulsory.
(2) All questions carry marks as indicated against them.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data and illustrate answers with neat sketches wherever necessary.

1. Solve any **Two** :—

(a) Why TCP called as virtual connection ? Differentiate the enhanced features between OSI layer and TCP/IP protocol suite. 5 (CO 1)

(b) The following is a dump of a TCP header in hexadecimal formal
05320017 00000001 00000000 500207ff 00000000

What is the Source port number ? What is the ACK number ?

What is the destination port number ? What is the Length of header ?

What is the Sequence number ? What is type of segment ?

What is window size ? 5 (CO 1)

(c) A diskless host with ethernet Physical address 98:45:23:4f:67: CD has been booted. Show the entries in the RARP packet sent by this host. 5 (CO 1)

2. Solve following :—

(a) Consider a problem of custom subnetting where Number of needed subnets are **14,** Number of needed usable hosts is **14,** Network Address given as **192.10.10.0.** Based on above information Find the following :—

Address class
Default subnet mask

Custom subnet mask
Total number of subnets
Total number of host addresses
Number of usable addresses 5 (CO 2)

Number of bits borrowed show your work for problem solving.

(b) Why two modes of IPsec Protocol have been designed ? Show the IP packet of each mode. Describe four such circumstances for which no ICMP error messages are raised. 5 (CO 2)

3. Solve any **One** :—

(a) How routing protocols are classified ? Sketch the hierarchy for both unicast and multicast routing. Pitch some highlighting points regarding Riverse Path Forwarding, Reverse Path Broadcasting and Reverse Path Multicasting. 10 (CO 2)

(b) Discuss BGP routing in detail and compare the working of OSPF and BGP. 10 (CO 2)

4. Solve any **Two** :—

(a) Identify the protocols to configure host dynamically ? What are the significant differences you find in order to configure them ? Show clearly the field information in header format for both the protocols. 5 (CO 3)

(b) Draw the DNS Query and response message format and Try to answer the following :—

(i) What is meant by query ? Name the different types of queries.

(ii) What is a zone ? Enlist properties of a zone ?

(iii) Explain primary, secondary and integrated zones in short.

(iv) What are MX records and PTR records ?

(v) How can one delete DNA cache from DNS server ?

(vi) What are LMHOSTS files ? 5 (CO 3)

(c) Describe the steps to configure NFS server on linux. 5 (CO 3)

5. Solve the following :—

(a) Describe 3 phases of mobile IP and show how data transfer takes place between mobile host and remote host. Differentiate IMAP and POP3. 5 (CO 4)

(b) Name and explain the application level security which provides all 4 aspects of securities as privacy, integrity, authentication and nonrepudiation. How does packet filter and proxy firewall works ? 5 (CO 4)

6. (a) How to establish a two way path of communication using socket. What are the different types of socket used in python to build a server ? Can you write a bind function for ports ? Also write the steps for file handling request and sending data to the client. 5 (CO 5)

(b) Write a code to implement TCP client server program in python. 5 (CO 5)