Course Code : CST 414-1 **KOLP/RW – 19 / 9160**

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) All questions are 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) Portray the difference between Network architecture and application architecture ? Match the following to one or more layer of TCP/IP model

(1) Format and code conversion services

(2) Establishes, manages and terminates session

(3) Ensures reliable transmission of data

(4) Login logout procedures

(5) Provides independence from differences in data representation 5 (CO 1)

(b) Show the entries for the header of a TCP segment that carries a message from an FTP client to an FTP server. Fill the checksum field with 0's. Choose an appropriate ephemeral port number and the correct well known port number. The length of the data is 40 byte. 5 (CO 1)

(c) How ARP request and response do are carried out, list the limitation of RARP ? 5 (CO 1)

2. (a) Given an IP address 144.16.116.2 and subnet mask 255.255.255.192. Identify the Net : Subnet and the Host parts of the IP address.
In a class B subnet we know one of the IP addresses of one of the hosts and the mask as given below.
IP address : 125.134.112.66
Mask : 255.255.224.0 what is the first address (subnet address) ?
5 (CO 2)

(b) In fixed length subnetting. Determine the number of 1's that must be added to the mask. If the number of desired subnet is ------.
2, 62, 122, 250 Subnet the box from a/24 into 2x/25 subnets. Determine Network Address, Broadcast address, First Usable IP, Last Usable IP for two subnets as subnet A and subnet B to its corresponding IP address 192.168.1.0 / 24. 5 (CO 2)

3. Solve Q. **a** or Q. **b** and **c**

(a) In Path vector Routing BGP protocol is applied to select optimal path.

- List down several Paths attributes that BGP routers must recognize.
- How BGP session is different than TCP session ?
- Why BGP session is referred as semi-permanent connection ?
- Show the idea of Internal and External BGP ?
- List different types of Message format used by BGP, with its encapsulation details and specify its port. 10 (CO 3)

OR

(b) In Core-Based Tree Protocol how rendezvous router is selected, with the help of neat sketch describe the procedures for sending a multicast packet to the rendezvous router. 6 (CO 3)

(c) Which routing protocols can be used within the enterprise network shown in the diagram ? Justify your answer

(A) RIPv1

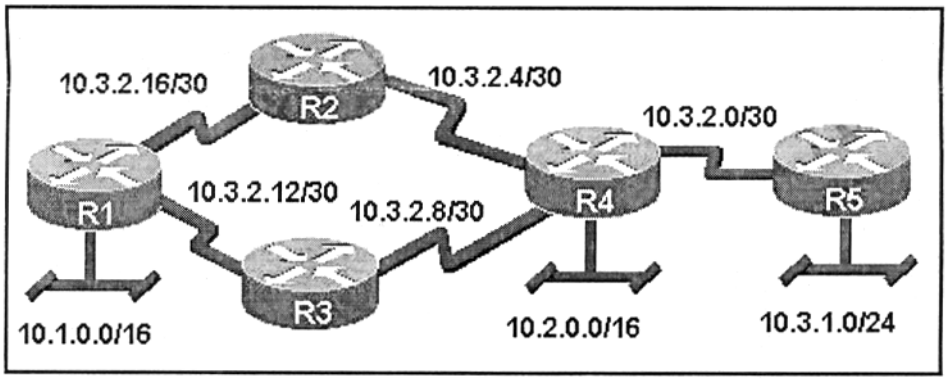
(B) RIPv2

(C) IGRP

(D) OSPF

(E) BGP

(F) EIGRP



4 (CO 3)

4. (a) DNS Client is looking for the name of the computer with IP address 132.1.17.8 show the query message with appropriate format ? 5 (CO 4)

(b) Demonstrate the basic Steps for configuring FTP client and server ? Point out the role of anonymous and FTP user with respect to web-space and user-space on Internet. 5 (CO 4)

5. (a) Create a home agent advertisement message using 1456 as the sequence number and a lifetime of 3 hour. Select your own value for the bits in the code field. Calculate and insert the value for the length field ? Show the encapsulation of this advertisement message in an IP datagram. What is the value of protocol field ? 5 (CO 4)

(b) How do we apply security in the Internet ? Show the design flow of transport layer security mechanism ? Name the protocol that provides security at application layer. Determine the role of proxy firewall in HTTP implementation. 5 (CO 4)

6. (a) Characterize Socket types according to the layer functionality and connections used; also present the sequence flow of socket API calls and data flow related to TCP connection. 5 (CO 5)

(b) Design echo client server using python also demonstrate how multiple connections are handled between client and server using python functions. 5 (CO 5)