Course Code : CST 414 – 1 **EVFU/MW – 18 / 6109**

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. (a) Define RFC. What maturity levels are prescribed to move for an authentic Documented draft ? 5 (CO 1)

   (b) Why ARP and RARP protocol is used ? Explain their header formats, give at least three reasons to use host configuration protocol. 5 (CO 1)

2. Solve following :—

   (a) For The given IP address 192.168.10.44 with subnet mask 255.255.255.248 (/29). Find out Total number of subnets, valid subnets, Hosts per subnet, hosts and broadcast addresses per subnet. 5 (CO 2)

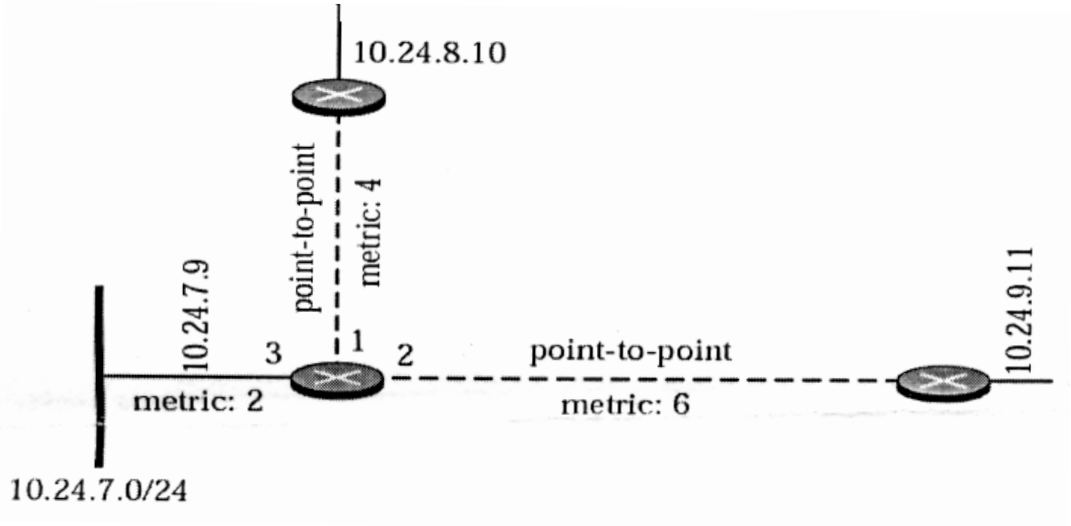
   (b) Number of needed subnets are 750 for a given Network Address is 190.35.0.0. Find the following Address class, Default subnet mask, Custom subnet mask Total number of subnets, Total number of host addresses, Number of usable addresses, Number of bits borrowed. What is the 15^{th} subnet range ? What is the subnet number for the 13^{th} subnet ? What is the subnet broadcast address for the 10^{th} subnet ? What aer the assignable addresses for the 6^{th} subnet ? 5 (CO 2)

3. (a) Show the autonomous system with following specification. There are eight networks (N1 to N8) and eight Routers (R1 to R8) N1 – N5 and N6 are Ethernet LANs , N7 and N8 are point to point WANS , R1 connects

N1 – N2 , R2 connects N1 , N7 , R3 connects N2 , N8 , R4 connects N7 , N6 , R5 connects N6 – N3 , R6 connects N 6 , N 4 , R 7 connects N6 , N5 , R8 connects N8 , N5. Now draw the graphical representation of the A. S. Which of the network is a transient network ? Which is a stub network ? 4 (CO 2)

OR

(b)



Give the router link LSA sent by router 10.24.7.9 in above figure design one complete router link advertisement of OSPF update packet. 4 (CO 2)

(c) Define the basis of routing protocols. Can we have emulation of Multicasting with multiple unicasting ? What approaches are being followed to find shortest path tree for each group ? Discuss DVMRP in detail. 6 (CO 2)

4. Solve any **One** from **(b)** and **(c)**

(a) Discuss DNS records, Zones (What is the "in – addr.arpa" zone used for ?), SRV records. How iterative and recursive resolution takes place in DNS ? 3 (CO 3)

(b) Consider a Active Directory domain controller which was placed in a Head Office located at India, It was having a time zone of + GMT 5 : 30. If you are planning to add an additional domain controller in your branch office which was located at (eg) Japan with a + GMT 2.00 then answer

the following :—

(1) Do you need to create separate domain controller with separate domain at Japan since the time zone changes ?

(2) Do you need to create separate time server to synchronize both the domain controllers ?

(3) Do we need to use the + GMT 2.00 at Japan, since no other options are available because of the changes in the time zone. 2 (CO 3)

(c) Identify the server and scenario for various mail agents to use them in sending receiving Mails. Describe the workflow for receiving mail agent in detail. 2 (CO 3)

(d) Give the necessary use of NFS and FTP while using them on different O. S. platform. Also state the name of the configuration file and its directory where it is located. 5 (CO 3)

5. Solve any **Two** :—

(a) Describe the application usage of two key rings maintained by user in PGP Protocol to secure your Email conversation. What steps are being followed by record protocol before attaching an SSL header to be included in IP packet ? 5 (CO 4)

(b) Define all the characteristics to be used in multimedia protocols. Show RTP header format. 5 (CO 4)

(c) Can you identify the steps for data transfers in Mobile IP. Portray the same with neat sketch ? 5 (CO 4)

6. (a) How TCP socket can be used to implement any server application ? Show an example of building math server. 5 (CO 5)

(b) State and brief all the necessary steps used to build web server in python. 5 (CO 5)