BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

June, 2024

BCS-052 : NETWORK PROGRAMMING AND ADMINISTRATION

Time : 3 Hours   *Maximum Marks : 100*

Weightage : 75%

Note : *Question number 1 is compulsory. Attempt any three questions from the rest.*

1. (a) What is Virtual Private Network (VPN) ? Compare VPN and Free NX.   5

    (b) Compare and contrast POP and IMAP.   5

    (c) What are ICMP messages ? Give the significance of ICMP messages.   5

(d) What are the limitations of classful addressing in IPv4 ?   5

(e) Discuss the purpose of sequence number in a TCP segment. Why padding is required for a TCP segment ?   5

(f) Explain the structure of UDP datagram, using a suitable diagram.   5

(g) Compare the working of ARP with that of RARP.   5

(h) Explain the concept of IP subnetting and supernetting, with an example for each.   5

2. (a) Explain distance vector routing with the help of an example.   10

(b) What is DHCP ? Explain the working of DHCP with reference to the activities performed DHCP client and DHCP server.   10

3. (a) Explain the three-way handshaking used by TCP for connection establishment and connection termination. Also draw a suitable diagram to support your explanation. 10

   (b) How do the layers of TCP/IP model correlate with the layers of the OSI model ? Also explain the functions of OSI model which are not mapped in TCP/IP model. 10

4. (a) Explain DNS in terms of namespace, resource record and name server. Also discuss its message format. 10

   (b) Write the step by step procedure to configure a Samba server. Assume server IP address is 192.162.0.18 and server machine name is 'BCA'. 10

5. Write an algorithm, each for TCP client and TCP server, based on the following specifications : 10+10

   (i) TCP client will send a list of 10 numbers to the TCP server.

   (ii) TCP server can handle maximum 4 clients at a time. TCP server will find the smallest number from the given list and return to respective client.