BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)
Term-End Examination
December, 2021

BCS-052 : NETWORK PROGRAMMING AND ADMINISTRATION

Time : 3 hours   *Maximum Marks : 100*

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

1. (a) What is the need of an IP address ? In a class subnet, the IP address of one of the hosts and mask are given below :

    IP address :   27.54.62.17

    Mask :   255.255.200.0

    Find the subnet address.   *4*

   (b) List all the network layer protocols. What is the need of ICMP at the network layer ? Explain the report generated by ICMP.   *5*

   (c) Explain the concept of recursive resolution in DNS with the help of a diagram.   *5*

(d) Explain the concept of a URL (Uniform Resource Locator) with the help of an example. Also explain the meaning of its various fields. 4

(e) How does TCP handle out of order segments ? Explain the procedure with a suitable diagram. 6

(f) What are the three basic types of Linux user accounts ? What are their privileges ? 3

(g) Draw a Linux file system structure and explain the use of its directories. 4

(h) What is the Dynamic Host Configuration Protocol (DHCP) ? How does it work ? 6

(i) Draw the IP header format. 3

2. (a) How are sending and receiving buffers used in stream delivery service by TCP ? Explain with the help of a diagram. 6

(b) What are the steps followed in initializing Linux system ? Discuss. 6

(c) What are the commands available for copying files between FTP clients and servers ? Explain these commands by writing their syntax. 5

(d) What is the need of a sequence number in a TCP segment ? 3

3. (a) What are the two common utilities for querying name servers provided with many DNS implementations ? *4*

(b) Differentiate elementary data transfer system calls between a client and a server after connection establishment. *4*

(c) Explain the steps required in TCP connection termination with the help of a diagram. *6*

(d) Write all the steps to be followed for secure disk management. *6*

4. (a) Discuss the common services for which remote administration is used. What are its drawbacks ? *6*

(b) What are the reasons for occurrences of networking problems in the system ? What are its drawbacks ? *6*

(c) Draw a TCP protocol stack and discuss features of any two application layer protocols. *6*

(d) Explain the purpose of the following IP address : *2*

255.255.255.255

5. (a) Write an algorithm for a UDP client and a UDP server as per the following specifications : *10*

   (i) A client program sends a list of numbers to the server.

   (ii) The UDP server accepts the list of numbers. As a reply, it sends the multiplication of the numbers to the client.

   (b) What is the significance of the following utilities ? *6*

   (i) Nslookup

   (ii) Netstat

   (c) What are the differences between active and passive sockets ? *4*

———