BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)
Term-End Examination
June, 2023

BCS-052 : NETWORK PROGRAMMING AND ADMINISTRATION

Time : 3 Hours   *Maximum Marks : 100*

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

1. (a) What is a default mask ? How is it different from a subnet mask ?   3

   (b) An IP address of one of the hosts and the mask in a class B subnet are given below : 3

   IP address : 130 . 154 . 121 . 33

   Mask   : 255 . 255 . 200 . 0

   What is the subnet address ?

(c) Explain the following concepts in context of the NFS (Network File System) :   6

    (i) Vitual file system

    (ii) NFS background mounting

(d) Why do you need user management ? Explain.   4

(e) How are routing tables created and updated in distance vector routing protocol ? Explain.

                                                    4

(f) How is incompatibility problem solved at software level for setting up a computer network.   3

(g) Draw the structure of a socket descriptor and describe its fields.   6

(h) For what purpose is getsockname ( ) used in socket programming.   2

(i) How does DNS server work ?   5

(j) How do computers belonging to different networks exchange message ? Explain with the help of a diagram.   4

2. (a) What are the similarities between file and socket I/O ? 3

(b) Show the components of SNMP diagrammatically. What are the tasks performed by agent and managed components ? Why SNMP is considered to be robust and simple ? Explain. 7

(c) (I) Explain the following terms : 6

(i) Authentication

(ii) Confidentiality

(iii) Non-repudiation

(II) Briefly explain how password policy is implemented in Linux ? 4

3. (a) What are the important tasks performed at internet and transport layers ? 8

(b) What are the outputs of the following address conversion functions ? 6

(i) inet ( )

(ii) inet_addr ( )

(iii) inet-ntoa ( )

(c) How does user management work ? Discuss. 6

4. (a) How does remote log-in process work in Telent ? Explain with the help of a diagram. How is the local log-in different from the remote log-in ? 8

(b) (i) What command is used in Linux to check how much hard drive space is available ? What information is displayed as an output by running this command ? 3

(ii) What command is used in Linux to find out CPU utilization ? In what form the output is displayed by running this command ? 3

(c) What is the kernel initialization process ? What tasks are performed during the initialization process ? Elaborate on init ( ) process. 6

5. (a) Write on UDP client UDP server program in C language in Linux/Unix environment as per the following specifications : 10

(i) The UDP client sends five integer numbers to the server.

(ii) The server program sends the average of five numbers to the client

(b) Identify the classes of the following IP addresses : 2

   (i) 230.15.20.30

   (ii) 130.30.20.25

(c) Draw the IP reader format and explain the significance of the following fields : 8

   (i) TTL

   (ii) Flags

   (iii) Header Length