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BCS-052

BACHELOR OF COMPUTER APPLICATIONS (BCA) (REVISED)

Term-End Examination

December, 2022

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.*

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1. (a) Given the IP address as 111.65.17.22, find the network address. 3

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

(i) 22.100.150.200

(ii) 150.100.100.200

(c) Differentiate between getsocket( ) and setsocket( ) system calls. 2

(d) How are the following socket types useful in socket programming ? 6

(i) Stream socket

(ii) Datagram socket

(e) What is the primary function of a web server ? Explain the importance of Apache and Samba web servers. 6

(f) With the help of a diagram, explain 3-way handshaking technique to establish a TCP connection. 6

(g) For what purpose FTP is used ? Describe the FTP commands for copying files to or from remote host. 4

(h) What are the two ways to close a socket ? What is the difference between the two ? 5

(i) What is the use of BIND ? Describe its components. 6

2. (a) A DNS client is looking for IP address of XXX.YYY.com. Show the complete procedure for mapping a domain name to IP address. 6

(b) What are the common services for which remote administration is used ? Describe

the following utilities for secure data communication :

(i) SSH

(ii) rlog in 8

(c) Discuss the importance of the following flags of TCP header : 6

(i) Urgent pointer

(ii) Push

(iii) Acknowledgement

3. (a) What is the use of the following Ethernet configuration tools ? 5

(i) IPconfig

(ii) routelnetstat-rn

(iii) lsmod

(iv) ping.IP-address

(v) dhclient

(b) Write a concurrent TCP server and a TCP client program using C-language having the following specifications : 10

(i) The server program can handle upto four clients concurrently.

(ii) The client program sends values X = 5 and Y = 9 of two variables.

(iii) The server program swaps the value of the variables and returns the result of the respective clients.

(c) Draw the UDP header format and explain the purpose of the following fields : 5

(i) Source Port No.

(ii) Checksum

4. (a) How does the distance vector routing algorithm work ? Explain. 6

(b) What are reasons for occurrence of networking problem ? Describe the following network troubleshooting tools : 8

(i) Wmap

(ii) Traceroute

(iii) Netstat

(c) Write the syntax and explain the use of the following system calls : 6

(i) send( )

(ii) sendto( )

(iii) recvfrom( )

5. (a) Define Integrity in the context of network security. 2

(b) What information do we obtain from the following functions ? How are they useful in socket programming ? 8

(i) gethostbyname( )

(ii) gethostaddress( )

(iii) getsockname( )

(iv) getservbyname( )

(c) Write an algorithm for UDP client and UDP server as per the following specifications : 10

(i) UDP client will send a number to the server.

(ii) The UDP server will return the factorial of that number.