

**BACHELOR OF COMPUTER APPLICATIONS  
(BCA) (Revised)**

**Term-End Examination**

**June, 2022**

**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) Find the number of bytes required for Netid for the following address classes : 2
- (i) Class A
  - (ii) Class B
- (b) Find the error in the following IP addresses : 3
- (i) 100.015.15.15
  - (ii) 01010011.35.75.80
  - (iii) 150.18.18.18.15
- (c) Differentiate between link state and distance vector routing protocols. 6

- (d) Why do QoS parameters need to be defined in the network operations ? Explain any two such parameters. 6
- (e) List the services provided by TCP. Explain the operation of stream delivery service. 6
- (f) What are the similarities between file and socket I/O ? 3
- (g) For what purpose is listen() system call used in context of socket programming ? Write its syntax also. 4
- (h) Where is password file stored ? Describe its components. 4
- (j) What are the following Linux commands used for ? 6
- (i) ps-aef
  - (ii) ls-of
  - (iii) netstat
2. (a) What does the socket header file contain ? Why is it included in application programs ? Define features of any two header files. 6
- (b) Why do we need to provide security in the network system ? Discuss any four network security service parameters. 6

- (c) Explain the purpose of the following TCP header formats : 8
- (i) Source port number
  - (ii) Sequence number
  - (iii) Acknowledgment number
  - (iv) Checksum
3. (a) How does TCP manage lost acknowledgement and out-of-order segments ? Explain it with the help of diagrams. 6
- (b) What are the issues related to the configuration of network settings ? Elaborate. 4
- (c) Draw the structure of a socket and discuss any two types of sockets. 6
- (d) Discuss the importance and use of a proxy server. 4
4. (a) Write a concurrent server and a client program in C language which uses TCP. The program should address the following specifications : 10
- (i) The client program sends the string to the server.

- (ii) The server program reverses the string and sends the result to the client program.
  - (iii) The server program can manage a maximum of 5 clients concurrently.
- (b) What is the use of Network File System (NFS) ? Explain the concept of hard and soft mounts in the context of NFS. 6
- (c) What is the need of a pop server in transfer of an email ? Explain with the help of a diagram. 4
- 5.** (a) Explain the concepts of recursive and iterative resolutions in DNS with the help of diagrams. 6
- (b) What tasks are performed in disk management ? List the steps to be followed in secure disk management. 6
- (c) Explain the concept of IP subnet addressing and subnet masking through an example. 6
- (d) What is byte ordering ? 2
-