

**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
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