

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

**Term-End Examination**

**June, 2025**

**BCS-052 : NETWORK PROGRAMMING AND  
ADMINISTRATION**

*Time : 3 Hours*

*Maximum Marks : 100*

*(Weightage : 75%)*

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

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1. (a) Define File Transfer Protocol (FTP).  
Explain the roles of FTP client and  
FTP server. Also, discuss the basic  
steps performed by a client during an  
FTP session. 10

- (b) What are ICMP messages ? Write the significance of ICMP messages. Also, write the limitations of classful addressing in IPv4. 10
- (c) Explain 'Virtual File System' and 'NFS Background Mounting' in the context of the NFS (Network File System). 10
- (d) With the help of a diagram, explain three-way handshaking technique to establish a TCP connection. 10
2. (a) How are 'Stream socket' and Datagram socket' useful in socket programming ? How do they differ from each other ? 10
- (b) How does remote login process work in Telnet ? Explain using a diagram. Also, explain how local login is different from the remote login. 10

3. (a) Write and explain the Distance-Vector Routing Algorithm used by the Routing Protocol of IP routing. 10
- (b) How do the layers of TCP/IP model correlate with the layers of the OSI model ? Also, explain the functions of OSI model which are not mapped in TCP/IP model. 10
4. (a) What are primary and secondary DNS servers ? How do they work ? Explain with the help of diagram(s). 10
- (b) Why is Sliding Window Protocol used in Transport Layer ? Explain its working using an example when window size is of 5 bits only. 10
5. (a) Explain the working of DHCP with the activities performed between DHCP server and DHCP client. 10

(b) Write short notes on the following :

$$4 \times 2 \frac{1}{2} = 10$$

- (i) FAT 16 and FAT 32
- (ii) Virtual Circuit
- (iii) Raw Sockets
- (iv) Netstat

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