POKHARA UNIVERSITY

Level: Bachelor | Semester: Spring | Year : 2023
Programme: BE | Full Marks: 100
Course: Network Programming | Pass Marks: 45
Time : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) Identify and briefly explain which protocol falls into which layer based on the OSI reference model. 7

   DNS, FTP, XDR, NTP, SMTP, DHCP,RTP, PDH,DSL, ARP, ICMP, Frame Relay, IEEE 802.11,TLS/SSL, USB

   b) Provide an overview of TCP state transition with supporting diagrams wherever necessary. 8

2. a) What do you mean by value result argument? Explain value result argument with suitable syntax 7

   b) What is communication end point for network communication? Explain the role of different socket address structures available in UNIX network programming. 8

3. a) What is I/O multiplexing? Explain the use of select function in the context of I/O multiplexing in detail. 7

   b) What is daemon process and how does it started? Explain the various socket options related to buffer data handling. 8

4. a) Explain the differences between asynchronous I/O and I/O multiplexing with a suitable diagram 7

   b) How errno is different from h_errno? Identify and explain following functions in detail on the basis of passing length of socket address structure from process to kernel and kernel to process: connect(), recvfrom(), bind(), getsockname(), sendto(), accept() and getpeername(). 8

OR

How concurrent server is different from iterative server? Briefly describe the listen() function. Illustrate the situation where we can use bind() function in TCP client program.

5. a) Why WSAStartup() and WSACleanup() function is required while developing winsock application? Explain various asynchronous database functions of winsock programming. 7

   b) What is overlapped IO? Explain different winsock functions that support synchronous and asynchronous IO. 8

6. a) What are the differences between Unix socket and window socket? Explain Winsock Architecture. 7

   b) Is it possible to write a common network application that runs in both LINUX and Windows? How would you do it. Show simple example program as well. 8

7. Write short notes on: **(Any two)** 2×5

   a) Ipconfig and ifconfig

   b) Remote Login

   c) telnet