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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | **Computer Networks** | **Course Code:** | **CL-307** |
| **Program:** | **BS(Computer Science)** | **Semester:** | **Spring 2018** |
| **Duration:** | **20 Minutes** | **Total Marks:** | **25** |
| **Paper Date:** | **08-October-18** | **Weight** | **4%** |
| **Section:** | **B** | **Page(s):** | **4** |
| **Exam:** | **Quiz 1** | **Reg. No.** |  |
| **Instruction/Notes:** |  | | | |

**PART 1: (Marks: 8)**

**Answer each of the following questions brief and to the point.**

1. **What is the difference between TCP Socket Programming and UDP Socket Programming? Explain with the help of Block Diagram. (4)**
2. **Suppose a person wants to do a transaction from a remote client to a server as fast as possible. Which protocol UDP or TCP would be better? Why? (2)**

UDP would be better. With UDP, the transaction can be completed in one roundtrip time (RTT) - the client sends the transaction request into a UDP socket, and the server sends the reply back to the client's UDP socket.

With TCP, a minimum of two RTTs are needed - one to set-up the TCP connection, and another for the client to send the request, and for the server to send back the reply. As we need rapid transaction so UDP is better as it consume less time.

1. **What is meant by handshaking protocol? (1)**

A protocol uses handshaking if the two communicating entities first **exchange control packets** before sending data to each other. Basically to establish a connection between client and server this protocol is used in TCP.

1. **What information is used by a process running on one host to identify a process running on another host? (1)**

The **IP address of the destination** host and the **port number** of the destination socket.

**PART 2 (Marks: 5)**

**Answer each of the following questions brief and to the point.**

1. **Give two uses of Ping command? Which Linux command is used to get the IP address of all interfaces on a server? (2)**

Ping command is used to

1. verify that a computer can communicate over the network with another computer or network device.
2. troubleshooting to test connectivity and determine latency, response time.
3. **Ifconfig -a**
4. **What is the difference between a socket and a port number? Is it possible to connect multiple clients to same socket at the same time? Explain your answer. (3)**

Yes it is possible to connect client to same socket. A socket is an end point of a connection. It is identified by a 2-tuple (IP , Port). A connection is identified by a 4 tuple (client IP,client port, server IP, server port). If anyone of these is different, it will be a different connection. In this case, since clients are different, **multiple clients can connect to the same server socket**

1. **Explain the difference between Connect( ) and Bind( )? (1)**

Bind function assigns a **local protocol address** to a socket. After creation of the socket, bind function binds the socket to the address and port number specified in addr(custom data structure).

Connect() is used to connect to a **remote [server] address**, that's why is client side, connect] is used.The connect() system call connects the socket referred to by the file descriptor sockfd to the address specified by addr. Server’s address and port is specified in addr.

**PART 3 (Marks: 12)**

**Select an appropriate answer for each of the following questions.**

1. A port address in TCP/IP is .........bytes long.  
   A. 32 B. 48 C. 16 D. None of these
2. Which command is used to list only the TCP Sockets in Linux system:   
   A. ss –u -t B. ss -tcp C. ss –u -a D. None of these

ANSWER: ss -t -a

1. Which protocol deals with emails?
2. FTP B. SMNP C. Both a & b **D. None of these**

ANSWER: SMTP

1. Which linux command is used to check the domain name of any given server IP?
2. dns –ip B. nslookup C. ifconfig D. both a & b
3. Which one is incorrect Port No?
4. 65536 B. 241 C. 30987 D. 80
5. Transport layer protocols deals with \_\_\_\_\_\_\_\_\_ communication.
6. application to application
7. process to process
8. node to node
9. host to node
10. Which one of following is a correct order of the function(s) to be called for a TCPclient:
11. Socket(),bind(),accept(),send(),recv(),close()
12. Socket(),bind(),sendto(),recvfrom(),close()
13. Socket(),bind(),connect(),send(),recv(),close()
14. Socket(),bind(),connect(),sendto(),recvfrom(),close()
15. The client in socket programming must know which information?
16. IP address of Server
17. Port number
18. Both IP address of Server & Port number
19. None
20. Communication offered by TCP is
21. Full-duplex
22. Half-duplex
23. Semi-duplex
24. Byte by Byte
25. Which system calls in socket programming results in the sending of SYN packets?
26. Bind
27. Connect
28. Listen
29. Accept
30. Web, Email and DNS employ \_\_\_\_\_\_\_\_ architecture.
31. Peer to peer
32. Client-Server
33. Hybrid
34. None
35. TCP socket is identified by \_\_\_\_ tuple.
36. 2
37. 3
38. 4
39. 5