~~1~~ What is socket? Explain system calls related to UDP socket?

Ans. The communication structure that we need in socket programming is called as a socket.

- A socket acts as an end point.

→ System calls related to UDP socket:

1. socket (UDP):
- OS creates a UDP socket and gives a file descriptor referencing it.

2. bind:
- It helps point UDP port qqqq to the new UDP socket.

3. msg, from = recvfrom (udp_fd)
- OS is put to sleep until a UDP datagram is received

4. send:
- OS sends the UDP datagram from current port to a remote address and port.

5. close:
- Stops listening to the current port and removes the file descriptor

2. Draw and explain UDP header in detail.

Ans. The purpose of using a pseudo-header is to verify that the UDP packet has reached its correct destination.

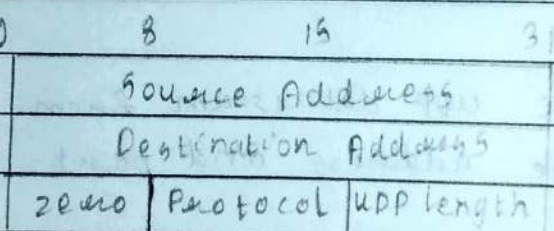
1. User interface:
- A user interface should allow the creation of new

receive ports, receive operations on the receive ports, that return the data octets and an indication of source port and source address, and an operation that allows a datagram to be sent

2. IP interface:
- The UDP module must be able to determine the source and destination internet addresses and the protocol field from the Internet header.

3. Protocol Application:
- The major uses of this protocol are the Internet Name Server, and the Trivial File Transfer.

4. Protocol Number:
- This is protocol 17 (21 octal) when used on the Internet protocol.



UDP header

Q3. Explain FTP

Ans.
- The File Transfer Protocol (FTP) is a standard network protocol used to transfer computer files from one host to another host over a TCP based network, such as the Internet.
- FTP is built on client-server architecture and uses separate control and data connections between

the client and the server.

- FTP users may authenticate themselves using a clear-text sign-in ~~password~~ protocol, normally in the form of a username and password, but can connect anonymously if the server is configured to allow it.
- For secure transmission that protects the username and password, and encrypts the content, FTP is often secured with SSL/TLS (FTPS).
- FTP may run in active or passive mode, which determines how the data connection is established.

Q4. Write down steps involved on establishing a UDP socket on the client side and server side.

Ans. UDP Server:-

1. Create a UDP socket
2. Bind the socket to the server address.
3. Wait until the datagram packet arrives from the client.
4. Process the datagram packet and send a reply to the client.
5. Go back to step 3.

→ UDP client:-

- Create a UDP socket.
- Send a message to the server.
- Wait until a response from the server is received.

- Process the reply and go back to step 2, if necessary
- Close socket descriptor and exit.