1. What is the difference between a host and an end system? List several different types of end systems. Is a Web server an end system?

- A host is a general term that refers to any device or computer connected to a network, while an end system is a specific category of hosts that are the source or destination of data transmission in a network. And yes, a web server is an end system.

List of several systems:

Personal Computer, Workstations, web servers, e-mail servers, television, mobiles.

1. Describe the protocol that might be used by two people having a telephonic conversation to initiate and end the conversation, i.e., the way that they talk.

The Session Initiation Protocol (SIP) is a signaling protocol used for initiating, maintaining, and terminating communication sessions that include voice, video and messaging applications. SIP is used in Internet telephony, in private IP telephone systems, as well as mobile phone calling over LTE (VoLTE).

1. Why are standards important for protocols?

This helps fuel compatibility and interoperability and simplifies product development, and speeds time-to-market.

4. List four access technologies. Classify each one as home access, enterprise access, or wide-area wireless access.

Dial up modem –home access

Hybrid fiber-coaxial cable –home access

Wireless LAN – enterprise access

3G, 4G services – wide area wireless access

5. Is HFC transmission rate dedicated or shared among users? Are collisions possible in a downstream HFC channel? Why or why not?

HFC bandwidth is shared among the users. On the downstream channel, all packets emanate from a single source, namely, the head end. Thus, there are no collisions in the downstream channel.

6. What access network technologies would be most suitable for providing internet access in rural areas?

Satellite internet is a type of broadband internet that uses satellites in space to transmit data between a dish on your property and a ground station. Satellite internet can reach remote and rural areas where other wireless technologies are not available, and it can offer speeds up to 100 Mbps.

7. Dial-up modems and DSL both use the telephone line (a twisted-pair copper cable) as their transmission medium. Why then is DSL much faster than dial-up access?

Dialup is slower because it uses much less bandwidth than DSL. A modem uses only 4 kHz of the available spectrum, while DSL can use up to 4 MHz, which is 1000 more. DSL also uses more sophisticated modulation techniques.

8. What are some of the physical media that Ethernet can run over?

Ethernet most commonly runs over twisted-pair copper wire. It also can run over fibers optic links.

9. HFC, DSL, and FTTH are all used for residential access. For each of these access technologies, provide a range of transmission rates and comment on whether the transmission rate is shared or dedicated.

Dial-up modems:

Transmission rate: 56 Kbps, Broad cast medium device.

HFC(Hybrid fiber-coaxial cable ):

Transmission rate: 10 Mbps to 30 Mbps. Shared broad cast medium.

DSL(Digital subscriber line ):

Transmission rate:  <5Mbps, Dedicated broad cast medium.

FTTH(Fiber To The Home ​​​​​​​):

Transmission rate:  Approximately 20Mbps. Shared broad cast medium.

10. Describe the different wireless technologies you use during the day and their characteristics. If you have a choice between multiple technologies, why do you prefer one over another?

WiFi, Bluetooth, Cellular network. I preferred WiFi over the other two technologies since I always use internet when browsing online and it’s better than cellular network.