Mid Semester Assignment, Course: - Mobile Computing

Deadline: - Mentioned on SIC **Marks: - 30**

Program: - BS (CS), BS-SE **Dated: 13 April 2020**

Student Name: Wisal Zafar Student ID#: 13156

Class and Section: 8th semester BS (SE) section-A

Question1: Explain why wired networks have higher bandwidth in comparison to mobile networks.

Ans:

Bandwidth:

The transmission of data from one point to another over a network or internet. The bandwidth of a wired network is higher than wireless or mobile network because the signal transmission in a wired is higher due to no interference of any other signal mean the medium of wired is noise free and the medium of transmission is only avabile for this type of transmission. Whereas the bandwidth of wireless or mobile is low due to the presence of so many other signals in the environment also depend on the base station range and power.

Question2: Explain the relation between miniaturization and portability.

Ans:

Portability:

Reducing the size of system hardware by using new and update technology to perform the same task which is done by the old system. Portability means to move the devices from one place to another place and to continue the same task which we start in other place. It makes the system movable.

Miniaturization:

Creation and development of new powerful and update chipset smaller in size perform the task more accurate and fast than old. It basically used in mobile phone and least laptops.it is also movable devices like mobiles, laptops.

Question3: Differentiate between convergence and divergence?

Ans:

Convergence:

Convergence means spreading of line from one point. Multiple task perform in a single device is called convergence. It is used to perform many tasks in a single device like mobile phone which perform many task like messages, music player, gaming, telephone, camera use, and so many other.

Divergence:

Divergence means moving apart. In mobile computing the term divergence used the devices which are used for one specific Purpose.one specific device are used for other specific device like TV remote are used for only changing the TV channels , the mobile touch pin are used for mobile touch screen.

Question4: Suppose you are given the task of designing an app for mobile devices which has the capabilities of text chat, recorded audio message, and live video conferencing. Explain which protocol out of UDP and TCP would you use for each type of service and why?

Ans:

For text chats and recorded audio messages we used TCP (Transmission Medium Protocol) Because TCP provided backup if data gets lose they provide the loss data, reliable, ordered, it slow in data rate transmission as compare to UDP.TCP is a Bi-directional mechanisms.

For Live Video Conferencing we used UDP (User Datagram Protocol).Because UPD is used if there is no use of error checking and correction, dropping of data packets, is data rate transmission is faster than TCP.UDP is unidirectional mechanisms.

Question5: Suppose you have the choice of using 2G, 3G, 4G, 5G, Wi-Fi and Satellite networks. Which of these technologies will you use in the following scenarios and why.

Ans:

a. A city wide network with voice, SMS services and internet services good enough for ultra-high definition streaming and video conferencing.

Ans: For this scenario 3G, 4G, 5G are used. 3G are not too good because of lower bandwidth up to 25MHz and lower internet service 3G are used for SMS and voice. For ultra-high definition streaming and video conferencing we use 4G and 5G are best for this scenario because 4G and 5G have high bandwidth and provide high speed internet service.

Wi-Fi are also not too good because of limited area coverage slow speed if you far away from Wi-Fi device. Satellite is used for global.

b. A wide city network with only SMS and voice services.

Ans: For a wide city network with only SMS and Voice services 2G are best because 2G have lower bandwidth work on narrowband internet service. 2G used GSM technology. For limited area Wi-Fi are also used. 3G, 4G, 5G, satellite are not used for this scenario.

c. A city wide network SMS, Voice services and internet services good enough for normal definition streaming and video conferencing.

Ans: For voice and SMS services 2G can be used but in this scenario internet services and normal streaming and video conferencing 3G and 4G are used because 3G and 4G are work on bandwidth of 25 to 100MHz. they provide best internet services for video conferencing.

d. A global scale network with voice, SMS and internet services.

Ans: For this scenario satellite and 2G are best used because three satellite with 120^0 cover whole earth and communicate with each other the satellite are 23000 miles above earth. Satellite provide fast speeding internet in mostly remote and rural areas. So for global network scale the satellite is best option.

e. A campus size network information and resource sharing between 200 end devices.

Ans: For campus network the Wi-Fi is best option because Wi-Fi is wireless network technology for limited area. Wi-Fi generates the wireless signal and spread out the campus. For 200 devices the Wi-Fi connection are used and all other technology are not used for campus.

f. A city wide network with voice, SMS and basic internet services.

Ans: For voice and SMS the 2G are used because 2G work on GSM technology with 25MHz bandwidth and for basic internet service the 3G are used because 3G have high speed as compare to 2G and provide the internet sharing services 3G are work on WCDMA technology with 25 to 30MHz frequency.so 2G and 3G are both used for this scenario.