Mid Semester Assignment, Course: - Mobile Computing

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

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

Student Name: Abdul Razzaq   **Student ID#: 12938**

Class and Section: Sec (A) BSSE

Question1: Explain why wired networks have higher bandwidth in comparison to mobile networks.   **(2)**

Question2: Explain the relation between miniaturization and portability.   **(3)**

Question3: Differentiate between convergence and divergence.   **(3)**

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?   **(4)**

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.   **(18)**

   a) A city wide network with voice, SMS services and Internet services good enough for ultra-high definition streaming and video conferencing.
   b) A city wide network with only voice and SMS services.
   c) A city wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing.

d) **A global scale network with voice, SMS and Internet services.**
e) **A campus size network for information and resource sharing between 200 end devices.**
f) **A city wide network with voice, SMS and basic Internet services.**

Question no 1:

Answer:

The main reason is because a cable is connect to the network which transmitting the data at the same speed. As Maximum data transfer rate depends upon the bandwidth, the wired network has higher bandwidth as compare to the mobile network because the wired network has:

➢ High resource access
➢ High power machine
➢ Never weighed down
➢ Low delay in operation

A high bandwidth connect can serve many request at a time without sinking up the speed. Wired connection would be much faster for downloading the large size file as compare to the wireless connection.

Question no 2:

Answer:

Miniaturization:

It means to manufacture or design smaller electronic products and devices more accurate than the last one.

For Examples: Mobile Phone miniaturization, miniaturization of Computers and vehicle engine miniaturization etc.

Portability:

Portability means that the devices or nodes connected within mobile computing system to facilitate Mobility. These devices have limited device potentialities and limited power supply, but have sufficient processing potentialities which can be moved easily.

Relationship:

When the product is small in size and accurate as compare to the others then its portability will be high and increase day by day.
Such as in the pas the mobile phones were so huge in size and heavy in weight and still didn't have that much features and smoothness but then the slim and thing mobiles phones came and with the fastest and highest functions and features. Same as computers were big enough to understand and manage but in now days you can take computer in you beg better features than the past.

Question no 3:

Answer:

Convergence:

Convergence mean that to integrate the merging types of digital mobile devices, such as personal digital assistance, PDA's mobile phone, music, games etc.

Divergence:

Divergence means that the approach to interact the design by promoting information appliance with specialized functionalities rather than generalized ones. In other words terminate or not terminate is called divergence.

For example pagers, printers, remotes etc.

Question no 4:

Answer:

In My opinion UDP (User datagram protocol) would be best because of following reason:

- ➢ UDP is fast in speed
- ➢ Small transaction (DNS lookup)
- ➢ UDP is connectionless protocol. UDP is ideal for multimedia like Volp (voice over internet protocol)
- ➢ Applications with intensive bandwidth, which can suffer packet loss.
- ➢ Data loss can be made
- ➢ UDP provide multicast and broadcast transmission
- ➢ Block boundaries are included in UDP because the recipient receive the packet disobedient
- ➢ Connection based communication model is never restricted, that is why startup latency is low in distributed application.

Question no 5:

Answer:

Part (A)
4g and 5g are suitable for city wide network because the others cannot provide ultra-hd streaming although 3g connection provides video conferencing and availability of Wi-Fi is not everywhere as they are only provided by ISP's satellite connection is generally used nationally or globally, it does not fill in the given scenario.

Part (B)

2g connection is suitable for the given scenario because the internet services or data transfer required though the satellite connection is used for communication purpose but it provides even more than only voice and SMS services.

Part (c)

3g and 4g is suitable for the given scenario because both of the connection can provide streaming and video conferencing but 4g is much greater better than 3g in the term of speed.

Part (D)

Satellite is suitable because the satellite connection is used for globally from space. It can transfer data and can communicate with headquarters on earth in the distance of approximately 23000 miles

Part (E)

Wifi is the best option for the given scenario, campus sized network is achievable with wifi
Such as School academy has its own network which connects all the departments within the School, so that if a Teacher wants to refer a Student to another teacher, he will directly refer the Student through the network which is based on Wi-Fi

Part (F)

2g and 3g network will fit in this scenario because both of these networks provide voice, SMS and basic internet facilities but 3g network overcomes the 2g network in terms of speed, functionality and advanced internet applications.