
Mid Semester Assignment, Course: - Mobile Computing

Deadline: - Mentioned on SIC

Marks: - 30

Program: - BS (CS), BS-SE

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Class and Section: BSSE VIII SECTION A

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

Answer: wired networks have higher bandwidth than mobile networks because wired networks use wire for connectivity there is no other signal in it that interfere the communication. The wired network is noise free. While the mobile network bandwidth is low because there is so many other signals inside the surroundings.

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

Answer: **Portability:** In Portability the device can be move from one place to another. It reduces the size of hardware. The reduction of hardware size by removing Extranous hardware parts. Its is not rely on system performance

Miniaturization: Minizaturization was about creating new and smaller form factor of mobile computer to evolve and emerge on the market. These predominantly handheld devices were labelled palmtop computers, digital organizers, or “Personal Digital Assistants” (PDAs).Creation of new hardware the perfomance will be better than old one.

Question3: Differentiate between convergence and divergence. (3)

Answer: **Convergence:** One of the most interesting stage of mobile computing started when different types of specialised mobile devices starting converging into

new types of hybrid devices with fundamentally different form factors and interaction designs. The first phase of this was the emergence of “smart phones”, which together the functionality of a PDA with that of a mobile phone. The development of smart phones involved investigation of a wide range of form factors and exchange designs and led to a series of new solutions

Divergence: The divergence is used the device in mobile computing which are used for specific functionality. Particular device for another particular device rather than general one. For example AC remote is used only for turn on/off Air condition.

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)

Answer: Designing an app for mobile devices which has the capabilities of text chat, recorded audio message, and live video conferencing. We are going to use UDP for video conferencing as its faster than TCP. UDP need less bandwidth. There will be no problem in connectivity at the low network speed. The user can confirm it after in the video calls if data loss happened.

TCP is used for text chat and recorded audio message. In TCP the data packed cannot lost in text message and recorded audio message . TCP deliver complete message from sender to receiver.

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.

Answer:

- a) 5G is an idea for this scenario because 2G, 3G, 4G not provide us ultra-high definition streaming. We are still use video conferencing on 2G, 3G, 4G but not ultra-high definition streaming and video conferencing. Only 5G provide us ultra-high definition streaming and video conferencing.
- b) For this scenario 2G is an ideal. Because 2G provide us voice and SMS service. There is no any internet services.

- c) **4G provide us good enough video conferencing and definiton streaming . 4G speeds are crucially higher at 300 Mbps therotically. So 4G is an ideal for this senario.**
- d) **For Global scale network we can use Satellite. Satellite provide us Global access by transmitting radio signals from orbit aroud the earth. So satellite is best for this scenario.**
- e) **For Campus Size network we can use Wifi. In Campus we provide internet resources user share like printer sharing, file sharing etc. wifi is an ideal for this Scenarion.**
- f) **2G and 3G. 2G provide us voice and SMS and basic internet is also provide 2G and 3G but 3G is used for advance internet. So 2G is best for this scenario.**