Mid Semester Assignment, Course: - Mobile Computing

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

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

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Class and Section: BS (SE-8) Section A

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

Ans: Mobile network is sensitive to involvement , which could destroy the connection. The more involvement is there, the much slower will be the connection. This will longer the buffering time for streaming or watching videos. That's why a wired connection is more suitable to sharing larger files and for online gaming.

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

Ans:
Miniaturization:
Miniaturization means developing or building new small size mobile devices that can be easily moved while use. Smaller the size that can be easily hidden in a pocket or in a handbag.

Portability:
Portability means reducing the size of hardwares that can be easily moved around with a person. Portability with respect to software, is the ability to transfer the software from one machine to another.

Question3: Differentiate between convergence and divergence. (3)

Ans:
Convergence:

Integrating emerging types of Digital Mobile Assistants(PDAs), mobile photos, Mp3 players, DSLR camera and games etc, into hybrid devices. Hybrid means, for example, a laptop with two qualities.

Divergence:
A different point of view to interaction design by upgrading information tools with upgraded functionality rather than generalized ones, like printers, TV remotes etc.

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)**

Ans: I will choose UDP(User Datagram Protocol), Lets explain why,

> Transport layer protocol(source host to destination host)
> Connectionless(no connection required, just send, it'll receive)
> Unreliable i.e. best effort service(one might be failed out of 1000)
> No handshaking among sender and receiver in sending segments because of no connection.
> Each UDP segment is used or controlled independently

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.**

a.

Ans: We can use 4G and 5G because for city wide network 2G and 3G can't provide us ultra high definition streaming but 3G can be used for video conferencing. Wifi cannot be used in this scenario because it is not available everywhere. Satellite can't be used because it is used for general purposes.5G would be the suitable option with the speed of 10-30 Gbps but it is not yet developed.

b.

Ans: In this scenario there is no data transfer or any use of internet services so 2G will be the right choice. Satellite can be used for communication purposes but on general purpose, not in this scenario.

c.

Ans: In this scenario 3G and 4G will be used because both are used for good definition streaming and video conferencing.4G with thee speed of 100-300 Mbps can support HD streaming so 3G will be the suitable option.

d.

Ans: We will use a satellite in this scenario. A satellite can be used for transferring and receiving data and can communicate through internet services. Any other technology can't be used for global scale network except satellite.

e.

Ans: We will use wifi in this scenario because wifi can easily support a campus size network. Suppose we are accessing Sportal for sharing information so first we had to connect to the University wifi.

f.

Ans: In this scenario we will use 3G because there is basic internet services but no data transfer. It will be 2G if there was no internet services.