

---

**Mid Semester Assignment, Course: - Mobile Computing**

**Deadline: - Mentioned on SIC**

**Marks: - 30**

**Program: - BS (CS), BS-SE**

**Dated: 13 April 2020**

---

**Student Name : Siyad Ali Student ID# : 6839**

**Class and Section : BSSE (8<sup>th</sup> Semester ,Section B)**

---

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

**Answer:** The term bandwidth is the maximum bit rate of a system.

- The capacity of a wired network is high as compare to mobile networks which is typically measured in millions of bits per second as a example of wired network like fiber-Optic.
  - While in mobile networks has low bandwidth usually operate on 2.4 and 5 GHz frequency.
- (2)

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

**Answer: Miniaturization:**

The process of making something very small using modern technology: The silicon chip is a classic example of miniaturization.

**Portibility:**

It is the task of doing any work necessary to make the computer program run in the new environment.

- The basic relation in miniaturization and portability is that both focuses on reducing the size of hardware so that can be easily portibile to any other environment or device.

**Question3: Differentiate between convergence and divergence.**

- Both Convergence and divergence is the opposite concept of each other
- In convergence the main goals is to design the mobile device such a way that it include all the generalized functionality in one mobile device whereas in divergence design the mobile device for specific purpose which include special functionality.
- Example of convergence are music player,video player and sound recorder etc in one device
- Example of divergence is music player device in which you can only play music not video nor making recording .(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)

**Answer:**

**For Text Chat:**

I will use TCP protocol because TCP protocol provides no loss of data and deliver all the packets of data

**Recorded Audio Message:**

will use TCP protocol because similarly TCP protocol provides no loss of data and deliver all the packets of data .

**For Live Video:**

I will use UDP protocol because UDP protocol provides high speed and no delay in the data transmission so the live video can not be delay or interrupted and its good for real time traffic .

**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.**

**Ans: I will use 5G Technology:**

5G technology provides voice, sms and internet services which can be helpful for the ultra high definition streaming and video conferencing.

• **A city wide network with only voice and SMS services.**

**Ans: I will use 2G Technology:**

- Users can “simultaneously” make calls and send data
- GPRS provides “always on” Internet access and the Multimedia Messaging Service (MMS) whereby users can send rich text and audio messages to each .

b) **A city wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing.**

**Ans: I will use 4G Technology:**

- It provides Orthogonal Frequency Division Multiplexing for downlink , Single Carrier Frequency Division Multiple Access for uplink , Uses Multi-input Multi-output (MIMO) for enhanced throughput , Reduced power consumption , Higher RF power amplifier efficiency which is very helpful for ultra high definition streaming video.

c) **A global scale network with voice, SMS and Internet services.**

**Ans: I will use Satellite Network Technology:**

- Because with this technology every user around the world can use voice , sms and internet services

**d) A campus size network for information and resource sharing between 200 end devices.**

**Ans: I will use Wifi Technology:**

- With wifi technology only 200 user belongs to that specific campus can use the information and can share their resources between 200 devices

**e) A city wide network with voice, SMS and basic Internet services.**

**Ans: I will use 3G Technology:**

- With 3G technology user from the city can use the voice ,sms and basic internet services.