Important Instructions:

1) Open this MS-Word document and start writing answers below each respective question given on page 2.

2) Answers the question in the same sequence in which they appear.

3) Provide to the point and concrete answers.

4) First read the questions and understand what is required of you before writing the answer.

5) Attempt the paper yourself and do not copy from your friends or the Internet. Students with exactly similar answers or copy paste from the Internet will not get any marks for their assignment.

6) You can contact me for help if you have any doubt in the above instructions or the assignment questions.

7) All questions must be attempted.

8) Do not forget to write your name, university ID, class and section information.

9) Rename you answer file with your university ID# before uploading to SIC.

10) When you are finished with writing your answers and are ready to submit your answer, convert it to PDF and upload it to SIC unzipped, before the deadline mentioned on SIC.

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: BSSE (Sec-A)

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.**

Q1)
Ans)

1. The wifi uses radio waves to transfer data while wired network uses electricity.
2. The speed of electricity in wires is much faster as compared to radio waves in air.
3. Wired networks use a dedicated line for data transmission in which the data loss ratio is much lesser than wireless networks which uses air for its transmission.
4. Efficiency is affected more in wireless networks than in wired networks by increasing the distance.

Q2)
Ans) Miniaturization: The trend of developing new, powerful hardware chips that are smaller in size and can process tasks much faster than the existing ones.

Portability: Portability tends to make devices smaller in sizes yet making them convenient to be physically moved around easily.

Both of these techniques helps in decreasing the size of hardwires while one works with increasing the efficiency the other one makes it easier to be carried around with.

Q3)
Ans)

1. Convergence is a process in which different technologies are combined together in a single device or system, while in divergence devices comprises of one particular technology.
2. Convergence focuses on integrating many technologies into one single device while Divergence focuses on targeting only one technology.
3. Example of Convergence; iPhone, Samsung, Smart mobiles etc
   Examples of Divergence; ipod etc

Q4)
Ans)
For texts chat and recorded audio messages the protocol I would prefer is TCP (Transmission Control Protocol) because:
- It is reliable in delivering data at right destination.
- It also provides acknowledgment in case of data loss and data is resent.

For live video conferencing I would use UDP (User Datagram Protocol) due to the following reasons:
- It supports broadcasting.
- Faster communication.
- Data isn't resent in case of data loss.

Q5)
Ans)
a) The technology I'll use in scenario a is "5G" because:
- High resolution video streaming.
- Extremely high speed.

- Low latency.

b) The technology I'll use in scenario b is "2G" because:
- It uses GSM technology.
- Its applications are voice messages and short messages.

c) The technology I'll use in scenario c is "3G" because:
- It provides security.
- International roaming
- It supports video conferencing.

d) The technology I'll use in scenario d is "Satellites Network" because:
- It covers larger area ranging from 100-6,000 Km.
- It supports GSM (Global System for Mobile communication) technology.

e) The technology I'll use in scenario e is "Wifi" because:
- Sharing files and folders on a home group.
- Accessing shared files.

f) The technology I'll use in scenario e is "2G" because:
- It uses GSM technology.
- Its applications are voice messages and short messages.