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 (Section 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.)
Answer:

Mobile Network is basically radio waves through which the data is Transferred While Wired Network uses physically existing wires in which through electrons or electricity the data transmission is carried out. Electricity is more fast as compare to radio signal so in wired networks the data flow is higher. Wired network have dedicated path for data flow where data loss is much lesser as compare to wireless networks, although wireless networks uses air as medium for transmission. Data collision/ packet loss occurs more in mobile networks as compare to wired network.

Q2.)
Answer:

MINITURIZATION:

Miniturization is a trend to develop new, smaller in size but powerful chips which can perform a hardware task more efficient and accurate. Miniturization is the technique to make hardware devices more reliable and perfrom new functionalties.

PORTABILITY:

Portability is a technique to make hardware smaller in size in order to make it easier to move and convenient to use. The hardware devices are made small but there performance is increased.

Both technologies works in making the hardware devices smaller yet portable.

Q3.)
Answer:
1) It is a process in which similar things combine together and make a single system, while in divergence system comprises of one single thing
2) Convergence focus on integrating technologies while divergence is targeting one single technology
3) Examples of convergence:
   Smart phones
   Examples of divergence:
    Music player , Camera, Games

Q4.)
Answer:
For text chat, recorded audio message I would recommend TCP(Transmission Control Protocol) due to the following reasons:-
   i.   It is more reliable as it insures the data delivery to destination
   ii.   The ratio of data loss is very low because retransmission of lost packets is possible in TCP

For live vedio conferencing I would recommend UDP (User Datagram Protocol) Because :
  i.   UDP is faster, simpler and more efficient than TCP.
  ii.   UDP is efficient for broadcast and multicast type of network transmission.

Q5.)
Answer:
   a) The technology I will use in this scenario is **5G** because
         ➢ High resolution vedio streaming
         ➢ Extremely high speed
         ➢ Low Latency

   b) The technology I will use in this scenario is **2G** because
         ➢ It uses GSM technology
         ➢ Its applications are voice messeges and short messeges.

   c) The technology I will use in this scenario is **3G** because
         ➢ High Security
         ➢ International Roaming
         ➢ It supports vedio conferencing

   d) The technology I will use in this scenario is **Satellite Networks** because
         ➢ Its covers large area ranging from 100-600KM
         ➢ It supports GSM(Global Sstem for Mobile communication) technology

   e) The technology I will use in this scenario is **Wifi** because
         ➢ Sharing files and folders on a home group
         ➢ Accessing shared files

   f) The technology I will use in this scenario is **2G** because
         ➢ It uses GSM technology
         ➢ Its applications are voice messeges and short messeges.