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:_____B_____

Question1: **Explain why wired networks have higher bandwidth in comparison to mobile networks.**   **(2)**
Answer: The wired network much faster than wireless network. There are several factors that make wired Ethernet connections preferable to wireless Internet: speed, latency, security, and stability.
Wired network connected between devices through separate cable which is used to connect each device to the network with each cable transmitting data at the same speed. A wired network is also faster since it never is weighed down by unexpected or unnecessary traffic.
The speed is one of the most important when transferring data through a local area network for instance. This is because wired connections transfer data from computers faster than Wi-Fi. However, the speed at which data can move between devices is not the same as your internet speed. Bandwidth is the ultimate bottleneck that will slow down the transfer of data between your office and the outside world**.**

Question2: Explain the relation between miniaturization and portability.   **(3)**
Answer: portability and maniturazition has relations because portability works of reducing the size until its comfortable while physically move easily and the logical structure should be small while the maniturazition works on system build part.
Example microprocessor, mobile phone which support the feature of portability**.**

Question3: Differentiate between convergence and divergence.   **(3)**
Answer: Convergence

The convergence is simply mean coming together of digital mobile devices such as personal digital assistants, mobile phone, music player etc., into the hybrid devices.

Divergence
The divergence generally means moving apart .which digital device work only for a specialized functionality rather than generalized ones. Example TV remote, music player in car 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)

Answer: Tcp/Udp

The tcp and udp are internet protocol for the text chat and recording audio message we will use tcp protocol because tcp is more reliable and offer guarantee connection between two application and data will not loss in tcp whenever it's found packets loss it assumes network internal congestion and slow down the transmission rate.

For the live video we will use udp because it is faster as compare to tcp .User will not want screen losses that's why upd continuously sending packets into an already congested network.

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.**
   Answer: In this scenario we will use 4G technology because 4G is keeping up the trends of new mobile generation every decade. It is based on orthogonal frequency division multiple access (OFDMA) with TDMA/FDMA in the radio part. It was introduced in 2011.The speed of 4G is 100Mbps to 1Gbps which support mobile web access ultra-high definition streaming, cloud computing, Ip telephony and video conferencing.

b) **A city wide network with only voice and SMS services.**
   Answer: In this scenario we will use 2G technology because the second generation of mobile telephony used digital signal for first time .The speed of 2G up to 65Kbps and it support text and multimedia message and better voice quality than first generation. It was launched in Finland 1991 and used GSM technology.

c) **A city wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing.**
   Answer: In this scenario we will used third generation mobile telephone began with the start of new millennium and offered major advancemant.it is based on wideband code division multiple access (WCDMA) with TDMA/FDMA in the radio part.
   The data speed is 144Kbps to 2Mbps and support web browsing, running web based application like video conferencing,multimedia,email and normal definition streaming etc.

d) **A global scale network with voice, SMS and Internet services.**
   Answer: In this scenario we will use Satellites network because satellite network are the modern communications technology. Satellites provide global scale network with voice, SMS and Internet services from orbit of earth by transmitting radio signal.

e) **A campus size network for information and resource sharing between 200 end devices.**
   Answer: In this scenario we will used Wi-Fi because all the device will be connect to a particular network and the resource of distributed system are made available to the user in following ways.

Data migration: Data is brought to the location of computation that needs access to it by distributed system.

Computation migration:

In computation migration computation is transfer rather than the data across the system.

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

Answer: In this scenario we will used 2G technology because which used digital signal for first time and when GPRS technology was introduced it enable web browsing ,email services and fast upload and download speed.it based on mainly TDMA and FDMA and access core network with global roaming.