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:_____A_____

Question1: Explain why wired networks have higher bandwith 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.**

Ans No 1: The bandwidth the transmission of data from one point to another over a network or internet is called bandwidth . The bandwidth of a wired network is higher then wireless or mobile network because the signal transmission in a wired is higher due to no interface of any other signal for example if you play game in pc direct from wired network then performance of game very good and range of net also very good because the medium of wired noise free transmission .the bandwidth of wireless or mobile is low because presence of other signal s.

Ans No 2 :Portability: means to move the device from one place to another place and to continue the same task which we start in other place. It make the system movable. Before we work in desktop which we cannot carry easy   And the use of new update and technology which make easy,

Miniaturization: by using new powerful update technology know day chipset is smaller in size perform the task more accurate and fast as compared old chipset. It used in mobile and laptop.it is also movable devices like mobile and laptop.

Ans No 3: Convergence: means spreading of line from one point. Multiple .Task perform in a single device is called Convergence Convergence is integrating types of digital mobile device .It is used to perform many task in single device like mobile phone which perform many task for example camera .Play music gaming telephone and etc.

Divergence:
Divergence mean moving part In mobile computing divergence describe the directional relationship of two trends .Divergence is used for one specific device the specific device is used for other specific device like we use remote for tv and ac or othere thing

Ans No 4: for text message and record audio message we used TCP (transmission medium protocol) why we used TCP for text message and audio message because it's a reliable mean it deliver data direct if data loss they will provide this data loss and try again.it slow in data transmission a compare to UDP.

For live video conferencing we used UDP (user datagram protocol). Because its support broadcasting in this communication very fast if in this we lost data they will not say data loss for example video calling if you talking in video calling and connection lost they will not say from where you lost connection they will start live communication.

Ans No 5 : a) A city wide network with voice, SMS services and Internet services good enough for ultra-high definition streaming and video conferencing.
the right answer would be 4G and 5G 3G are not good because of lower bandwidth up to 25Mhz and lower internet service. And 4G have theoretical speed of 100-300Mbps and 5G have theoretical speed of 10-30Gbps . and we can use 3g for video conferencing but its not too good.for video conferencing we use 3G and 4G because of high internet speed. Wifi are also not good because of low speed this scenario cannot be used because they are used globally.

b) A city wide network with only voice and SMS services. 2G in this scenario. The other technology can also be used but they are used when internet comes into play. We can achieve both voice and SMS service with 2G and there is no importance of using 3G,4G and 5G as they are simpler tasks. Satellites are used globally for communication and cannot be used in this scenario.

 c)
A city wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing. 3G and 4G in this scenario. Both can provide users with normal definition streaming and video conferencing. 5G can also be used but it is not the ideal one and we can still have normal definition streaming on 3G and 4G. In city wide network Wi-Fi cannot be used.

d)   A global scale network with voice, SMS and Internet services. Satellites are to be used in this scenario. Satellite has the ability to receive data from small satellite dishes present on earth and transfer it to orbiting geostationary satellite. Global scale network can be achieved through satellite and there is no need of any other technology infrastructure. 3 satellites at 120 degree apart can cover the whole earth easily.

e)   A campus size network for information and resource sharing between 200 end devices. Wi-Fi fits best in this scenario. For a campus size network which is limited area Wi-Fi is suitable because it has limited area coverage. Information and resource sharing can easily be achieved on campus size network through Wi-Fi. For example, in INU we have to connect to the sportal through university Wi-Fi network to download our upload files.

f)   A city wide network with voice, SMS and basic Internet services. 2G and 3G. For voice and SMS 2G can be used because it works on GSM technology and for basic internet service we can use 3G because it have higher speed than 2G and it uses WCDMA technology.