

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

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Class and Section: B

Question1: Explain why wired networks have higher bandwidth in comparison to mobile networks. (2)

Ans1: The wired networks have higher bandwidth as compare to mobile networks because It subjects to much more generous bandwidth caps, it means you can transmit more data without running into data limits, wired network has higher resource machines as compared to mobile networks, higher power machines, it has low delay as compared to mobile network.

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

Ans2: The relation between miniaturization and probability is that with time things are getting more reliable than before, So if anything get portable than before it also need miniaturization, Suppose there was a time when in the past there will be computer doing only one function at a time but now everyone have portable laptops with high end features due to miniaturization we use such high end functions in small devices. These devices may have limited device capability and physical portability and with miniaturization it make the devices more reliable by down sizing the chi size engine size etc etc .

Question3: Differentiate between convergence and divergence. (3)

Ans3: The difference between convergence and divergence is that convergence means things coming together and divergence meaning that things moving apart or moving away. Convergence desire to enable as many different functions of Mobile computing from a single device.as smart phone is the main example of convergence as it acts as radio, phone, calculator, watch and many more. The divergence desire to enable single best device to perform as prime like DSLR 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)

Ans4: The TCP is stand for Transmission control protocol and UDP is User data-gram protocol. We will use TCP (Transmission control protocol) over UDP because TCP is connection oriented once the connection is establish and done data can be sent and receive bidirectional. While the UDP conectionless internet protocol. In TCP the if the chunks of data could not reach the destination point it again send the data and data can not be lose while in UDP if the data has been sent and do not reach the destination point the data is lost.so in audio message text chat live video we will use TCP because we don't want to lose any of our data. TCP have flow control between sender and receiver. Control of traffic control into network while UDP don't have.

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 A: In this scenario we will be using 5G network because its faster speed in transmission ,lower latency and therefore greater capacity of remote execution, stronger reliability, higher capacity and better mobility. It will have speed like fiber.it will have high resolution bidirectional large bandwidth shaping. So for SMS service and internet with ultra high definition streaming and video conferencing 5G will be used.It is tactile internet with service aware devices and fiber like speed.

- b) A city wide network with only voice and SMS services.

Ans b: In this scenario we will be using 2G network because it will provide small data service like SMS and MMS. 2g capabilities are achieved by allowing multiple users on single channel via multiplexing. So the 2G service will be enough for that.And it is designs primarily for voice using the digital standards.

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

Ans C: In this scenario we will be using 4G network.Because 4G LTE stand for (long term evolution) having data transfer rate of 100mbps downlink and 50mbps uplink. Uses OFDM (orthogonal frequency division multiplexing). Uses single carrier FDMA for uplink ,it also uses MIMO for enhanced throughput. It also reduce power consumption.it Quickly downloads files over wireless network, it also has extremely high voice quality, higher bandwidth and is 10 times faster than 3G.So we can use this network for SMS and Internet services and also for normal

definition and streaming conferencing. It is also called true mobile broadband on unified standards.

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

Ans D: In this scenario we will be using Satellite network because Satellite are the height of of modern communications technology.It also provide global access to information by transmitting radio signals from orbit around the earth. Mainly the communication satellites are used in networks by re-transmitting signals from a ground base to a large area of earth. Satellite is cost efficient because the cost of satellite do not increase with the increase of users or with the distance between communication point also it is superior in performance.So for global scale network with voice and SMS and internet service we will use satellite network.

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

Ans E: In this scenario we will be using WIFI network because the wireless nature of such networks allow users o access network resources from any location within their primary networking environment.like using network for printer sharing across the department or sharing software between multiple users.So we will use WIFI for a campus size for sharing resource between 200 end devices.

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

Ans F: In this scenario we will be using 3G network because web browsing, video downloading ,email and picture sharing etc were introduced in this generation.It facilitate greater voice and data capacity also it supports wider range of applications and increase the transmission of data in lower cost.It utilize new technology called (UMTS). 3G speeds up-to 3.1 mega-bite per second which is similar to cable modem speed. It was the first broadband utilizing IP protocols..