

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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Student Name: __Nouman Zafar_____ Student
ID#: _____6824_____

Class and Section: _____BS-SE(B)_____

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

Answer:

As the bandwidth describes the maximum data transfer rate .wired network have high bandwidth because it have high power machines, high resource access and have low delay in data transfer operation and never goes down by unexpected or unnecessary link.

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

Answer:

Miniaturization and portability are related to each other because both of them focus on how to build a device which is comfortable when it will be used on the move. portability states overall structure or physical size of device should be that much small that it can be moved easily while miniaturization on the other hand emphasis on the size of system build or architectural parts (e.g. microchips) that support feature of portability.

Question3: Differentiate between convergence and divergence. (3)

Answer:

Convergence

Integrating emerging types of digital mobile devices, such as Personal Digital Assistants (PDAs), mobile phones, music players, cameras, games, etc., into hybrid devices .The smartphone is the prime example of a convergent mobile device; it acts as a phone, a camera, a computer, an MP3 player, etc.

Divergence

Integrating emerging types of digital mobile devices, such as Personal Digital Assistants (PDAs), mobile phones, music players, cameras, games, etc., into hybrid devices for example the iPod, the Kindle, the laptop, the mobile phone, the DSLR camera, 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:

For Text messages

I will use the TCP protocol for the text messages because TCP/SMS provides reliable Bi-directional communications that ensure all data is received through the use of a reply SMS message containing a TCP message acknowledging received TCP messages, and through the retransmission of any non-received messages.

For recorded audio message and live video conferencing

I will use the UDP protocol for the audio voice message and live video conferencing Because it comes with Voice over Internet Protocol (VoIP) which enables delivery of voice communications and multimedia sessions over Internet Protocol networks, such as the Internet.

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

I will use fourth generation 4G of networks because it supports and comes with the solutions and features that allow user to use voice service through VOIP voice over IP protocol and for messages it uses GSM and for internet roaming it is supported by the UMTS Universal Mobile Telecommunication Service (UMTS) which is basically a broadband 3G technology, is also a part of 4G. This broadband technology transfers data in the form of frames or packets. Hence it is capable of carrying voice, video, text and other types of multimedia datagram with the speed of 2Mb.

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

Answer:

A best choice for network deployment in an area which is city wide network with voice and SMS services is 2G. The second generation 2G introduced a new variant to communication, as SMS text messaging became possible, initially on GSM networks and eventually on all digital networks. Today in many advanced markets the general public prefers sending text messages to placing voice calls

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

Answer:

3g will be used in given scenario because the third generation of networks allows network operators to provide bigger range and latest services for the public. It have bigger network because of heightened spectral efficiency. It uses CDMA for the wide area wireless voice service and video calls and broadband wireless communication. More feature of the 3G I s that I use HSPA for the better data transformation with data rate of 14.4 mbps at downlink and 5.8 mbps at uplink.

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

Answer:

The satellite internet network will be used in this case because the satellite network covers area globally. It comes up with high bandwidth. The 5g can also be used but the deployment of 5g is still in progress a lot of research had been carried out for the 5g and its usage with satellite. Therefore satellite is a better option.

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

Answer:

The Wi-Fi (wireless fidelity) network is used in this case the Wi-Fi is the name of a wireless networking technology that uses radio waves to provide wireless high-speed Internet and network connections.as in this case resource sharing is done on the between the campus therefore Wi-Fi is the best choice.

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

Answer:

The suitable network for this case will be the 2G .the second generation of networks provide basic internet as well as supported by the GSM services for voice and message.