

Important Instructions:

- **Open this MS-Word document and start writing answers below each respective question given on page 2.**
- **Answers the question in the same sequence in which they appear.**
- **Provide to the point and concrete answers.**
- **First read the questions and understand what is required of you before writing the answer.**
- **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.**
- **You can contact me for help if you have any doubt in the above instructions or the assignment questions.**
- **All questions must be attempted.**
- **Do not forget to write your name, university ID, class and section information.**
- **Rename you answer file with your university ID# before uploading to SIC.**
- **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: BSSE (Sec-A)

Question1: Explain why mobile networks are popular despite the fact that wired networks have more bandwidth. (3)

Question2: Explain the relation between miniaturization and portability. (2)

Question3: Which protocols stack the internet is based on TCP/IP or ISO (2)

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?

(5

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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? (

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- A city-wide network with voice, SMS services and Internet services good enough for ultra-high definition streaming and video conferencing.
- A city-wide network with only voice and SMS services.
- A city-wide network with voice, SMS services and Internet services good enough for normal definition streaming and video conferencing.
- A global scale network with voice, SMS and Internet services.
- A campus size network for information and resource sharing between 200 end devices.

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

Q1)

Ans) As wireless networks become increasingly popular, I look at the relative advantages and disadvantages when compared with wired networks. ... They also allow mobile devices, such as laptops, tablets and mobile phones to move around within the network ... Advantages of a Wireless Network over Wired.

- The Wi-Fi uses radio waves to transfer data while wired network uses electricity.
- The speed of electricity in wires is much faster as compared to radio waves in air.
- Wired networks use a dedicated line for data transmission in which the data loss ratio is much lesser than wireless networks which uses air for its transmission.
- Efficiency is affected more in wireless networks than in wired networks by increasing the distance.

Q2)

Ans) Miniaturization: The trend of developing new, powerful hardware chips that are smaller in size and can process tasks much faster than the existing ones.

Portability: Portability tends to make devices smaller in sizes yet making them convenient to be physically moved around easily.

Both of these techniques help in decreasing the size of hardwires while one works with increasing the efficiency the other one makes it easier to be carried around with.

Q3)

Ans)

The first protocol used in this military network was called NCP (Network Control Protocol) however, this protocol was not able to support the increasing data traffic in the network and it was necessary to develop a new solution to meet the demand, which came to be the TCP/IP suite of protocols. In addition to the need to use the TCP/IP model to access the Internet, The entity responsible for developing this standard was the International Organization for Standardization (ISO — International Organization for Standardization), thus, creating the Open Systems Interconnection model (OSI — Open Systems Interconnection). This model is called Open Systems, as it refers to open devices to communicate with other devices.

Q4)

Ans)

For texts chat and recorded audio messages the protocol I would prefer is TCP (Transmission Control Protocol) because:

- It is reliable in delivering data at right destination.
- It also provides acknowledgment in case of data loss and data is resent.

For live video conferencing I would use UDP (User Datagram Protocol) due to the following reasons:

- It supports broadcasting.
- Faster communication.
- Data isn't resent in case of data loss.

Q5)

Ans)

- The technology I'll use in scenario a is "5G" because:
 - High resolution video streaming.
 - Extremely high speed.
 - Low latency.
- The technology I'll use in scenario b is "2G" because:
 - It uses GSM technology.
 - Its applications are voice messages and short messages.
- The technology I'll use in scenario c is "3G" because:
 - It provides security.
 - International roaming
 - It supports video conferencing.
- The technology I'll use in scenario d is "Satellites Network" because:
 - It covers larger area ranging from 100-6,000 Km.
 - It supports GSM (Global System for Mobile communication) technology.
- The technology I'll use in scenario e is "Wi-Fi" because:
 - Sharing files and folders on a home group.
 - Accessing shared files.
- The technology I'll use in scenario e is "2G" because:
 - It uses GSM technology.
 - Its applications are voice messages and short messages.