

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: **8th** Semester //section **(A)**

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

(2)

(Ans) : wired networks are generally much faster than wireless network. This is mainly because a separate cable is used to connect each device to the network with each cable transmitting data at the same speed.

Question2: Explain the relation between miniaturization and portability.

(3)

(Ans) : Miniaturization of electronic components has made it possible to build a small portable and handheld computer device that can be carried almost anywhere at any time. smaller and lighter device having high processing capacity. The equipment become more variable and can be easily hidden inside cloth or embedded in hand bag.

Portability : is that which is portable to be easily carried out for long Period with no problem and work properly every wear.

Question3: Differentiate between convergence and divergence.

(3)

(Ans) : convergence generally mean coming together while divergence Generally mean moving apart. In the word of finance and trading Convergence and divergence are terms used to describe the directional Relationship of two trends, prices, or indicator.

Convergence :

Most traders refers to a convergence when describing

the price action of a futures contract there convergence describes
The future price and cash price of the commodity moving closing together.

Divergence :

Is the opposite of convergence when the value of an asset
Indicator, or index moves, the related asset indicator, or index moves
In the other direction and in some cases may lead to the price changing
Direction.

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)

(Ans) VoIP apps using the public Internet as their base of operation also work
similarly to what we have described above. In terms of Call signaling, VoIP apps like
Skype and WhatsApp use their own proprietary protocols. For example, WhatsApp
previously used a version of the Extensible Messaging and Presence Protocol (XMPP),
but it seems they have moved to their own protocol now. Most of them also use some
form of RTP/UDP to carry the voice packets. In terms of voice codes, the last known
voice codec used by Skype is called SILK while WhatsApp and Facebook Messenger
use Opus, a variant of SILK.

Note: Most of these VoIP apps like Skype and WhatsApp use encryption to protect
communication and this makes it difficult to really probe into the protocols in use.

However, with apps working over the Internet, there are additional challenges that
must be

How will calls be set up between users that can be in any location in the world?
Many users of these apps connect to the Internet via a private network (Wi-Fi or 3G/4G)
which means that Network Address Translation (NAT) is probably in use. Since
communication over the Internet requires a public IP address, how will two-way
communication be set up between the calling parties?

We can use a scenario to explain how these apps solve both challenges. Imagine a
User_a wants to make a VoIP call to User_b using WhatsApp/Skype/Messenger.
User_a only knows the username/phone number of User_b but it doesn't know her
public IP address.

voip on internet. Router Freak

This means there needs to be a central repository that stores the mapping between
username/phone number to the public IP address on which that user was seen. I can
assume that this list will need to be constantly updated as mobile users move around
a lot.

voip on internet. Router Freak

So in the simplest case, User_a will reach out to one of the servers of the app he is
using asking for the public IP address of User_b. The app will check its database for

this information and send back to User_a. User_a can then use this information to open a session to User_b (assuming a peer-to-peer model)

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) 5G for city wide network because 5G is very fast and provide ultra_Hd streaming and having low letency
For this senerio its good option..

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

(Ans): 3G will be very good for this because it will be good
For this task and perform it quickly with no hesitation..

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

(Ans) :3G is the best option for normal streaming and video coconferencing
3G will do it easily with no problem and will work will.

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

(Ans):satellite is good for this because it is globe so if there is issue
In other network facing problems so satellite is best option
For the globe scale to control.

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

(Ans) : wifi will be the best option high MB wifi to control the campus and will
Have no hesitation on sharing resources and information between 200
No problem will be facing...

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

(Ans): 2G is best option for this because it is so simple it will work
better on 2G no higher network is required...