

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 (no MS Word) and upload it to SIC unzipped, before the deadline mentioned on SIC.**
- 11) Do not make any changes to the format provided.**
- 12) Failure in following the above instructions might result in deduction of marks.**

Final Exam, Course: - Mobile Computing

Deadline: - Mentioned on SIC

Marks: - 50

Program: - BS (CS), BS-SE

Dated: 24 June 2020

Student Name: Qazi Shahzaib

Student ID#:13027

Class and Section:8 sem Sec A

Q1: Provide the names of 4 challenges that exist in Adhoc Networks.

(4)

Ans: There are a lot o challenges in design performance and deployment of ad hoc which are as follow:

1) Routing:

The responsibility of any routing protocol:

1. Determining a feasible path to a destination based on a certain criterion.
2. Discovering storing and exchanging routing information.

2) Transport Layer Protocol:

The major functions of transport layer protocol are as follow:

- 1.Flow control
- 2.reliable end to end delievery of data packets
- 3.setting and maintaining the end to end connections

3) Scalability:

1. contain the only a limited number of nodes
2. it may not be good examples of adhoc performance.

4) Secuirty:

What actually makes the adhoc more vulnerable to attack:

1. The lack of central coordination
2. The shared wireless medium

Q2: How the nodes in the Adhoc Network know about the changing network topology. (2)

Ans:

- The new nodes notify their existence and listen to the broadcast announcementny their neighbours.
- Each node learn about the other people who are nearby and how to approach them and can announce that it can also reach them.

Q3: Why is it important to minimize flooding of control packets in Adhoc Networks and how MPR achieves it? (4)

Ans: MPR is also proposed on an intelligent mobility management procedure to handle the multicast mesh. In other words you can say that the receiver compares the paths and determines which one is the best the source is after that informed of this fact for the future routing this intelligent procedure can maintain and optimize the multicast mesh by monitoring the inset traffic and learning about the link states the mesh. By employing the procedure 10D-MRP can guarantee that there is always a path the stable and optimal one between the multicast senders and receivers.

Q4: Explain briefly how Mobile Cloud Computing is different than simple mobile computing and simple cloud computing? (4)

ANS: Mobile Computing is a consumer or user facing technology where as cloud computing is a business and company facing technology the cloud computing is aimed at enterprise both of the cloud computing and mobile computing uses wireless service to transmit the data and whereas the Mobile Cloud Computing (MCC) is a simple cloud computing in which at least some of the devices involved are mobile. MCC is the combination of the cloud computing and mobile computing to bring rich computational resources to the users of mobile the network operators and as well the cloud computing providers.

Q5: Explain the term MBaaS in your own words? (4)

Ans: MBaaS (Mobile backend as a service) it is also known as backend as a service. It is the model which provides web app and mobile app developers with a way to link their applications to the backend cloud storage. The services are provided through the use of custom SDKs and APIs. MBaaS supports the mobile apps by offering various backend services such as push notifications cloud database storage social networking integration and more.

Q6: Imagine you visit a completely new city. What kind of services a modern LBS can provide you at your location automatically? (6)

ANS: If I visit to the completely new city the modern LBS should provide the following services at my location automatically

- Maps and Navigation
 - Routing
 - Assisted Navigation
- Tracking service
 - Traffic
 - Neary Banks ATM
 - traffic Jam
 - Vehicle Tracking
 - Nearby Markets

- restaurants
- Fuel Stations
- Information Services
- City Guides
- Social Events In city
- Nearby Playing Zone.

Q7: Use your imagination as to how the following context can be used by a context aware application in mobile computing environment?

(8)

Date/Time

Environment

Emotional state

Focus of attention

Orientation

User preferences

Calendar (events)

Browsing history

Ans: Context aware computing is a mobile computing paradigm in which the applications can discover and take the advantage of contextual information such as user location time of the day neighboring users and devices and user activity

- Date/Time: by pushing the notification or reminder of a daily used application.
- Enviroment: Showing the notification or news related weather.
- Emotional State: It shows the help and support
- Focus Of Attention: featuring thing by mostly used like cotacts apps etc
- Orientation: Guiding and helping the user to use.
- User Preferences: keeping tracks of users preferences
- Calender(events): showing reminders of an upcoming event
- Browsing History: Showing the news and adds related to the search history.

Q8: Explain why energy efficiency is important in technologies like Bluetooth and ZigBEE?

(4)

ANS: The ability of the devices to connect quickly with each other the energy of devices are higher in the intial stage just because of the full battery charge as it was found the ZigBee 26 channell wasn't interrupted by the other communications where as Bluetooth with the frequency hopping approach might face a stuck condition for ZigBee only channel 26 is usedBluetooth because of its specific protocol cant avoid the interface by default now we can concude that ZigBee technology can provide valuable support for large scale energy saving sensor networks. So the energy efficiency is must important in the technologies.

Q9: Explain briefly how you use RFID technology at INU on a daily basis when present on the campus? Do you use an active or passive tag?

(4)

Ans: RFID works on the Automatic identification and data capture (AIDC) techniques. The AIDC automatically identifies the object and collects the data about them. So in the university, this technology is better than cards swap because this method just identifies the object and marks its presence. In the university, we use the active RFID tag because active tags have both a microchip and an antenna which have more power and capabilities.

Q10: Explain how Wearable Computing can be employed in computer gaming? (5)

Ans: Wearing the computing can be employed in the computer gaming by using the VR headsets, knuckle strap, VR Remote controller, Tactical Gaming vests, and many others. All of them helps you to feel the gaming environment on a much good level. Some of them allows you to enter the virtual reality of the world of gaming.

Q11: What kind of facilities and technologies must be present in order to call your own home a Smart Home? (5)

Ans: Following are the facilities and technologies which must be present in order to call a home as a smart home:-

- Smart Outlets
- Smart Locks
- Smart doorbells
- Smart Thermostats
- Smart smoke and carbon monoxide detectors
- Robot Vacuums
- Phone-based Personal assistant
- Smart Kitchen
- Amazon Alexa
- Smart Lighting system.