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**

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Class and Section: B

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

ANS1: The 4 challenges that exist in Adhoc Networks are

1.No Centralized entity.
2.Mobile host is no longer host and end system.
3.Acting as an intermediate system.
4.Changing network topology.

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

ANS2: Adhoc incorporate set of mobile nodes connected wirelessly during a self - organized healing, network while not having a set infrastructure Manet nodes are liberated to move indiscriminately because the network topology changes often. Every nodes behave as a router as they forward traffic to other specific node within the network.

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

ANS3: In an Optimized Link State Routing (OLSR)-based Adhoc network, optimizing the flooding of broadcast messages is a challenging task due to packets mobility and bandwidth resource consumption.To complement existing solutions to this problem, the Multi- Point Relays (MPR) selection has recently been advocated as a promising technique that has an additional feature of reducing the number of redundant re-

transmission occurring in the network. It is important to minimize flooding of control packets in Adhoc Networks because flooding can be costly in terms of wasted bandwidth.while a message may only have one destination it has to be sent to every host.In the case of a ping flood or a denial of service attack, it can be harmful to the reliability of a computer network.Messages can become duplicated in the network.

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

ANS4: Mobile cloud computing (MCC) is simply cloud computing in which at least some of the devices involved are mobile. It explores both general-purpose mobile cloud computing solutions and application-specific solutions. It also discusses instances of mobile cloud computing where mobile devices serve as the cloud rather than the client. This paper goes over multiple techniques and methods for mobile cloud computing. In terms of simple mobile MCC is a larger terminology and it is a sort of network to simple mobile clouding.

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

ANS5: MBaas stands for Mobile Back-end as a Service. it is a model that provides web app and mobile app developers a way to link their app to the back-end cloud storage. cloud storage is a data storage model that stores in digital data as logical pool.On the other hand, an MBaaS also delivers features like user management, push notifications, and social networking service integration. The package of services is offered using SDKs and APIs

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

ANS6: Location-based services (LBS) use real-time geo-data from a mobile device or Smart phone to provide information, entertainment or security. Some services allow consumers to "check in" at city. Location-based services use a smart phone's GPS technology to track a person's location, if that person has opted-in to allow the service to do that. After a smart phone user opts-in, the service can identify his or her location down to a street address without the need for manual data entry.

For example we want to eat something we can check and find it through such as restaurants coffee shops. It also helps us in finding routes and where we want.

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

ANS7: Date/Time:

The date/time is improtant an user environment such as when the person entry in office and when he leave and also use for reminding some improtant work by mention date and time.

Environment:

In context environmen the application when sudent entry in the class the mobile automatically switch to silent mode and when he leave the class it back to normal mode.

Emotional state:

According to context Emotions in general can overwhelm the human body, which responds through various signals that are manifested in physical and physiological forms. Physical responses include facial expressions, voice intonation, gestures, and movements, whereas physiological response indicators relate to respiration, pulse rate, skin conductance, body temperature, and blood pressure

Focus of attention:

The system should give important to the attention of user through context aware system can provide some services like in the phone call avoid unnecessary interruption or when the message arrive on the phone flashes a notification in every 30 second. This context we should need to provide and renew the old version with latest updated

Version to remove unlike feature or make them more efficient in the applications

Orientation:

Orientation means the context aware system have capability to provide user device to adjust the screen in every change fro example auto rotate mode in smart phone.

User preferences:

This context should be use to save user data to show that data in different activities of mobile application.

Calendar (events):

This context is used by mobile applications even for events to get notification when that event is happen that is very helpful to remember the coming events or save the recent event for next year

Browsing history:

The context aware of browsing is when system off due electricity or some other issues the system browsing system the history or automatically restore the recent pages.

Q8: Explain why energy efficiency is important in technologies like Bluetooth and ZigBEE? (4)

ANS8: Bluetooth is a very common technology of nearby connection. It can be used for sending files connecting with audio devices cars etc. Energy efficiency technologies are used because it helps and complete the needs of users, it is used to consume less battery and works more with a higher range. ZigBee is an uncommon technology to be used for vehicle communications, as it was designed for smart home device networks, being capable of fast data transfers (at low data rates) between a substantial number of devices. ZigBee may use fixed (pre-selected) channels, that may be chosen far enough from usual interference in 2.4 GHz frequency band. ZigBee uses an interference mitigation technique (frequency agility mechanism that can be divided into three phases: interference detection, channel evaluation and interference mitigation. The main feature of this technology is its very efficient use of energy

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)

ANS9: We will use RFID for item tracking at INU on daily basis when present on the campus. We will use active RFID fro item tracking because it requires low signal strength and high range passive,

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

ANS10: Wearable computers can be use as gaming computers as some of products are available in the market which can be wear and play games. VR headsets are the best example for the wearable gaming computers. These type of technologies use gyroscope and tracking sensors for the better experience of gaming.

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

ANS11: Smart home technology, also often referred to as home automation , provides homeowners security, comfort, convenience and energy efficiency by allowing them to control smart devices, often by a smart home app on their smartphone or other networked device. Having a smart home means connecting max of electrical appliances to mobile phone such as fridges , air condition , water pumps, electrical other appliances such as medical instruments ie bp set steaming and exercising machines. Connecting mobile phones mean that it can be easily access from any place through internet. Having Smart home is much safer and easier life. Smart TVs connect to the internet to access content through applications, such as on-demand video and music. Some smart TVs also include voice or gesture recognition.