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:_____BS SE B_____

Q1: **Provide the names of 4 challenges that exist in Adhoc Networks.**   **(4)**
Ans1;
　　1; Infrastructure-less design.
　　2; Dynamic topology**.**
　　3; Scalability.
　　4; Energy constraints**.**

Q2: **How the nodes in the Adhoc Network know about the changing network topology.** **(2)**
Ans2:Proactive Routing protocols;
　.Energy node maintains routing table containing information about network topology.
　.Routing tables are updates periodically whenever the network topology changes.
　.these protocols maintain different numbers of routing tables varying from protocol to protocol.
　.Advantages:
　　　　Route immediately available.
　　　　Minimize flooding.
Q3: **Why is it important to minimize flooding of control packets in Adhoc Networks and how MPR achieves it?** **(4)**
Ans3: Important to minimize flooding of control packets in Adhoc networks and MPR achieve:
　This factor is not well controlled can lead to increasing packets loss to objectives of MPR is to reduce the number of flooding MPR achieve it by multipoint relay minimizes the flooding of broadcast packets in the network by reducing duplicate retransmission in the same region.
Q4: **Explain briefly how Mobile Cloud Computing is different than simple mobile computing and simple cloud computing?** **(4)**

Ans4:Cloud computing uses distribution network to process data while mobile computing the user can access the internet using browsers and transfer different kinds of data using satellite.

Mobile computing;
It is a consumer or user facing technology while cloud computing is a business or company facing technology.

Cloud computing;
Is aimed at enterprise. both cloud computing and mobile computing use wireless service to transmit data.
Cloud computing is about designing new technologies and services that would allow wireless or hardwired data sharing over distributed networks.

Q5: Explain the term MBaas in your own words?   (4)
Ans5:Mobile Backend as a service (MBaaS);
MBaaS is also known as a backend as a service.it is a model for providing a web app and mobile app developers with a way to link their applications to backend cloud storage and APls exposed by back end application will also providing features such as user management, push notifications, and integrated with social networking service.

Q6: Imaging you visit a completely new city. What kind of services a modern LBS can provide you at your location automatically?   (6)
Ans6:The Global positioning system GPS is a satellite based navigation technique that is used worldwide because of wide speed coverage it can be used to track the position it the mobile GPS is enabled. So the LBS

Location based Service(LBS):
LBS allows consumer to receive service based on their geographic information about restaurants, retail store, and travel arrangements. Such services can be provided in response to a customers manual input of his or her location to track location of the consumer automatically.

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:Imagination the following context used aware application in mobile computing environment:
1; Date/Time:-
Context date and time should be use by the user they are automatically update on the bases of GMT where they are located in different countries they have different time.
2;Environment:-
Environment is dependent on technology for activity logs in mobile computing environment changes without user intervention.
3;Emotional state:-

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

4;Focus of attention:-
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

5; Orientation:-
The context focus on the movement of phones like screen rotation.

6;User preferences:-
This context should be use to save user data to show that data in different activities of mobile application**.**

7;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.

8;Browsing history:-
This context is used in mobile as well as desktop to access useful and recent information in less time or even access to bookmarks where we can save the important websites **to** access them easily**.**

Q8: **Explain why energy efficiency is important in technologies like Bluetooth and ZigBEE?** **(4)**
Ans8:Energy efficiency is important in technologies like Bluetooth and Zigbee:
Universal Radio interface for wireless connectivity energy efficiency is important because is use for data transmission over wireless network it that device is not efficient the result of data transmission will not be accurate .Bluetooth has high speed low 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;RFID technology at INU on daily basis;
We will use RFID for item tracking at INU on daily basis when present on the campus. We will use active RFID for item tracking because it required low signal strength and high range then passive.
INU
On daily basis I also use RFID technology
1. First I swipe my card for entry.
2. Then I swipe card for attendance.
3. Swipe card for subject , timetable.

Q10: **Explain how Wearable Computing can be employed in computer gaming?** **(5)**
An10;Wearable Computing can be employed in computer gaming:
Wearable computing can be employed in computer gaming through augmented reality which overlying virtual information on real world this realities enhance the senses.

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

Ans11: The facilities and technology that present in order to call you own home a smart house are;

1; SMART TV:

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**.**

2;SMART LIGHTING SYSTEM:

In addition to being able to be controlled remotely and customized, smart lighting system such as HUE from Philips lighting holding B.V., can detect when room and adjust lighting as needed.

3;SMART THERMOSTATS:

Smart thermostats such as Nest from Nest lac inc., come with integrated wifi, allowing users to schedule, monitor and remotely control home temperature**.**

4;SMART LOCKS:

Using smart locks and garage doors openers. users can grant or deny access to the visitors. Smart locks can also detect when residents are near and unlock the doors.

5;SMART SECURITY SYSTEM:

With Smart security cameras residents can monitor their homes when they are away or on vacation.

6;SMART PET CARE SYSTEM:

Pet care can be automated with connected feeders.

7;SMART HOUSEPLANTS SYSTEM:

Houseplants and lawns can be watered by way of connected timers**.**

8;SMART HOUSE HOLD MONITOR SYSTEM:

Household system monitor may for example sense electric surge and turn of appliances or sense water failure or freezing pipes and turn off the water so there isn,t a flood in your basement.

etc

THE   END