

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: FAYYAZ MUHAMMAD

Student ID#: 14294

Class and Section: BS(CS) 5TH SEMESTER

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

(4)

ANS:-

Challenges for ad hoc wireless are given below:-

1. Security and Privacy:

- In the specially appointed remote systems the parcel of information is almost no protected. Through neighbor validation, a customer can understand it neighboring customers are cordial or compromising. For security of bundle we should need to use strategy of information encryption.

2. QoS Support:

The QoS of specially appointed remote systems relies upon the accessible asset just as on the portability paces of such assets. The three essential requirements identified with the nature of administration are Bandwidth imperatives, Dynamic topology of systems, constrained handling and putting away limit of versatile hubs.

3. Energy Efficiency:

Specially appointed gadgets today's are generally worked by batteries. Battery innovation is falling behind chip innovation.

4. Spectrum designation and Purchase:

Range is a boundless asset that is constrained at whatever snapshot of time yet through its different elements of usage: space, time, recurrence and data transfer capacity can be appropriated to various clients at the same time

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

ANS:- MANET centers are permitted to move self-assertively as the framework topology changes a great part of the time. Each center carry on as a switch as they forward traffic to other decided center point in the framework.

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

ANS:- Multipoint Relay restricts the flooding of impart packs in the framework by diminishing duplicate retransmission in a comparative region. all benefits can be supervised successfully by settling versatility issues

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

ANS:-

Mobile cloud computing:-

Mobile cloud computing at its simplest, refer to an infrastructure where both the data storage and data processing happen outside of the mobile devices. Mobile cloud applications move the computing power and data storage away from mobile phones and into the cloud, bringing application an MC to not just smart phones users but a much broader range of mobile subscribers.

1: Limited versatile assets

Battery, stockpiling, preparing, organize, ...

Consider exchange offs!

2: Permanent stockpiling

Reinforcement (dependability), long haul stockpiling, anyplace get to (accessibility)

3: Data sharing

Web based life, sensor information, joint effort, maker customer, ...

4: MCC takes into consideration dynamic provisioning

- Resources consistently accessible; no requirement for reservation
- Mobile applications can be scaled to satisfy client needs
- Services can be included and extended without any problem
- Multiple administrations can be incorporated through cloud

5: New/extra administrations conceivable (or simpler)

- Mobile installment
- Push warnings
- Advertising
- Analysis instruments
- Social arrange joining
- User the executives devices

Q5: Explain the term MBaaS in your own words?

(4)

ANS:- MBaaS represents Mobile Backend as a Service. In basic words, it is a model that gives web application and versatile application designers an approach to interface their application to the backend cloud storage.(cloud capacity is an information stockpiling model that stores advanced information in coherent pool.) It likewise gives some astonishing highlights like User Management, Push notification(general notice pop-ups used to tell clients about the new items or plans and so forth , these are additionally used to cause clients to return to the application), coordination with the long range informal communication administrations. Every one of these administrations are given utilizing the product advancement kits(SDKs) and application programming interfaces(APIs).

SDKs: SDKs are the product improvement instrument, these are utilized to make different programming applications, bundles, structures and so forth. The engineers utilize these apparatuses to grow high usefulness and top notch applications.

APIs: APIs are the sure arrangement of rules, conventions, devices for building applications and software's. These are the essential structure squares which are assembled by any designer to construct their applications.

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

(6)

ANS:- A LBS permits purchasers to get administrations dependent on their geographic data about eateries, retail locations, and travel courses of action. Such administrations can be given because of a clients manual contribution of their area to follow the area of the customer consequently.

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

Ans:-

(8)

Date/Time

- Provide time, date and day information.

Environment

- Provide network connectivity, communication links, temperature, lightning, location updates.

Emotional state

- Includes psychology, habits, emotions etc related information.

Focus of attention

- includes notifications, deliveries, that can be used by context aware application in mobile computing.

Orientation

- The device's current location, built-in accelerometer, and compass in mobile devices.

User preferences

- Includes color, font type, font size, brightness, general settings etc.

Calendar (events)

- Contain User's time schedule information based on events and time e.g. events, parties, assignment, birthdays, festival etc.

Browsing history

Mobile computing environment give access to personalize web search using browsing history, user accounts and passwords.

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

(4)

ANS:- ZigBEE is the essential part of this development is its incredibly compelling usage of essentialness. it is exhibited to be a really strong correspondence, more trustworthy in fact than Wi-Fi or Bluetooth.

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:- • A gathering contraption passes on and get radio signs.

- These signs are gotten and returned by a RFID tag with data included.
- A peruser which is encouraged with a structure perceives and stores these information called occasions eventually they trigger activities.

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

(5)

ANS:- Wearable tech is serving to untether representatives from their work territories while up 'til now helping them hold a finger to the beat of their business. For example, with sharp watches, you gain induction to timetable and course of action refreshes. Not in the slightest

degree like telephones and tablets, wearable tech passes on a critical piece of a comparable information and features while keeping hands free for various endeavors.

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

ANS:- 1) Lightning:

Light should be related with the sensor that perceive a person in/out limit.

2) Security cameras:

Reconnaissance cameras should be presented in each edge of the home.

3) Fire Alarm System:

Light should be related with the sensor that perceive smoke and send your admonition msg to fire separation and to your versatile.

4) Automatic Door Lock:

Customized gateway lock should have related with one of a kind imprint and voice or mystery key of home loan holder

5) Automatic Home devices:

We can on/off AC,TV,Speaker,Lights and diverse contraptions.

(5)