

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.**

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Final Exam, Course: - Mobile Computing

Deadline: - Mentioned on SIC

Marks: - 50

Program: - BS (CS), BS-SE

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Student Name: Muhammad Hamza Student ID#: 13136

Class and Section: 8th semester sec: B

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

Ans: challenges that exist in adhoc network are.

- Energy conversion
- scalability
- low quality communications
- resources constrained computation

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

Ans: Wireless ad hoc networks have dynamic network topologies. Network nodes of a wireless ad hoc network connect to other network nodes through wireless links. The network nodes are mostly mobile. The topology of a wireless ad hoc network can change from time to time, since network nodes move around from within the range to the outside, and new network nodes may join the network, just as existing network nodes may leave the network.

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

Ans: The multipoint relay minimize 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)

Ans: Cloud Computing affords a bridge between the client's local or closed networks and their private data storage & backup systems. Mobile computing allows a barrage of functions including accessing the internet through browsers, supporting multiple software applications with a core operating system, and exchanging a varied range of data types.

Typically, mobile computing is more or less a consumer-facing service. Cloud computing on the other hand is something that is the preferred solution for a great number and variety of businesses & companies.

Mobile computing uses the concept of cloud computing. Cloud computing provides users the data which they required while in mobile computing, applications run on the remote server and give the user the access for storage and manage

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

Ans: MBaaS stands for Mobile Backend as a Service. In simple words we can define it is a model that provides web app and mobile app developers a way to link their app to the backend cloud storage. cloud storage is a data storage model that stores digital data in logical pool.

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

Ans: LBS allows consumers to receive services based on their geographic information about restaurants, retail stores and travel arrangements. Such as services can be provided in response to a customers manual input of his location to track the 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?

Date/Time

Environment

Emotional state

Focus of attention

Orientation

User preferences

Calendar (events)

Browsing history

Ans:

- **Date/time:**

According to the context aware system the date and time for the user should be provided by the system on his current location and provide user a option to change date and time according to his area of living it should be displayed on the screen by design made of user centric approach.

- **Environment:**

The environment is key factor in the context aware system should focus on the how the system reacts at the environment changes.

- **Emotional state:**

According to context aware systems emotional state of user can be affect mobile computing environment.

- **Focus of attention:**

The system should give importance to the attentions of user. Through context aware systems they can provide some services like in the phone call avoid unnecessary interruption or when the message arrives on the phone flashes a notification every 30 seconds eventually the user will ignore it.

- **Orientation:**

Orientation means the context aware system have capability to provide users device to adjust screen in every change.

- **User preference:**

The context aware system maintain the user preferences by providing the user with certain options such as in the mobile phone color density control, high or dark mode in the phone wallpaper or theme change control.

- **Calendar (events):**

The context aware system focuses on the system time zones and global date and this way the user have the personalized calendar and keep Trak of the event which will occur different to different user according to his area.

- Browsing history:
Browsing history in the context aware system is that now user can keep track of his browsing on internet and have privacy control.

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

Ans: The energy efficiency is important in technology like Bluetooth and zigbee because universal radio interface for wireless connectivity efficiency is important it is use for data transmission over wireless network if 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)

Ans: we are using RFID technology card swipe for the attendance and also use for entrance at INU on the daily basis when we are in the campus. We are using passive tag because RFID only use in universities.

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

Ans: There is an exceptional opportunity for contemporary game developers to build apps designed particularly for wearable devices that yield highly sophisticated gaming experience for users. It is known that the gaming applications designed for wearable devices possess the capability to integrate built-in elements from the devices like gyroscopic motion sensing and gesture tracking to serve an interactive game experience.

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

Ans: A smart home is a residence that uses internet-connected devices to enable the remote monitoring and management of appliances and systems, such as lighting and heating. Smart home technology, 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. A part of the internet of things, smart home systems and devices often operate together, sharing consumer usage data among themselves and automating actions based on the homeowner's preferences.