

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

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Class and Section: _A_

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

Answer:

Challenges in Adhoc Network:

- **Infrastructure-less design** adds difficulty in fault detection and management
- **Dynamic topology** results in route changes and packet loss
- **Scalability** is still unsolved, challenges include addressing, routing, configuration management, interoperability, etc.
- **Varied link/node capabilities** cause variable processing capabilities
- **Energy constraints** limit processing power; ad-hoc networks rely on each node being a “router”

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

Answer:

- Nodes are not familiar with the topology of their networks
- They have to discover it:
 - a new node announces its presence and listens for announcements broadcast (beacon or “alive” messages) by its neighbors
 - Each node learns about others nearby and how to reach them, and may announce that it too can reach them

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

Answer:

It is important to minimize the the flooding of broadcast packets in adhoc 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)

Answer:

Mobile cloud computing:

Mobile cloud computing is defined as a simple cloud computing in which at least some of the devices involved are mobile.

Cloud computing:

Cloud computing is a trend in which resources are provided to a local client on an demand basis Usually by means of the internet.

Mobile computing:

Mobile computing is a human computer interaction in which a computer is expected to be transported during normal usage anywhere anytime.

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

Answer:

MBaaS is services which allows the developer to connect their application to the backend of the cloud storage for processing and it also provide other common features such as user management, push notifications, social networking integration.

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

Answer:

If we visit a new city the **LBS** provides first get directions recommendation other information related to your location. Like weather, temperature, events, hotels, shops, gas station etc.

Q7: Use your imagination as to how the following context can be used by a context aware application in mobile computing environment? (8)

Answer:

Date/Time

The time is displayed on the phone to show the current time that helps us to do all the work on time.it shows the 12hrs time and also shows the 24hrs time and if we change our location or zone it automatically changes with the current location.

Environment

Phone display adjust the brightness of the display according to the environment.

Emotional state

If person wants to silent there mobile or make it flight mode and on the automatic answer mode that's the emotional state.

Focus of attention

If we want to take a picture on a camera and we want to focus on a part of that picture so it is easy for us to focus on that.

Orientation

The mobile screen fit the according to the screen if the screen is small it adjust it according to the screen if we want to play games so it automatically adjust the orientation to landscape or portrait mode.

User preferences

Users preferences to promote engagements with mobiles apps for diabetes self-management multi-national perspectives.

Calendar (events)

In the calendar a user can add there events or meetings with someone or kinds of appointment

Browsing history

Browsing history is an activity in which a users can see there activity which he did in past like he search something in the web browser and if he want to search all the activities so he can easily search in the web browser.

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

Answer:

Energy efficiency is important in technologies like Bluetooth and ZigBEE is because they are such types of technologies which work on wireless so if we want that wireless technology work more efficient and work for longer time so energy efficiency is important.

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)

Answer:

RFID card technology at INU on a daily basis when we present on the campus we use passive tag. Because passive tags not use internal power source and instead are power source by the electromagnetic energy transmitted or infrared from the RFID reader.

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

Answer:

Wearable computing is the study or practice of inventing, designing, building, or using miniature body-borne computational and sensory devices.

Use in Gaming

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. Because wearable tech devices turn prevalent among businesses and consumers, it is certain that the demand for applications which can execute on them increases. The utility and expediency of wearable devices would offer unique benefits for any business targeting to seek profit on the recent technological trends. There are several industries which have by now perceived the potential for the use of wearable computers. Furthermore, they have held on this budding trend in order to save money, save lives, boost efficiency, or develop interactive user experiences.

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

Answer:

Home Automation, often referred to as “Smart Home Technology”, is the use of technology to automate your home. Home automation allows you to control almost every aspect of your home through the Internet of Things (IoT).

Home Automation started with the invention of the Thermostat and has developed into one of the biggest and fastest growing markets in technology. Home Automation’s potential continues to grow. You can use it for home security, controlling appliances, monitoring energy use, as a personal assistant, for looking after the elderly or disabled and more.

In this guide, you will learn everything you will need to know about Home Automation. Not just how it works, but the different ways it can be used, and its downfalls. You will also find several helpful links to emerging Smart-Home products, just in case you run across a piece of technology you never knew you were missing.