# Final Exam, Course: - Mobile Computing

**Deadline: - Mentioned on SIC** **Marks: - 50**

**Program: - BS-SE** **Dated: 24 June 2020**

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**Class and Section:_____ BS-SE (8)**

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

**Answer :**

- Infrastructure-less design
- Security
- Dynamic topology
- Transport layer protocol
- Scalability
- Varied link/node capabilities
- Energy constraints
- Routing

**Q2: How the nodes in the Adhoc - Network know about the changing network topology?**

**Answer :**

Each node maintains routing table having information about network topology. This routing table updates periodically when network topology changes.

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

- MPR (Multipoint Relays) Reduce the flooding of broadcast messages Set of one-hop neighbors and two- hop neighbors To get the information about the one-hop neighbors, most protocols use some form of HELLO messages periodically
- 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?**

**Answer :**

| Mobile Cloud Computing | Mobile computing | Cloud computing |
|---|---|---|
| It refers to an infrastructure where both the data storage and the data processing occur outside of the mobile device.<br>Mobile cloud applications move the data storage away from mobile phones into the cloud ,bringing applications and mobile computing not only to smart phone users but also to a much broader range of mobile subscribers<br>Mobile cloud computing uses cloud computing to deliver applications to mobile devices.<br>These mobile apps can be deployed remotely using Speed and flexibility and development tools.<br>They can be delivered to different devices with different operating systems, computing tasks and data storage. | It is a technology that allows transmission of data, audio and video through a smart phone or any other wireless enabled device without having to be connected to a fixed physical channel<br>The mobile computing means to access data through portable devices like PDA, smart phone, tablet and so on. | Cloud computing is collection of remote servers in network to allow centralized data storage and online communication to computer services or resources .Internet and not on personal devices to provide on-demand access.<br>Applications are run on a remote server, all the processing task done on remote server and then result sent to the user. |

**Q5: Explain the term MBaas in your own words?**

**Answer:**

MBaas Stand for Mobile Back end as a Service .it is a specialized type of Platform as a Service that provides the server-side functions needed to make mobile applications possible.

i. A cloud-based storage facility for your data
ii. Automatic RESTful API generation providing read/write access to that data
iii. Over-the-wire optimized ways to access your data
iv. User management facilities for authenticating access to your data
v. A set of analytics that allows you to determine how users are utilizing your mobile app

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

**Answer :**

Recommending social event in a city .
Requesting the closest business or services like ATM , eating places or sale outlets.
Turn by turn navigation to any address.
Assistive health care systems.
Receiving alerts like notification of procurement on gas or warning of a traffic congestion.
Local based mobile advertising.
Contextualization learning and analysis.
Games where your location is an element of the game play , for instance your movements throughout your day build your avatar move within the game or your position unlock content.
Real time Q&A revolving around restaurants , services and different venues.
Sending a mobile caller location throughout emergency call using advance mobile location.

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

**Date/Time:**

According to the context aware systems 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 systems the system should focus on the how the system will react at the environment change for example in the noisy area or at night time or at daylight what's will be behaviors in different conditions for that there is option in phone to adjust brightness , screen density warm or cold.**

**Emotional state:**

**According to context aware systems emotional state of user can effect mobile computing environment for example**

**A loud alert is not ideal for all situations. In the same way language change ,color should be according to the user .**

**Focus of attention:**

**The system should give importance to the attentions of user. Through context aware systems the can provide some services like in the phone call Avoid unnecessary interruption or when the message arrive 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 the screen in every change for example auto rotate mode in Smartphone to adjusts the screen to the orientation of the device ,Apple Watch turns on display if arm lifted/rotated.**

**User preferences:**

**The context aware system maintain the user preferences by providing the user with certain options such as in the mobile phone color density control, light 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 track of the events which will occur different to different user according to his area.**

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

**Answer :**

Universal radio interface for wireless connectivity energy 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?**

**Answer:**

we will use active RFID for item tracking at INU on daily basis when present on the campus. we will use active RFID for item tracking because its requires low signal strength and high range then passive.

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

**Answer:**

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?**

**Answer:**

Smart Home Technology:

Smart home technology generally refers to any set of devices, equipment or systems connected to a shared network that can be controlled independently and remotely.

Facilities and Technologies:

- Smart Lighting.
- Smart Window.
- Access Control.
- Smart Security.
- Central Condition.
- Energy Management.
- Door Lock.