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.

Deadline: - Mentioned on SIC   Marks: - 50

Program: - BS (CS), BS-SE   Dated: 24 June 2020

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Class and Section: BSSE "B"

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

Answer:

The most common challenges in the Adhoc networks are
- **Infrastructure-less design**
- **Dynamic topology**
- **Energy constraints**
- **Varied link/node capabilities**

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

Answer:

The nodes in the Adhoc network discover the changing topology in two steps that is
- **When the new node announces its presence and listens for the announcements broadcast form its neighbors.**
- **Every node learns about nodes 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 flooding of control packet because we can maintain routing table and update it periodically the OLSR –Multipoint relays (MPR) achieve it by minimizing 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)**

Answer:
MOBILE CLOUD COMPUTING MCC:
Mobile cloud computing change the power of data storage from the mobile devices and
provides powerful and centralized computing structures that are located in clouds, which
are then accessed over the wireless connection based on a thin native client.
Difference between the simple cloud and the simple mobile computing is that MCC is
independents of constraints which will we be occur when using mobile or cloud computing
for example in mobile computing we had to face problems like Limited mobile resources,
permenant storage, data sharing but now by the cloude computing you cabn acces data
anywhere at any time with the millionsbyte storage at your fingertip without having a
physical state presence. And it is diferent from the cloud computing in factor of recource
pooling and shareing.

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

Answer:

MBaas (Mobile Backend as a Service)
It refers to the practice of providing services to power backend services these services could
be the data management, app security, notifications, rule platform, enhanced semantics,
seamless integration the MBaas comes to provide powerful architecture of backend cloud
services to the web and mobile developers . This is very helpful for the developers to
create better applications in efficient way. It is also provide free services for new developers
to make a powerful system and bring it to market more faster than the traditional way of
coding thousands of lines

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

Answer:
Imagining the city to which I am completely new . The LBS should provide the
services such as on the GPS basis it should provide the maps and navigation services,
routing assisted navigation generalized maps so where should I want to go in the city it will
give the right path to my destination , for the safety of myself it should give the tracking
services from which I can track and locate the my family members and friends and it also
five information services such as the yellow pages which means city rules and regulations,
safe areas and things to avoid in the city . For better stay at the city LBS should give me the
different choices of living in restaurants such as the luxury and cheapest hotels and
restaurants to rest . For the entertainment and enjoying the city traditional taste of food

amusements parks as well as the ATMS , banks , and the police stations .

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
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.

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)**

Answer:
Energy efficiency is the important in the wireless networking protocols which are used in the technologies like zigbee and the Bluetooth because of design problem, the policy of green technology, saving the business cost, and final user satisfaction .

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:
We use the RFID technology at INU on daily basis we use the passive tag because the RFID reader is used to read the tag in university campus we will only be able to use RFID at the campus.

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

Answer:
The wearable computing can be employed in the computer gaming such virtual reality it is very common in the gaming . same as playstation games
Had come up with the solution that can be used in computer gaming. Same as holo suit which is used in the gaming and many more gaming wearable solutions like the apple watch series 4 , oculus quest, jaguar –f pace etc.

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

Answer:
 The smart home facilities should include digital control on the home devices such as the CCTV camera which can be controlled through a simple mobile application and you can see what is going on in the home sitting anywhere in the world, the major smart home solution include ALEXA which is the IOT solution come up the integration with latest technologies such as the , Ecobee Smart Thermostat, amazon smart plug, Blink Indoor Camera System, Insignia 4K HDR Fire TVs etc.