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**

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Class and Section:____BS(CS5TH)_____

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

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ANS . the name of (4) challenges that in adhoc networks

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1 . security and privacy

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in the ad hoc network the packet of data is not much sencer . through neighbor authentication , a user can know it neighbor user are frincedly or hostile .

2 . multicaste

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the multicaste adhoc wriles networks is the multiple networks of a multiple pakset is racue in a multlple pakte in a same time .

3 . Qos support

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The quilety of a service has been define by the uniterd nations consulativatie committee for the international telephon and telegraphy (CCTT) .

4 . energy efficiency

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Ad hoc devices todays are mostly operated by batteries . battery technology is lagging behind microprocessre technology .

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And 4 other challenge name in adhoc networks

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Dynamic topology .a result in route changes and packets loss

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Saclability is the still unsolved . challenge include addersing , routing ,

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confugration , management , interoperbality , etc

Routing

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packet may need to traverse multiple links to reach destination .
Monility acusees route changes .

Energy constraint

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limited processing power adhec networks realy on each node being a route .

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

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ANS . adhoc netowrks about the chaninging network topology .

MANET hubs are allowed to move arbtriarily as the system topology change much of the time .

every hub carry on as a switch as then foword traffic to other determined hub in the system . ad hoc network is a network that is composed of individual devices communicating with each other directly.

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

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ANS .

Multipoint real limits the flooding of communicate bundle in the system by decrasing copy retransmission in a similar district . all assets can be overseen effectively by setting adaptability issues . A major issue in VANETs is the high mobility of the nodes. Broadcasting helps in improving the performance of the VANETs in terms of secure routing. However, broadcasting is a major overhead in VANETs.

Broadcasting is still a widely used technique in wireless ad hoc networks and is mainly used to transmit network control information and application oriented data.

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

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ANS .

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Mobile cold computing

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Mobile cloud computing is a simplest refer to an infrastrcure where both the data storage and when 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 could , bringing application an MC to not just smartphone user but a much border rang of mobile subscriber .

How it deffirent from simple mobile computing and simple mobile computing

1 limitted mobile resource bettry , storage , processing , networks,

2 permanent storages anywahere access

3 data sharing , social media ,sensor data , collaboration , producer consumer ,

4 MCC allows for avalibale no need for reasvation
Mobile application can be scaled to meet user demands
Serviers can be added and expanded easily
5 new additional servies possibal (or easier)
Mobile pament
Push notifaction
Advrsting
Anlylsis
Social networks integration
User manegments tools

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

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ANS . MBaaS stands for Mobile Backed as a Service. In simple words, it is a model that provdes web app and mobile app devlopers 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. MBaaS provide web and mobile app developer with a way to connect their applications to backend could storage and procesing withe also provsing common featuers such as user as management push notifaticion social networks instgration and other featcher that mobile usere damand from their apps these days .

Dsk . dsk are the softeware development tool these are used to craet various software application ,pakestes frameworks , etc , the delecpment use these tools to develp high quilaty apps

APls . apls are the creatie set of rule protocol tools for bibling the apps the software . these are the basic biling blocks whaich are put together by any development to bilid their apps .

The MBaaS these thunks working

1 rule platefome

2 technilogy

3 notifaction

4 enhanced

5 sealimes

6 app securlty

7 data synchronization

8 readt made app

example

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

ANS an SLB allow consumer to receive servies based on their geographic information about restaurnts retail stores and travel arrangments . suc serves can be provide in response to a contumer manual input of his or her location to track the location of the consumer automatically . IT APPEARS MORE TIMES IN THE FOLLOWING PAGES THAN WE CARE TO ... LIVE VIDEO IMAGES OF A TARGET WITH RECON PHOTOS IN r and THE ... YOU CAN VOTE FOR YOUR FAVORITE BEST OF WHAT'S NEW HONOREE AT

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

(8)

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ANS .

Date/Time

Provide time , date and day information

Environment

Provide networks conivecity ,communication link tempurater , lighining location update

Emotional state

Include physiclogy ,habits , emoutions , relatidrd information

Focus of attention

Included notifaction devices that cab be used by context awate application in mbile computing .

Orientation
The device current location , buite in accelecemeter , and compsss in mobile device .

User preferences
Include color size tye brithness general setting ect ,

Calendar (events)

Calendar use time shudel information dased on evevt and time

E g (event , parites , assignment ,

Browsing history

Mobile computing envriment give acces to persnolaztion web screech using browsing history ,user accuants and pawords.

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

(4)

ANS .ENERGY RFFICENCY IS IMPORTANT IN TECNOLOGY LIKE BLOUTHOOTH AND ZIGBEE

ZigEE is the primery compunents of this innovation is its extrmly effective utization of vitality . it is demonstrate to be a truly solid correspondence , more dependable in actuality than Wi – Fi or Bluetooth .

Bluetooth Low Energy (Bluetooth LE, colloquially BLE, formerly marketed as Bluetooth Smart) is a wireless personal area network technology designed and marketed by the Bluetooth Special Interest Group (Bluetooth SIG) aimed at novel applications in the healthcare, fitness, beacons, security, and home entertainment.

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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)**

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ANS .

A gathering contraption passess on and get radio signal .

These signal are gotten and retruned by a RAFID tag with information included .

A pursuer whith is facilitated with a structure recognize and store these data called evevts ultimately then trigger exercises .

Currently, low-cost Radio Frequency Identification (RFID) has been implemented widely in both industry and academic institutes as discussed by [12, 3, 4] where the technology was focused more efficient in terms of processing time. It saves time and money [5]. A contactless transfer of data between the data-carrying device and its reader is far more flexible than smart card and RFID technology provides this contactless ID system solution .

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

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ANS

Wearable tech is serving to untether employees from their work areas white as yet helping them hold a finger to the beat of their bussnisess . for instantce with keen watches you gain admittance to significant part of a similar data and highlight while keeping hands free for deiffrent undertakings .wearable computer, also known as a wearable or body-borne computer, is a small computing device worn on the body.

The definition of 'wearable computer' may be narrow or broad, extending to smartphones or even ordinary wristwatches.

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

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ANS . Facilities and technologies present in order own in home and smart home

Smart home technology, also often referred to as home automation or domotics (from the Latin "domus" meaning home), provides homeowners security, comfort, convenence and energy efficiency by allowing them to control smart devies, often by a smart home app on their smrtphone or other networked device.

The origins of the smart home

- With the 1975 release of X10, a communication protocol for home automation, the smart home, once a pipe dream a la *The Jetsons*, came to life. X10 sends 120 kHz radio frequency (RF) bursts of digital information onto a home's existing electric wiring to programmable outlets or switches. The concept of Smart Home or Medical Home aims at giving an autonomous life, in their own home, to people who would normally be placed in institutions: patients suffering from a chronic disease, handicapped people, and fragile elderly.

Present technology in a home and smart home

1 lightning

Light ought sensor to be associated with the sensor that recognize an with individual in / out capacity .

2 embedide system the embided system is the sensor of use to different thiks in the present time has very useful .

3 automatic home appartuess

We can off / on ac tv fane pc system etc.

4 car automatic system

Car automatic system in a car has off on in a doop ac syatem sound system and door lock and different works.

5 security camera

Security camera ought to be introduce un each edge of home office .

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