**KABARAK  UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**MAIN CAMPUS**

**SECOND SEMESTER 2020/2021 ACADEMIC YEAR**

**EXAMINATION FOR BACHELOR OF SCIENCE IN COMPUTER SCIENCE**

**COMP 340 MOBILE COMPUTING**

**STREAM: BSC CS Y3S2 TIME: 11:30-1:30PM**

**EXAMINATION SESSION: MAY – AUGUST DATE: 17/08/2021**

**INSTRUCTIONS TO CANDIDATES**

1. **Answer Question 1 and any other two questions in the answer booklet provided.**
2. **Do not write on your question papers. All rough work should be done in your answer booklet.**
3. **Clearly indicate which question you are answering.**
4. **Write neatly and legibly.**
5. **Edit your work for language and grammar errors.**
6. **Follow all the instructions in the answer booklet**

**SECTION A :( COMPULSORY) TOTAL MARKS FOR THIS SECTION IS 30.**

1. GSM distinguishes explicitly between the User, Subscriber Identity, Telephone Number and the equipment. Write a note on the following Adresses and Identifiers that help manage its functional complexity.
   * 1. IMEI **(2 Marks)**
     2. IMSI **(2 Marks)**
     3. MSISDN **(2 Marks)**
     4. Local Area Identity **(2 Marks)**
     5. MSRN **(2 Marks)**
     6. TMSI **(2 Marks)**
     7. LMSI **(2 Marks)**
     8. Call Identifier **(2 Marks)**
2. Explain any five strengths of SMS, also state where these strengths can be used.
3. Differentiate between SM MT and SM MO. **(4 Marks)**
4. Discuss the SMPP protocol, why and when it is used. **(4 Marks)**
5. Describe the difference between GSM and GPRS explaining the functions of network elements in GPRS that have been upgraded from GSM. **(6 Marks)**

**SECTION B. TOTAL MARKS FOR THIS SECTION IS 40.**

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION. EACH QUESTION IN THIS SECTION CARRIES 20 MARKS.**

**2.**

1. Explain how Data is handled in GPRS and also state in what respect Data Routing is Different from Voice Routing. **(5 Marks)**
2. Discuss any five Bluetooth Application Models **(5 Marks)**
3. Write a note on any five international Standards that regulate Mobile Computing and the Internet. **(5 Marks)**
4. Describe the concept of Multiple Access is and why it is important in mobile computing. **(5 Marks)**

**3.**

1. Discuss why the concept of Mobility management is an important aspect of mobile computing?  **(4 Marks)**
2. With the aid of a well labeled diagram discuss the architecture and functionality of the Existing Cellular Network. **(4 Marks)**
3. Write a note on any four advantages of WLANs. **(6 Marks)**
4. Kiprop wants to set up a Wireless LAN Network. What advice can you render him on security issues in WLANs and how to mitigate them? **(6 Marks)**

**4.**

1. Write a note on any three security and mobility issues affecting mobile computing.  **(6 Marks)**
2. RFID tags exist in diverse types based on their different classifications. Explain any three of these classifications in detail. **(6 Marks)**
3. Define the following terms:
4. Soft Handover. **(2 Marks)**
5. Seamless Communication **(2 Marks)**
6. Roaming. **(2 Marks)**
7. Context **(2 Marks)**

**5.**

1. RADIO Transmission and INFRARED have both been used in signal transmission. Differentiate between these two concepts outlining the advantages and demerits of each. **(4 Marks)**
2. Write a note on the following concepts.
3. Wireless fidelity **(2 Marks)**
4. Wi-Max **(2 Marks)**
5. With the aid of a well labeled diagram explain the M-TCP. **(4 Marks)**
6. Asses any four advantages of M-TCP. **(2 Marks)**
7. A corporation wants to set up some mobile computing systems to aid in its communication. Explain why it may settle on Mobile Ad-Hoc networks for the set up. **(6 Marks)**