

**ICT 9025**  
**Mobile Applications and Technologies**  
**Test 1**  
**[November 2021]**

**Full Name:**

**Student ID:**

**Instructions**

Answer *all* the questions

Mark allocation is indicated [in square brackets] on the right side of the questions

Duration: 1 hour 20 minutes

Total Marks: 35

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*Write your answers in the spaces provided*

- 1) Give the difference between Ubiquitous Computing and Mobile Computing [2]

**Answer**

- 2) Give the maximum data rate, in megabytes per second, that Bluetooth 2.0 can support [2]

**Answer**

- 3) Explain the difference between GSM and EDGE [4]

**Answer**

- 4) Explain what makes GPRS faster than GSM [2]

**Answer**

5) What is the difference between 3GPP and 3GPP2 [2]

**Answer**

6) Explain how CDMA2000 has better spectral efficiency than WCDMA [2]

**Answer**

7) Give one advantage that WiMAX has compared to CDMA2000 [2]

**Answer**

8) Regarding cellular networks:

a. Give the similarities and differences between SMS and MMS [4]

b. Explain how MMS messages are sent to legacy devices (non MMS capable devices) [2]

**Answer**

9) Regarding GSM: explain the difference between VLR and HLR [2]

**Answer**

10) Regarding GSM:

a. Explain what the LMSI is [1]

b. Which database allocates LMSI data [1]

**Answer**

11) List 2 security concerns of mobile computing and indicate how GSM mitigates those security concerns [2]

**Answer**

12) Give two differences between a BTS and a Node-B [2]

**Answer**

13) Regarding GPRS: briefly explain what the GMSC does [2]

**Answer**

14) Suppose a CDMA Base Station has the chip sequence 00101  
Give the code that would be transmitted to represent the data 1011. [3]

**Answer**

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Total: [35 marks]