(Knowledge for Development)

KIBABII UNIVERSITY
(KIBU)

UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR THREE SEMESTER ONE EXAMINATIONS

FOR THE BACHELOR OF
(INFORMATION TECHOLOGY)

COURSE CODE : BIT 311

COURSE TITLE : WIRELESS AND MOBILE COMPUTING

DATE: 21/07/2021   **TIME: 2.00 PM- 4.00 PM**

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY)   [30 MARKS]

a) Defines the term mobile computing   [2Marks]

b) List three categories of services as applied to GSM   [3Marks]

c) What are the function of the following layers in the Open System Interconnection (OSI) model   [8 Marks]

   i)   Physical Layer

   ii)   Application Layer

   iii)   Session

   iv)   Data Link Layer

d) Name two programming languages that can be used for android application development   [2 Marks]

e) Define a cell as applied to wireless and mobile computing   [2 Marks]

f) Write this Abbreviation in full and state the difference (IMEI) and (IMSI)   [2 Marks]

g) What is :

   i)   Mobile IP?   [2 Marks]

   ii)   Encapsulation   [2 Marks]

h) Consider the following Code

```
public void open_email (String order) {

    String[] cars = {"prestone@kibu.ac.ke"};
    Intent intent = new Intent(Intent.ACTION_SEND);
    intent.setData(Uri.parse("mailto:"));
    intent.setType("*/*");
    intent.putExtra(Intent.EXTRA_EMAIL, cars);
    intent.putExtra(Intent.EXTRA_SUBJECT, value: "Coffee Order");
    intent.putExtra(Intent.EXTRA_TEXT, order);
```

You are required to identify:

   i.   The name of the main method   [1 Marks]

   ii.   An Array used in the code and give its value   [2 Marks]

   iii. The compulsory properties of the intent and the values applied in the code

                                                                    [3 Marks]

   iv.   Input to the main method   [1 Marks]

QUESTION TWO   [20 MARKS]

a) Discuss any four Network types as applied to wireless and Mobile computing   [8 marks]

b) What is the difference between: [4 marks]

    i)   View and ViewGroup

    ii)   Object and Variable

c) Define the term Transmission Control Protocol as applied to mobile computing

[2 marks]

d) State any three advantages and three disadvantages of Transmission Control Protocol

[6 marks]

QUESTION THREE [20 MARKS]

a) What are the three subsystem of the GSM Architecture [3 Marks]

b) Explain the functions of the following units in the GSM architecture [8 Marks]

    i)   Visitor Location Register

    ii)   Mobile switching Center

    iii)   Base station controllers

    iv)   Base transceiver station

c) Discuss any 3 differences between Mobile IPV4 and IPV6 [6 Marks]

d) State any three disadvantages of using GSM network [3 Marks]

QUESTION FOUR [20 MARKS]

a) Define the following terms as applied to Android development [10 Marks]

    i)   Namespace

    ii)   Attribute

    iii) Class

    iv)   Function

    v)   Variable

b) Write a Code that will create a method called billing. This Method should take in one integer inputs namely, materials_cost. The method should calculate labour cost which is 30 percent of the material cost and save it as a String variable called labour. Then call the method from another method called project that returns null. [10 Marks]

QUESTION FIVE [20 MARKS]

a) Discuss three application of mobile computing [6 marks]

b) Like any technology, mobile computing has its own limitation. Explain two limitation of mobile computing [4 marks]

c) Using Examples differentiate between SDMA, FDMA and TDMA [6 marks]

d) Differentiate between minimal encapsulation and generic routing encapsulation [4 marks]