KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2022/2023 ACADEMIC YEAR
FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION TECHNOLOGY
SPECIAL EXAMINATION

KBI 2317 MOBILE COMPUTING

Date: 3rd August, 2022
Time: 11.30am – 1.30pm

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

a) Explain in detail three approaches for developing mobile applications.   **(6 marks)**
b) Explain any three core building blocks of android?   **(6 marks)**
c) Define the following terms: **(5 marks)**

      i.   Android SDK –
      ii.   API –
      iii.   Grid computing –
      iv.   Cellular network –
      v.   Frequency Reuse –

d) Explain in detail the Smartphone hardware architecture.   **(6 marks)**

f) Explain the android development snippet of code that is shown below?   **(3 marks)**

```
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.main_layout);
}
```

g) Explain the advantage of using context aware applications.   **(2 marks)**

h) What is the importance of settings permissions in app development?   (2 marks)
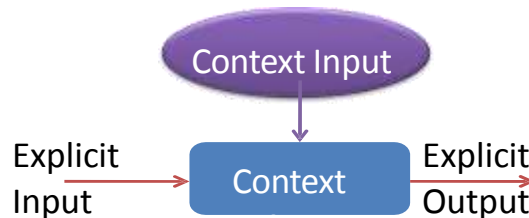
QUESTION TWO (20 MARKS)

a) Explain the different types of context that are listed below and give an example of each.

(6 marks)

     i.   Computing context
    ii.   User context
   iii.   Physical context

b) Explain in detail the architecture in the figure below: **(4 marks)**

c) Identify any Context-Aware applications and explain how it works with reference to the context aware application stack by identifying the five layers in the stack and explaining the function of each layer.   **(10 marks)**

QUESTION THREE (20 MARKS)

a)   What is a "distributed system"?   **(2 marks)**

b)   Explain three reasons why there is a need for distributed computing.   **(6 marks)**

c)   Differentiate grid computing and cloud computing.   **(4 marks)**

d)   Explain the following advantages of distributed computing.   **(6 marks)**

     i.   Extensibility and Incremental Growth

    ii.   Shorter Response Times and Higher Throughput

   iii.   Transparency

e)   State two reasons why application and use of distributed computing is increasing.

(2 marks)

QUESTION FOUR (20 MARKS)

a) Identify the cellular systems generations and outline the main characteristics of each.

(4 marks)

b) State three Multiple access schemes that are used in cellular systems.   **(3 marks)**

c) Explain the functions of the cellular components represented in the figure below. **(6 marks)**

d) Outline two differences between GSM and CDMA technology. **(4 marks)**

e) Explain the following terms: **(3 marks)**

     i.   SIM
    ii.   IMEI
   iii.   IMSI

QUESTION FIVE (20 MARKS)

a) What do the following directories in the resource folder hold: **(4 marks)**

     i.   Drawable/
    ii.   Color/
   iii.   Anim/
   iv.   Menu/

b) Using an illustration differentiate relative layout from linear layout. **(4 marks)**

c) Explain the components in the simple XML layout outlined below: **(6 marks)**

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="fill_parent"
        android:layout_height="fill_parent"
        android:orientation="vertical" >
    <TextView android:id="@+id/text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="I am a TextView" />
    <Button android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="I am a Button" />
</LinearLayout>
```

d) Describe three common use cases for using an Intent. **(6 marks)**