SOUTH EASTERN KENYA UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

MAY-AUGUST 2016 (PRACTICUM) SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE (INFORMATION SYSTEMS)

SCI510: MOBILE PROGRAMMING

DATE: 5TH AUGUST, 2016   **TIME: 2.00 – 5.00 PM**

INSTRUCTIONS TO CANDIDATES

   a) Answer **ALL** questions from section A(Compulsory)

   b) Answer **ANY TWO** questions from section B

SECTION A (30 Marks) - Compulsory

Question One

a) Outline two device limitations of mobile environments.   **(2 marks)**

b) Android is a powerful mobile operating system that supports many features, outline four of the features.
                                                                                        (4 marks)

c) Outline the three concepts related to Android Event Management.   **(3 marks)**

d) Noble and Weir (2001) introduce three different compression techniques used in mobile devices, discuss two.   **(4 marks)**

e) Outline three reasons why Linear data structures are generally better for memory management than non-linear in mobile devices.   **(3 marks)**

f) Android Activity Life Cycle is best illustrated using callback activities. Explain three of the activities.
                                                                                        (6 marks)

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g) Explain the two statements below found in android manifest file. **(4 marks)**

```
<action android:name="android.intent.action.MAIN" />
<category android:name="android.intent.category.LAUNCHER"/>
```

h) Julian was developing an android application to calculate the product of two values entered in EditText with id *et1* and *et2*. He wrote the method addListener() shown below and was unable to complete it. Complete the method so that it can calculate the product of the two values entered in EditTexts and output the product through a toast. **(4 marks)**

```
privatevoid addListener() {
    edText1 = (EditText)findViewById(R.id.et1);
    edText2 = (EditText)findViewById(R.id.et2);
    btnProduct = (Button)findViewById(R.id.btncalculate);
    btnProduct.setOnClickListener(new OnClickListener() {
        @Override
    publicvoid onClick(View view) {
            String t1 = edText1.getText().toString();
            String t2 = edText2.getText().toString();
            //complete the code from this section


        }
    });
}
```

SECTION B (40 MARKS)
*Answer **two** questions from this section*

Question Two

a) Explain the purpose of SIM in GSM network. **(2 marks)**

b) John came across **Midlet** while studying J2ME.Explain how it can assist him in mobile programming. **(2 marks)**

c) Explain two types of intents used in android programming. **(4 marks)**

d) Explain the purpose of androidManifest.xml file as used in android applications. **(2 marks)**

e) With the aid of a diagram discuss the Wireless Application Protocol (WAP) stack. **(10 Marks)**

Question Three

a) Outline three software requirements you will need to set up an android programming environment. **(3 marks)**

b) Explain three types of layouts that can be used to develop an android application. **(6 marks)**

c) Android provides specialized adapter views, outline three. **(3 marks)**

d) The following code snippet was extracted from a string.xml file
```
<string name="class">Business Class</string>
<string name="first_activity">Analysis</string>
```

<string name="second_activity">Analysis</string>
<string name="msize">Area of Circle</string>

Write a code for a layout that will display four buttons using the four values in the string.xml snippet shown above. **(8 marks)**

Question Four

a) State four components of the application framework found in android framework. **(2 marks)**

b) Peter a student wanted to set up android programming environment on his laptop. State three software tools he will need to install. **(3 marks)**

c) With the aid of a diagram discuss how mobile IP is used to support mobility in a mobile wireless network. **(7 marks)**

d) While surfing the internet, John come across the android code shown in figure 1 but he noticed the code had many errors.

```
baggage com.example.android_seku;
export android.os.Bundle;
export android.app.Activity;
export android.view.Menu;
public class MainActivity implements Activity {
        protected void onCreate(Bundle savedInstanceState) {
        super.onConstruct(savedInstanceState);
        putContentView(K.layout.activity_main);
}
}
```

Figure 1: Android Code

Re-write the correct version of the code. **(8 marks)**

END.