SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Information Technology

Second Year, Second Semester Examination - 2015

HNDIT2417 - Mobile Application Development

Instructions for Candidates:
Answer any **five (05)** Questions

Time: Three (03) hours
No of pages : 06

Question 01

[Total Marks=20]

i. Mention three android versions with their code names (3 Marks)

ii. Identify the following widgets (4 Marks)

a. 

b. 

c. 

d. 

iii. What is the purpose of **AndroidManifest.xml** file? (3 Marks)

iv. What are the **two** orientations supported by Linear Layout (2 Marks)

v. Sketch the output of the following code (8 Marks)

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayoutxmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="fill_parent"
android:layout_height="fill_parent" >

<Button
android:id="@+id/btnButton1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Button 1"/>

<Button
android:id="@+id/btnButton2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Button 2"
android:layout_toRightOf="@+id/btnButton1"/>

<Button
android:id="@+id/btnButton3"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
```

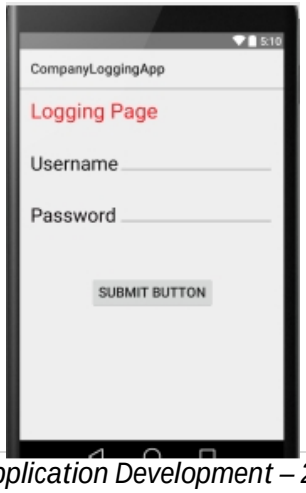
```
android:text="Button 3"
android:layout_below="@+id/btnButton1"/>

<TextView
android:id="@+id/textView1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/btnButton3"
android:layout_marginTop="94dp"
android:text="User :"
android:textAppearance="?android:attr/textAppearanceLarge" />

<EditText
android:id="@+id/editText1"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentRight="true"
android:layout_alignTop="@+id/textView1"
android:layout_toRightOf="@+id/btnButton3" />

<Button
android:id="@+id/btnSubmit"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_alignParentRight="true"
android:layout_below="@+id/editText1"
android:text="Submit" />

</RelativeLayout>
```

Question 02

[Total Marks=20]

i. Define what is an Android Activity. (2 marks)

ii. The following user interface has been created with Android Studio. When the user clicks on the submit button after entering the correct username and the password program redirects to home page which is another activity called CompanyHome. In the case of incorrect username or password, toast message will be displayed as "Username or password invalid".



Fill in the blanks of this code in MainActivity.java (15 marks)

```
public class MainActivityextends Activity {
    //declare variables
    private ..... .....;                                              (1 mark)
    private ..... .....;                                              (1 mark)
    private ..... .....;                                              (1 mark)

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        //read the text values and buttons set in XML file
        .....=(Button).....(R.id.btnSubmit);                          (1 mark)
        .....=(EditText)..... (R.id.txtUsername);                     (1 mark)
        .....=(EditText)..... (R.id.txtPassword);                     (1 mark)

        .....setOnClickListener(new View. .....() {                   (2 marks)

    @Override
    public void onClick(View v) {

        String un=..... .getText().toString();                        (1 mark)
        String pw=..... .getText().toString();                        (1 mark)
        if (..... .equals("abc")&& ..... .equals("123")){             (1 mark)

            //redirects toCompanyHome
            ..... in1=new Intent(getApplicationContext(),.....);
            startActivity(.....);                                     (2 marks)
        }else {

            //show toast message
            Toast. .....(v.getContext(), ".....",
            Toast.LENGTH_SHORT).show();                               (2 marks)
         }
     }
     });
}
```

iii. Explain the purpose of setOnClickListener() method mentioned in the above code?

(3 marks)

Question 03

[Total Marks=20]

i. Briefly explain the purpose of **R.java** file in android project. (03 marks)

ii. What is the purpose of **strings.xml** file in an Android Project? (03 Marks)

iii. "Development of mobile application is difficult than developing a software to a Personal Computer" Do you Agree/ Disagree for the above statement. Give two reasons for your answer. (04 marks)

iv. What is the purpose of **match_parent** and **wrap_content** in following code . (04 marks)

```
<EditText
  android:layout_width="match_parent"
  android:layout_height="wrap_content"/>
```

v. Following table shows hardware configurations for two mobile devices. From the following two devices, which device will you select to purchase? Briefly explain why you have selected that device. (06 marks)

		Device A	Device B
NETWORK	Technology	GSM / HSPA / LTE	GSM / HSPA
	3G Network	HSDPA 850 / 900 / 1900 / 2100	HSDPA 900 / 2100
	4G Network	LTE band 1(2100), 2(1900), 3(1800), 4(1700/2100), 5(850), 7(2600), 8(900), 17(700), 20(800)	
	Speed	HSPA, LTE	HSPA
LAUNCH	Announced	2015, July	2015, March
BODY	Dimensions	198.6 x 134.8 x 5.6 mm (7.82 x 5.31 x 0.22 in)	191.8 x 107 x 8.5 mm (7.55 x 4.21 x 0.33 in)
	Weight	265 g (Wi-Fi) / 272 g (LTE) (9.59 oz)	278 (9.81 oz)
	SIM	Nano-SIM	Micro-SIM
DISPLAY	Type	Super AMOLED capacitive touchscreen, 16M colors	IPS LCD capacitive touchscreen, 16M colors
	Size	8.0 inches (~74.0% screen-to-body ratio)	7.0 inches (~67.2% screen-to-body ratio)
	Resolution	1536 x 2048 pixels (~320 ppi pixel density)	600 x 1024 pixels (~170 ppi pixel density)
PLATFORM	OS	Android OS, v5.0.2 (Lollipop)	Android OS, v4.4.2 (KitKat)
MEMORY	Card slot	microSD, up to 128 GB	microSD, up to 32 GB
	Internal	32/64 GB, 3 GB RAM	8 GB, 1 GB RAM
CAMERA	Primary	8 MP, autofocus	2 MP
FEATURES	Sensors	Fingerprint, accelerometer, gyro, proximity, compass	Accelerometer

Question 04

[Total Marks=20]

i. What is the purpose of using Fragments in an Activity? (04 Marks)

ii. Give two ways to add a fragment to an Activity? (04 Marks)

iii. List out Three methods available in the Fragment life cycle? (06 Marks)

iv. Assume Orange is a fragment class and consider the following code fragment to answer the following question.

```
Orange fr=new Orange();
FragmentManager fm=getFragmentManager();
FragmentTransaction ft=fm.beginTransaction();
ft.replace(R.id.fragmentplace,fr);
ft.commit();
```

Explain the purpose of the following statements (06 marks)

a. ft.replace(R.id.fragmentplace,fr);

b. ft.commit();

Question 05

[Total Marks=20]

i. Android has number of APIs. Which API is used when you want to save data using key-value pairs (04 marks)

ii. What is the difference between getSharedPreferences() and getPreferences() methods? (04 marks)

iii. Which methods are calling to retrieve Integer and String values from a shared preferences file (02 marks)

iv. Following program is written to save Student record using key value pairs. Fill in the blanks in following program segment. (10 marks)

```
String StudentName= “Pradeep Sanjaya”;
Boolean male= true;
String StudentAddress= “No 34, Samagimawatha, Thildeniya”;
int telephone= 071234567;
String courseCode= “Programming with Android”;
floatcourseFee= 12500.00;
(a)……sp = getSharedPreferences("mydata", Context.MODE_PRIVATE);
(b)…… ed = sp.(c)……;
        ed.(d)……("sName",StudentName );
```

```
ed.(e)……..("sMale",male );
ed.(f)……..("sAddress", StudentAddress);
ed.(g)……..("sTelephone", telephone);
ed.(h)……..("sCourseCode", courseCode);
ed.(i)……..("sCourseFee", courseFee);
ed.(j)……..;
```

Question 06

[Total Marks=20]

i. What is the role of SQLite in Android applications? (03 marks)

ii. Write the necessary import statement to use SQLite in an Android application? (03 marks)

iii. Give the purpose of the following statement. (04 marks)

```
db=openOrCreateDatabase("StudentDB", Context.MODE_PRIVATE, null);
```

iv. Explain the first and second arguments of the method **openOrCreateDatabase(… , … , …)** (02 marks)

v. What is the difference between **db.execSQL(<SQL>)** and **db.rawQuery(<SQL>)** (04 marks)

vi. Consider the following table and answer the question. (04 marks)

Table Name: Student

SID	Name	Marks
1	Kumar	56
2	Ravi	78
3	Lal	23
4	Ann	90
5	Peter	70

Consider the following code fragment:

```
Cursor C=db.rawQuery("SELECT * FROM student where Marks>56", null);
Int P=C.getCount();
```

After execution of above code fragment, what will be the value of the variable **P**? (Assume all necessary declarations and initializations were done correctly)

-------End of Paper-------