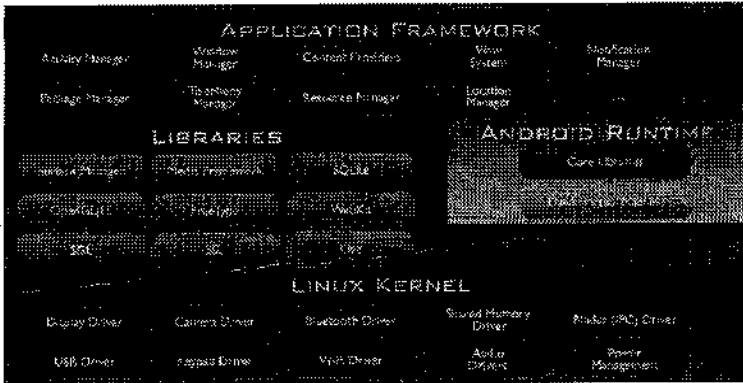# Higher National Diploma in Information Technology

Second Year, Second Semester Examination – 2017

HNDIT2417 Mobile Application Development

...............................Marking Scheme........................

Q1			
	i.	What is android? Android is an **operating system** for **mobile devices** such as smartphones and tablet computers. 02 marks for each underline points.	(03 Marks)
	ii.	Applications is one component in android architecture. Name any other two component with examples. **Name any two component** 	(03 Marks)
	iii.	What is the purpose of Dalvik Virtual Machine. **Java .class bytecode translated to Dalvik EXecutable (DEX) bytecode**	(04 Marks)
	iv.	The Android framework includes the four key services. Name them. **Activity Manager** **Content Providers** **Resource Manager** **Notifications Manager**	(04 Marks)

	v	Briefly explain followings:
		
		  a) Android Activities
		
		  b) Android Intents
		
		Android Activities: An activity is a single, standalone module of application functionality that usually correlates directly to a single user interface screen and its corresponding functionality.
		
		Android Intents : Intents are the mechanism by which one activity is able to launch another and implement the flow through the activities that make up an application.
			(06 Marks)

Q2			
	i.	Name two types of Gravity in Android **Gravity** **layout_gravity 2 marks for each x 2=04**	(02 Marks)
	ii	Fill the blank using suitable layout type for following statements …(a)… is a view group that create list of scrollable item. ….(b)… is a view group that display item in a two-dimensional, scrollable grid. **(a): list view** **(b) grid view**	(04 Marks)

	iii	Write XML code to generate following interface using linear layouts
		
		<LinearLayout
		android:layout_width="match_parent"
		  android:layout_height="match_parent"
		  android:orientation="vertical"
			(06 Marks)

```xml
>
<TextView
    android:text="Currancy Converter"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    />
<LinearLayout
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:orientation="horizontal"
> ----------------- to both open and close < LinearLayout>--
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Curancy Type"
    />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
    />
</LinearLayout>
<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="horizontal"
    >


    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Amount"
    />

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

```xml
            android:id="@+id/txtA"
        />
    </LinearLayout>
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        >
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Rate"
        />
        <EditText
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:id="@+id/txtR"
        />
    </LinearLayout>
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Convert"
        android:id="@+id/btnConvert"
    />
    <TextView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/lblAns"
        android:text="Answer will display here"/>

</LinearLayout>
```
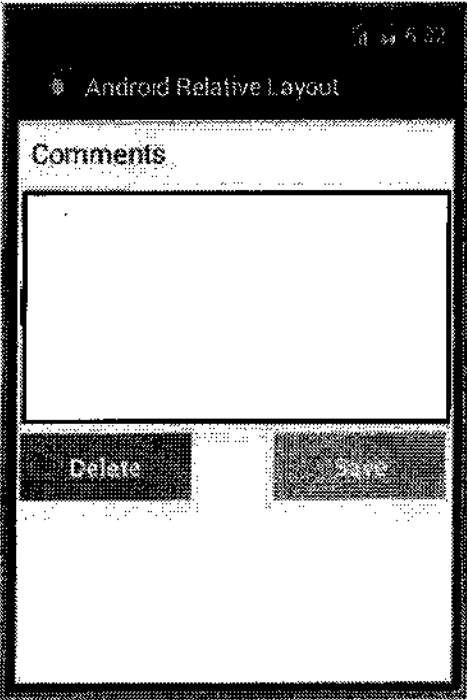
| iv | Sketch the output of following code | (08 Marks) |

```xml
<RelativeLayout
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    >
<TextView
            android:id="@+id/lblComments"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Comments"
            android:layout_alignParentTop="true"
            android:layout_alignParentLeft="true"
            />
    <EditText
            android:id="@+id/txtComments"
            android:layout_width="match_parent"
            android:layout_height="170dp"
            android:layout_alignLeft="@+id/lblComments"
            android:layout_below="@+id/lblComments"
            />
<Button
            android:id="@+id/btnSave"
            android:layout_width="125dp"
            android:layout_height="wrap_content"
            android:text="Save"
            android:layout_below="@+id/txtComments"
            android:layout_alignRight="@+id/txtComments"
            />


    <Button
    android:id="@+id/btnDelete"
    android:layout_width="125dp"
```

```
          android:layout_height="wrap_content"

          android:layout_alignBaseline="@+id/btnSave"

          android:layout_alignBottom="@+id/btnSave"

          android:layout_alignParentLeft="true"

          android:text="Delete"

          />

</RelativeLayout>
```


Q3			
	i.	Name five method in the Android Activity Lifecycle.	(02 Marks)

- **onCreate()**
- **onRestart()**
- **onStart()**
- **onResume()**
- **onPause()**

		• **onStop()** • **onDestroy()**	
	ii	Following statements given related to States of an Activity. Fill blanks using correct word related to "Activity States". a) ....**Active / Running** – The activity is at the top of the Activity Stack. b) .... **Paused** – The activity is visible to the user but does not currently have focus (typically because this activity is partially obscured by the current active activity).	(02 Marks)

	iii	The following program has been created to find the area of a Triangle. When user enter height and length and click "Cal Area" button, answer will be displayed on text view. When user click on "Help" button, program redirect to Help page which is another activity called "Help". Fill the java code of given bellow.
		
		``java
		public class Triangle extends AppCompatActivity {
		    Button btnCalAreaT;
		    EditText txtHeight;
		    EditText txtLength;
		    TextView txtvAns;
		    Button btnHelp;
		    @Override
		    protected void onCreate(Bundle savedInstanceState) {
		        super.onCreate(savedInstanceState);
		        setContentView(R.layout.activity_triangle);
		
		        btnCalAreaT= (....(a).Button......) findViewById(R.id.btnCal);
		        txtHeight= ....(b). (EditText) findViewById.........(R.id.txtH);
		        txtLength= (EditText) findViewById(R.id.txtL);
		        txtvAns= (TextView) findViewById(R.id.txtvAns);
		        btnHelp= (Button) findViewById(R.id.btnHelp)
		``
		
			(16 Marks)

btnCalAreaT. ... **(c)**.setOnClickListener....(new View.OnClickListener()

{

@Override

public void onClick(View v) {

double h= Double.parseDouble(txtHeight.getText().toString());

double l=Double.parseDouble(**(d)**.txtLength......getText().toString());

double a= .... **(e)**..(h*l)/2.............;

txtvAns. ....**(f)**. setText(Double.toString(a)............); } });

btnHelp.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Intent intent = new **(g)** Intent(getApplicationContext(), Help.class)...;

.... **(h)**.startActivity(intent)..........;

} }); } }

Q4			
	i.	Adapter is a bridge between the View and the underlying data for that view. ArrayAdapter is one of Adapter type available in Android. When you use ArrayAdapter? **Use this adapter when the data source is an array.**	(04 Marks)

	ii.	Following code segment is used in construction of Array adapter.
		
		    ArrayAdapter adapter = new
		    ArrayAdapter<String>(this,R.layout.ListView,StringArray);
		Briefly explain the three arguments in this constructor.
		
		02 marks for each 02x 3=06 marks
		this- is the application context. Most of the case, keep itthis.
		Second argument will be layout defined in XML file and havingTextView for each string in the array.
		Final argument is an array of strings which will be populated in the text view.
			(06 Marks)

		iii	There are 2 ways to allocate and add a Fragment to an Activity. As Layout file and Fragment Transaction. Briefly explain each.	(05 Marks)
			Layout file: when the Activity prepares its GUI and finds a <fragment /> tag, a Fragment is instantiated using the class defined in: android:name=*"com.example.fragment.ExampleFragment"*	
			FragmentTransaction: you can add a Fragment to the Activity at any time when it is in the foreground using the FragmentManager and FragmentTransaction objects.	
		iv	Following code segment used to add a Fragment to an Activity at runtime. Fill the blanks.	(05 Marks)
			.....(a) FragmentManager ... fm = ... (b).getFragmentManager()..... .....(c) FragmentTransaction....... ft = ...(d) fm..... .beginTransaction(); ft.replace(R.id.fragmentDisplay, frg); ft. ...... (d) commit()....;	
Q5				
	i.		Name the API used for sending SMS SmsManager API	(01 Marks)
	ii.		Name the parameters with data types in "**public final void sendTextMessage ()**" method which used in sending SMS. public final void sendTextMessage (**String destinationAddress,** **String scAddress,** **String text,** **PendingIntent sentIntent,** **PendingIntent deliveryIntent)**	(03 marks)
	iii.		Briefly explain what is **apk** file of an mobile app.	(02 Marks)

		Apk is the package format used by Android Operating system for distribution and installation of mobile app.	
	iii	What is JSON? JSON: JavaScript Object Notation. JSON used to send and receive data to the server.	(02 Marks)
	iv.	In shared preference two method are used to save data and view data using value-key pair. Name them separately. **save data: put\<type\> methods** **view data: get\<type\> methods --02 marks for each =02 x 2= 04 marks**	(04 Marks)

	v.	Following code segment write to view two string type data value which save using shared preference. Fill the blanks
		
		 ... (a) SharedPreferences... sp = ... (b) getSharedPreferences.... ("mydata" ,Context.MODE_PRIVATE);
		
		         String get_sp_un = .. (c) sp.get String ..... ("myUname", DEFAULT);
		        String get_sp_pw = ...(d) sp.getString ... ("myPw",DEFAULT);
			(08 Marks)

Q6			
	i	Name two classes which provide all the functionality required for performing Data Manipulation Language (DML) and query operations on an SQLite table. SQLiteDatabase class Cursor class	(03 Marks)
	ii	The following code shows how to create a SQLite database. db=openOrCreateDatabase("Shop", Context.MODE_PRIVATE, null); Briefly explain the behavior of **"openOrCreateDatabase"**. In the above code, the openOrCreateDatabase() function is used to • **open the StudentDB database <u>if it exists</u>** or • **create a new one <u>if it does not exist</u>**.	(03 Marks)

	iii	Write code segment to insert a Item record (Itemno, ItemName, ItemPrice, ItemQty which are keeps in editItemno, editItemName, editItemPrice, editItemQty objects) to the Item table.	(04 Marks)
		db.execSQL **("INSERT INTO Item VALUES** **('"+editItemno.getText()+"','"+** **editItemName.getText()+"','"+editItemPrice.getText()+editItemQty.getText()+"','"+");");**	
	iv	Write code segment to DELETE the Item5 from Item table. **db.execSQL** **("DELETE FROM Item** **WHERE rollno='"Item5"'");**	(04 Marks)
	v	Write code segment to view ItemName & ItemPrice of all records in Item table. **Cursor c=** **db.rawQuery** **("SELECT ItemName, ItemPrice FROM Item", null);** **if(c.getCount()==0)** **{ showMessage("Error", "No records found");** **return; }** **StringBuffer buffer=new StringBuffer();** **while(c.moveToNext()) {** **buffer.append("Item no: "+c.getString(0)+"\n");** **buffer.append("Item Name: "+c.getString(1)+"\n"); }**	(06 Marks)