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 – 2020

HNDIT-2417 Mobile Application Development

Instructions for Candidates:
Answer only five (05) questions

No. of Questions : 06
No. of pages : 07
Time : 03 Hours

Question 01

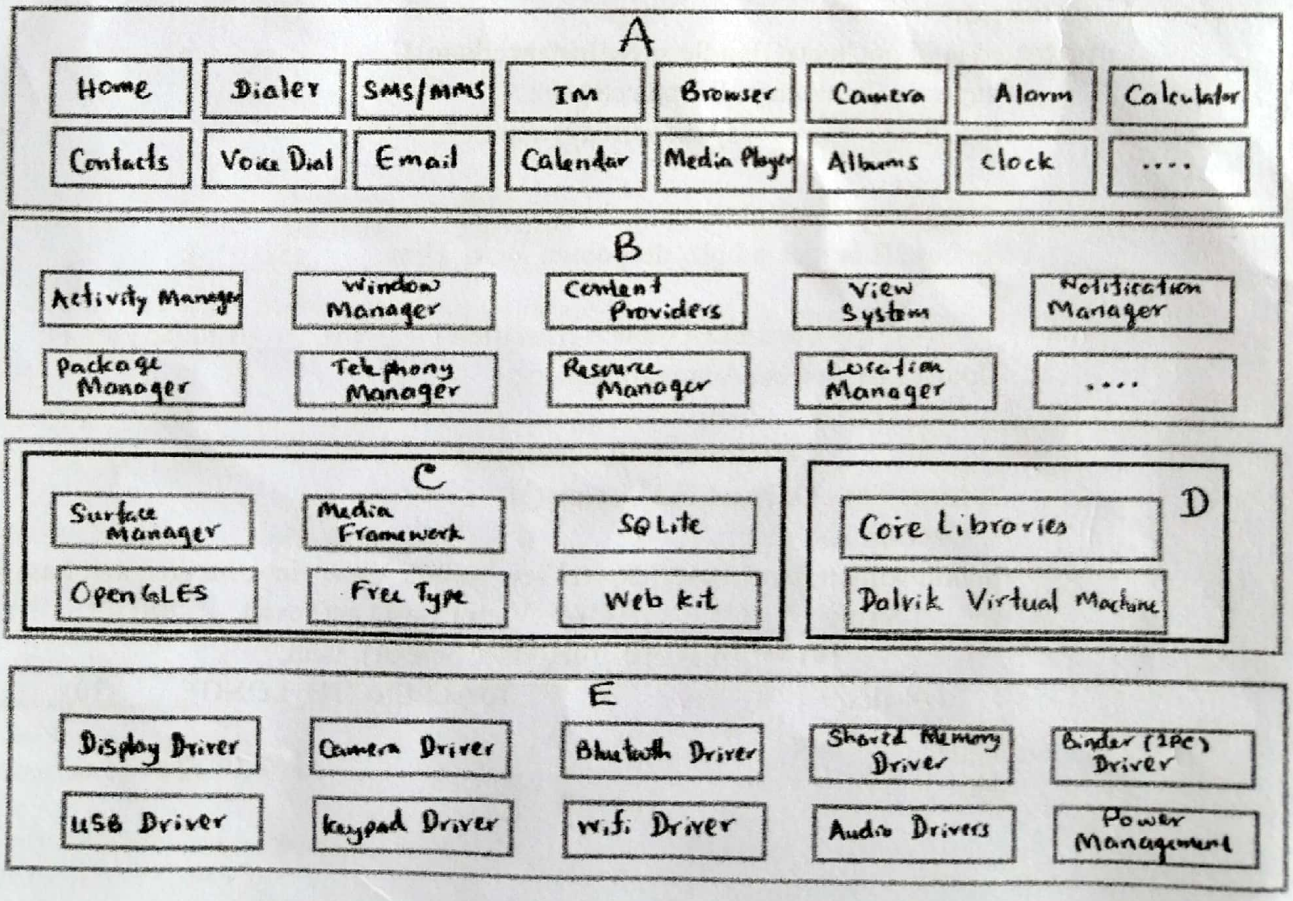
1) State two programming languages which support to develop an Android Mobile Application. (02 Marks)

2) Briefly explain the term "Gradle" (03 Marks)

3) Name three (03) XML files you can find in Android studio project. (03 Marks)

4) Briefly explain the information mentioned in the Manifest file of Android studio project. (06 Marks)

5) Following figure shows the Android frame work. Identify the Blocks named for A, B, C, D and E. (06 Marks)



Question 02

1) State three (03) Android widgets used in an Android user interfaces. (03 Marks)
2) Briefly explain the term "Fragment" in Android (04 Marks)
3) What is the advantage of using fragment in android application (04 Marks)
4) Name four(04) callback methods used in Android Activity (04 Marks)
5) Following code is used to add a fragment activity to a Android application. Fill the blanks in the code. (05 Marks)

```
FragmentManager _ _ _(1)_ _ _ = getFragmentManager();
_ _ _(2)_ _ _ fragmentTransaction = fragmentManager._ _ _(3)_ _ _;
_ _ _(4)_ _ _.replace(android.R.id.content, ls_fragment);
fragmentTransaction._ _ _(5)_ _ _;
```

Question 03

1) Give any four (04) versions of Android OS. (04 Marks)
2) List three (03) types of adapters found in android (06 Marks)
3) Following code shows usage of listview in Android activity. (10 Marks)

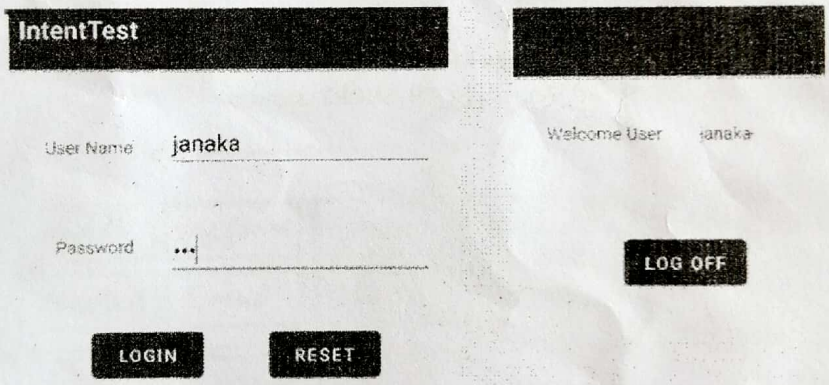
```
public class _ _ _(1)_ _ _ extends Activity{
        _ _ _(2)_ _ _ [] courseArray =
                {"HNDA","HNDM","HNDE","HNDIT","HNDTHM","HNDAgri"};
        @Override
        protected void onCreate(Bundle savedInstanceState){
                super.onCreate(savedInstanceState);
                setContentView(R.layout.activity_main);

                ArrayAdapter adapter = new ArrayAdapter(this,
                android.R.layout.simple_dropdown_item_1line, _ _ _(3)_ _ _);

                _ _ _(4)_ _ _ CourseListView = (ListView) _ _ _(5)_ _ _(R.id.listView1);
                CourseListView.setAdapter(adapter);

                _ _ _(6)_ _ _.setOnItemClickListener(new
                AdapterView.OnItemClickListener(){
                @Override
                public void onItemClick(AdapterView parent, View view, int position, long id){
                        String _ _ _(7)_ _ _ = ((TextView) view).getText()._ _ _(8)_ _ _;
                        _ _ _(9)_ _ _.makeText(getBaseContext(), item,
                                                Toast.LENGTH_LONG)._ _ _(10)_ _ _;
                }
                });
        }
}
```

Question 04

1) State three (03) Limitations of Mobile Phones. (03 Marks)
2) What is the purpose of JSON Object? (05 Marks)
3) Briefly explain the purpose of Shared Preferences in a Mobile Application (04 Marks)
4) Briefly describe following four types of App Components used in Android (08 Marks)
    1) Activity
    2) Service
    3) Content provider
    4) BroadcastReceiver

Question 05

1) Name three (03) Mobile Emlator softwares used in Mobile Application Development. (03 Marks)
2) State two (02) Mobile Application Development Frameworks (02 Marks)
3) Following diagram shows a login screen (Activity 01) When user provide the given user name and password user will be redirected to the Welcome user screen (Activity 02). When user press log off button then user will be redirected to the login screen again. (15 Marks)



Fill in the blanks in following ActivityMain.java and Log_interface.java code files.

MainActivity.java

```
package com.example.intenttest;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
  Button _ _ _(1)_ _ _,reset;
```

```
TextView username,_ _ _(2)_ _ _;
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    username=_ _ _(3)_ _ _(R.id.txtUserName);
    password=findViewById(R.id.txtPassword);
    login=findViewById(R.id._ _ _(4)_ _ _);
    _ _ _(5)_ _ _=findViewById(R.id.btnReset);

    login.setOnClickListener(new View.OnClickListener() {
        @Override
        public void _ _ _(6)_ _ _(View view) {
            if((username._ _ _(7)_ _ _.toString().equals("janaka"))&&
                                                    password.getText().toString()._ _ _(8)_ _ _("123")) {
                Toast.makeText(MainActivity.this, "Logged in .....",
            Toast.LENGTH_SHORT).show();
                Intent _ _ _(9)_ _ _ = new Intent(MainActivity.this, Log_Interface.class);
                myIntent._ _ _(10)_ _ _("username",username.getText().toString());
                _ _ _(11)_ _ _(myIntent);
            }else{
                Toast.makeText(MainActivity.this, "Error User Name or Password.....", Toast._ _ _(12)_ _ _).show();
            }
        }
    });

    reset._ _ _(13)_ _ _(new View.OnClickListener() {
        @Override
        public void _ _ _(14)_ _ _(_ _ _(15)_ _ _ view) {
            Toast.makeText(MainActivity.this, "Reset", Toast.LENGTH_SHORT).show();
        }
    });

  }
}
```

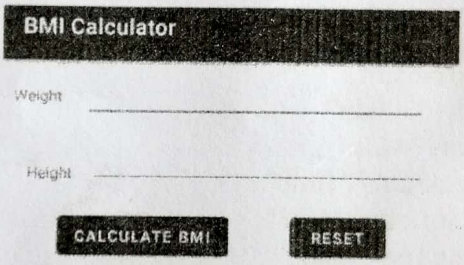
Log_Interface.java

```
package com.example.intenttest;

import android.content.Intent;
import android.os.Bundle;

import com.google.android.material.floatingactionbutton.FloatingActionButton;
import com.google.android.material.snackbar.Snackbar;

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;

import android.view.View;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

public class Log_Interface extends AppCompatActivity {
    Button btnLogOff;
    TextView txtUserName;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_log__interface);

        btnLogOff=findViewById(R.id.btnLogOff);
        txtUserName=findViewById(R.id.txtUserName);

        Intent i= getIntent();
        String uname=i.getStringExtra("username");
        txtUserName.setText(uname);

        btnLogOff.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Toast.makeText(Log_Interface.this, "Log off.....", Toast.LENGTH_SHORT).show();

                Intent logOffIntent = new Intent( Log_Interface.this,MainActivity.class);
                startActivity(logOffIntent);
            }
        });
    }
}
```

Question 06

1) Name three (03) GUI components used in the below Android Application. (03 Marks)



2) Below code shows the ActivityMain.xml file of the above User interface. Read and understand the code and answer the given questions

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/txtWeight"
        android:layout_width="313dp"
        android:layout_height="54dp"
        android:layout_marginTop="64dp"
        android:ems="10"
        android:inputType="textPersonName"
        app:layout_constraintStart_toEndOf="@+id/lblWeight"
```

```
    app:layout_constraintTop_toTopOf="parent" />

<TextView
    android:id="@+id/lblWeight"
    android:layout_width="64dp"
    android:layout_height="26dp"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:text="Weight"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.109" />

<TextView
    android:id="@+id/lblHeight"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="28dp"
    android:layout_marginLeft="28dp"
    android:layout_marginTop="44dp"
    android:text="Height"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/lblWeight" />

<EditText
    android:id="@+id/txtHeight"
    android:layout_width="306dp"
    android:layout_height="44dp"
    android:layout_marginStart="16dp"
    android:layout_marginLeft="16dp"
    android:layout_marginTop="16dp"
    android:ems="10"
    android:inputType="textPersonName"
    app:layout_constraintStart_toEndOf="@+id/lblHeight"
    app:layout_constraintTop_toBottomOf="@+id/txtWeight" />

<Button
    android:id="@+id/btncalculate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="56dp"
    android:layout_marginLeft="56dp"
    android:layout_marginTop="200dp"
    android:text="calculate BMI"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

<Button
    android:id="@+id/btnReset"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="56dp"
```

```
android:layout_marginLeft="56dp"
android:layout_marginTop="200dp"
android:text="Reset"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toEndOf="@+id/btncalculate"
app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```

1) What is the layout used in the above XML file? (01 Marks)
2) What is the name given for the calculate BMI button (01 Marks)
3) How many text view widgets available in the GUI? What are the names of them (01 Marks)
4) What is the advantage of using XML file for Android GUI? (02 Marks)

3) Write java methods to develop the application for following cases.
   1) To calculate BMI and show the value in a Toast Message
      (BMI=Weight in Kilogram / (height in meters)*(height in meters)) (04 Marks)
   2) To erase the edit text fields of Height and Width fields (04 Marks)

4) Briefly explain the purpose of the Log Cat in Android Studio. (04 Marks)