ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION   **SUMMER SEMESTER, 2021-2022**
DURATION: 1 HOUR 30 MINUTES   **FULL MARKS: 75**

CSE 4643: Mobile Application Development

Programmable calculators are not allowed. Do not write anything on the question paper.
Answer **all 3 (three)** questions. Figures in the right margin indicate full marks of questions whereas corresponding CO and PO are written within parentheses.

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1. a) Compare Native and Hybrid Applications with appropriate examples and assess which one is suited for developing mobile applications.

    10
    (CO1)
    (PO1)

    b) Answer the following questions.

    2+4+7
    (CO2)
    (PO2)

    i.   Where are the minimum, target, and compile SDKs declared in Android Studio?
    ii. What components and elements should be declared in the Manifest file for any Android Application?
    iii. Android uses Linux to provide core system services. Identify the services and explain with appropriate examples.

    c) Assess the reasons for which the Android Application development has a thriving developer community than other app development platforms.

    5
    (CO1)
    (PO1)

2. a) Define API. What features do they provide? Explain these features in correlation with some modern APIs that are used in our day-to-day lives.

    7
    (CO2)
    (PO2)

    b) Answer the following questions.

    4+8
    (CO2)
    (PO2)

    i.   Analyse why Dalvik Virtual Machine (DVM) instead of Java Virtual Machine (JVM) is used as Android Runtime.
    ii. What are the steps in producing an Android Application Package (.apk file)? Explain with a diagram.

3. a) What are intent filters? Analyze how it works in tandem with intents and activities. From Code Snippet 1, explain the elements that are used while setting up the intent filters.

    8
    (CO2)
    (PO2)

```
<activity android:name= ".ExampleActivity" android:icon=@drawable/app_icon">

        <intent-filter>

                <action android:name="android.intent.action.SEND" />

                <category android:name="android.intent.category.DEFAULT" />

                <data android:mimeType="text/plain" />

        </intent-filter>

</activity>
```

Code Snippet 1: Intent Filter

b) Suppose you were using a video streaming application, "**Zoom**", on your mobile device. You were attending an online class in "**Zoom**", but suddenly, someone messaged you in the "**WhatsApp**" app, and you viewed the message without closing "**Zoom**".

    i.   In light of the Activity Life Cycle in Code Snippet 2, analyze the steps from starting the "**Zoom**" application to switching to the "**WhatsApp**" application with a suitable diagram.

    ii.   If you have finished using the "**WhatsApp**" application, then explain the steps for returning back to the "**Zoom**" application.

7+3
(CO2)
(PO2)

```
public class MyApp extends Activity {
        public void onCreate()  { ... }
        public void onStart()   { ... }
        public void onResume()  { ... }
        public void onPause()   { ... }
        public void onStop()    { ... }
        public void onDestroy() { ... }
}
```

Code Snippet 2: Activity Life Cycle

c) What are ViewGroups? In Figure 1, using Relative and Constraint layouts, describe at least 3 (three) layout attributes and at least 4 (four) layout parameters for the views/widgets in the layout.
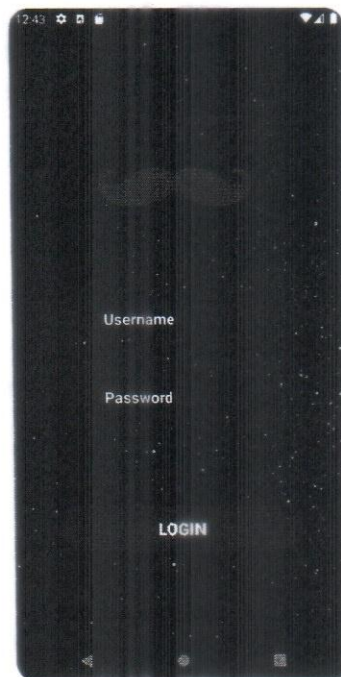
10
(CO2)
(PO2)

Figure 1: A login application