EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term I Examination, Fall 2021 Semester

Course:	**CSE 489 Mobile Application Development, Section-1**
Instructor:	**Md Mostofa Kamal Rasel, Assistant Professor, Department of CSE**
Full Marks:	**40 (20 will be counted for final grading)**
Time:	**1 Hour and 20 Minutes**

Notes:
- C2 (Understanding): Constructing meaning from different types of functions be they written or graphic messages or activities
- C3 (Applying): Carrying out or using a procedure through executing, or implementing.
- There are **6** (**SIX**) questions, answer ALL of them. Mark of each question are mentioned at the right margin

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1. Based on your understanding so far on the mobile application development, briefly answer the following questions. [CO1,C2 Marks: 5+1]

   a) **"**Every student of the computer science and engineering should learn the mobile application development**" – Explain** your opinion based on your experiences and gathered knowledge**.**
   b) Android system has several application building blocks, such as, Activity, Intent and IntentReceiver, Service, and ContentProvider. **Which** building block(s) can be used for sharing the data or information across activities in different android mobile applications?

2. Suppose that you are developing a mobile application for the event management. There are several kinds of information related to an event. You will have to design a form having several types of views for collecting those information. Android provides several view group options, such as, ConstraintLayout, RelativeLayout, and LinearLayout, to design the UI for your desired form. Now, based on your understanding on the android UI design, answer the following questions. [CO1,C2 Marks: 4+2]

   a) **Which** of the LinearLayout, ConstraintLayout, and RelativeLayout performs best? **Explain** your answer with **examples**?
   b) **How** can you make the *height* and *width* of your UI responsive for any kind of android mobile devices?

3. The UI of an android application is built using view group and view objects. A UI layout of a page of an application designed using XML is given in the appendix (Page 3). Now, based on your understanding on the android UI design, apply your acquired knowledge to the answer the following questions. [CO1,C3 Marks: 5+5]

   a) **Draw** the wire frame according to the XML code given in Page 3.
   b) **Rewrite** the XML code given in Page 3 using only the RelativeLayout as view groups to get the equivalent wire frame.

4. The main purpose of an activity in the android application is to interact with the users. Every activity goes through a number of events during its life time. Considering the life cycle of an activity, answer the following questions. [CO1,C2 Marks: 2+3]

   a) **Why** do we sometimes need to access the activity of a different application from our own application?

b) **Why** should not the objects of an activity be freed in *onPause()* event? **Which** event is the best to free the memory that was occupied by an activity?

5. Navigation between activities in android is carried out through the intent. Intents are also used to share contents and to trigger actions within and among applications. Suppose that an android based racing game application has only two activities such as, CarFeaturesActivity and RacingActivity. CarFeaturesActivity displays a list of features for a car, such as, color, brand, maximum speed, control level, off the road capability, and engine power. Players can configure a car by selecting or putting values for those features. In RacingActivity, players starts racing after configuring the car with the selected features that were chosen in CarFeaturesActivity. Now, **write** the java code to navigate from CarFeaturesActivity, for passing the chosen features to the RacingActivity, and for accessing the features sent from the CarFeaturesActivity. [CO1,C3 Marks: 5]

6. Based on your understanding of android services, apply your acquired knowledge to answer the following questions. [CO1,C2,C3 Marks: 3+5]

a) **Why** is exporting a service not always a good idea?
b) **Demonstrate** an application scenario that effectively uses the *unbound* services.

Appendix

❖ *The following XML code designs a page of the application described in Question (3):*

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <TextView
        android:text="Parent LinearLayout"
        android:textSize="18sp"
        android:gravity="center"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1"
        android:orientation="horizontal">
        <TextView
            android:layout_width="0dp"
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:text="Nested Horizontal 1"/>
        <TextView
            android:layout_width="0dp"
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:gravity="right"
            android:text="Nested Horizontal 2"/>
    </LinearLayout>

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="1">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Nested Relative Layout"
            android:id="@+id/textView"
            android:layout_alignParentTop="true"
            android:layout_centerHorizontal="true" />
        <Button
            android:text="back"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_below="@+id/textView"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="66dp" />
    </RelativeLayout>
</LinearLayout>
```