

**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)**  
**ORGANISATION OF ISLAMIC COOPERATION (OIC)**

**Department of Computer Science and Engineering (CSE)**

**SEMESTER FINAL EXAMINATION**

**SUMMER SEMESTER, 2018-2019**

**DURATION: 3 Hours**

**FULL MARKS: 150**

**CSE 4643: Mobile Application Development**

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **8 (eight)** questions. Answer any **6 (six)** of them.

Figures in the right margin indicate marks.

1. a) According to the level of priority draw a flow chart of Android Process States. Briefly explain the criteria of being a process as background status and visible status. 10
- b) XML code given in Figure 1 represents an activity layout. Based on the given code try to design the appropriate user interface that will appear on Android screen. 10

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">
    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:padding="30dp"
        android:layout_marginTop="20dp"
        android:text="First Button" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_margin="30dp"
        android:layout_gravity="center"
        android:text="Second Button" />
</LinearLayout>
```

Figure 1: Code for the Question no. 1 (b)

- c) What are the best practices that a developer need to follow while writing the code for sensors? 5
2. a) The Android platform supports three broad categories of sensors. Briefly discuss those with examples. 10
- b) At emergency situation finding a blood donor is not easy always. You are asked to develop an android app named *Blood4You*, which will connect the *blood donor* with *patients* and do necessary handshaking. Now-
  - i. Mention five important features that you could offer in your app. 5
  - ii. Write down five application development challenges and possible solutions for completing your app. 10
3. a) What is a notification in an android app? By drawing a picture show various parts of a notification and discuss on them. 10
- b) Write down necessary code blocks to display the notification you have drawn in Question 3(a). 10
- c) Discuss various ways to remove a notification from developers end and from users end. 5

4. a) Assume that you have developed an app for general users. What are the methods you can follow to release your app to end users? Discuss pros and cons of each of them. 10  
b) Discuss various methods to monetize your app along with their pros and cons. 10  
c) What is *key* and *key store*? Why signing an app with a private key is essential? 3+2
  
5. a) Name different type of layouts you have used while developing different android applications. What are the basic task of these layouts? 3+6  
b) What method do you use to track the click on a button on an android application? Show an example how you can change the intent/activity with a button click. 3+7  
c) Suppose you are given a task to develop an android app that will assign all the students of your university in their respective departments. As there are only limited number of departments, to enter the department name, what kind of UI object you should use? Give reasoning to your answer. 6
  
6. a) What is an android manifest file? When do you explicitly need to update the manifest file? Mention several instances. 3+7  
b) Name three storage systems which are available in Android. When you need to connect a large number of users and provide them with same contents, what kind of database you should use? – justify your answer. 3+7  
c) List some challenges you need to address while planning to develop a mobile application. 5
  
7. a) List various types of resources in Android System. Discuss their functionality in brief. 5+15  
b) What is gesture? List some common gestures an android app can detect. 5
  
8. a) In an android application an image resource name is *fast\_forward.jpg* and in main layout file there is a button with id *btnBack*. Write down the code block for – 5  
i. Layout file to display the image *fast\_forward.jpg* on the button. 5  
ii. Main Activity file to set the image *fast\_forward.jpg* as background of the button. 5  
b) With example show how string and string-array can be defined as a resource. 5  
c) Define style and theme. Discuss their advantages. 3+7