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

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

**MID SEMESTER EXAMINATION**

**SUMMER SEMESTER, 2017-2018**

**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.**

There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

1. a) Draw Android Activity Lifecycle. What are the key services provided by Android Framework? 9
- b) What is *R.java*? Write down the *XML* code for designing following three buttons given in Figure 1 in Android activity layout. 8



Figure 1: For the Question no. 1.(b)

- c) Define Location Sensitivity with a suitable example. User interfaces are difficult to design and implement for some reasons. Note down some of those reasons. 8
2. a) Suppose you have two smartphones and you ask another person to click your picture. While the person is clicking, you can't know how you are looking in the frame. Now think about an android app named "*Sync camera*" which will sync both the cameras so that you can know whether the photo is being correctly clicked or not. If you are considering building the app, mention three important features that you could offer. Besides, write down five application development challenges and possible solutions for completing your app. 8
- b) What is the process of inserting data into and extracting data from *SharedPreferences* file? Give example with code. 8
- c) Write down any five dangerous permission group names along with their group members which are introduced after Android Marshmallow or 6.0. With the help of a diagram explain *android:gravity* and *android:layout\_gravity* function. 9
3. a) If any user is worried about what the app might be doing with the user's information by accessing system permissions, he/she may avoid using the app or uninstall it entirely. What could be possible steps for a developer to avoid such bad user experiences? Briefly discuss the contents of *Resource* directory of Android project. 9
- b) Write down ten recent features added by Android Virtual Devices (AVDs). Mention five limitations of Android Emulator. 8
- c) Write short notes on followings: 8
  - i. Doze
  - ii. Toast
  - iii. Intent
  - iv. Content Providers

4. a) How does Mobile Cloud Computing provide benefits for Mobile user? Mention four possible scenarios where the privacy and reliability are violated because of using Mobile Cloud Computing and also try to provide some possible solutions for those problems. 12
- b) Explain four basic approaches for saving energy and extending battery lifetime in mobile devices. Briefly discuss and draw the relationship among Communication, Computation, bandwidth, and offloading. 7
- c) Write down the basic properties of synchronous active transaction and asynchronous active transaction. 6