

MAKERERE UNIVERSITY

SCHOOL OF COMPUTING & INFORMATICS TECHNOLOGY

END OF SEMESTER I EXAMINATION 2019/2020

PROGRAMME: MDSE

YEAR OF STUDY: I

COURSE NAME: Mobile Software and Content Development

COURSE CODE: MCN 7106

DATE: 27th November, 2019

TIME: 16:00 – 19:00

EXAMINATION INSTRUCTIONS

1. ATTEMPT ALL QUESTIONS IN SECTION A (40 MARKS)
2. ATTEMPT THREE (03) QUESTIONS IN SECTION B (60 MARKS)
3. DO NOT OPEN THIS EXAM UNTIL YOU ARE TOLD TO DO SO
4. ALL ROUGH WORK SHOULD BE IN YOUR ANSWER BOOKLET

SECTION A [40 Marks]

- a) Briefly explain the two types of web services [4 marks]
- b) With a help of an illustration state the principles or constraints of REST Architecture [8 marks]
- c) State at least two reasons that are motivating organizations to develop mobile applications [2 Marks]
- d) Discuss at least two approaches of designing mobile applications with fresh content [4 Marks]
- e) Write short notes on the following concepts [2 mark @]
 - 1. Cloud computing
 - 2. Information architecture
 - 3. Model driven app development
 - 4. Widgets
 - 5. GitHub
- f) Briefly explain what this application does when launched on the device. [3 Marks]

```
Public boolean isExternalStorageWritable() {  
    String state = Environment.getExternalStorageState();  
    if (Environment.MEDIA_MOUNTED.equals(state)) {  
        return true;  
    }  
    return false;  
}
```
- g) Explain the reasons (at least three) behind the rapid growth of android based applications? [6 marks]
- h) Briefly explain what this application does when launched on the device. [4 Marks]

```
Public class DateTimeApp extends MIDlet
```

```
{  
    Alert timeAlert;  
    public DateTimeApp() {  
        timeAlert = new Alert("Alert!");  
        timeAlert.setString(new Date().toString());  
    }  
    public void startApp() {  
        Display.getDisplay(this).setCurrent(timeAlert);  
    }  
    public void pauseApp() { }  
    public void destroyApp(boolean unconditional) { }
```

SECTION B [60 Marks]

Question 1:

- a) What does the “request permission for ACCESS_FINE_LOCATION” do in android development [2 marks]
- b) What does this code do [4 marks]

```
SensorManager mgr = (SensorManager) getSystemService(SENSOR_SERVICE);
List<Sensor> sensors = mgr.getSensorList(Sensor.TYPE_ALL);
for (Sensor sensor : sensors) {
    System.out.println(«»+sensor.getName());
}
```

- c) What is the ListActivity class used for? [2 marks]
- d) Write the appropriate android method call for saving the state of an Android application? [2 marks]
- e) Differentiate between an explicit and implicit intent in android development [2 Marks]
- f) With a help of diagram describe a typical anatomy of an android application [8 Marks]

Question 2:

- a) Explain the two types of mobile applications and state at least two conditions under which you would use each type of mobile application [8 marks]
- b) Explain at least two approaches of how users of mobile apps can secure their data. [4 marks]
- c) Explain difference between validation testing and functional testing in mobile application development. [4 Marks]
- d) Explain the concept “interactive design” and describe a scenario of how it can be applied during the Mobile apps development. [4 Marks]

Question 3:

- a) Explain the phrase “user experience design” and discuss its relevancy to mobile apps developers. [4 marks]
- b) Discussion at least 3 principles of user experience and user interface design [6 marks]
- c) What is the importance of user interface standards in the development of mobile applicatoons [6 marks]
- d) Brief explain at least two examples of user interface standard [4 marks]

Question 4:

- a) Differentiate between information architecture and user experience [4 marks]
- b) Briefly explain four key componets of information architecture [8 marks]
- c) Briefly explain type processes of information architecture development [8 marks]

Question 5:

- a) Using an example explain what is meant by the term *Web Server*?[2 Marks]
- b) You're asked by the course lecturer to develop a mobile application to solve a unique problem in your community. Describe the systematic process you will follow in order to develop and successfully deploy your app [10 marks]
- c) Discuss at least two security challenges faced by mobile app users [4 marks]
- d) Provide at least 2 approaches of mitigating security issues in mobile application [4 marks]

Question 6:

- a) With a help of an illustration explain the phrase “ Internet of Things” [2 Marks]
- b) Discuss at least four drivers leading the development and deployment of the Internet of Things technologies [8 Marks]
- c) State at least four key characteristics of cloud computing[4 marks]
- d) Briefly describe the three cloud computing service models [6 Marks]

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