

*Sarah*

**Catholic University Institute of Buea (CUIB)**  
**2020/2021 ACADEMIC YEAR**  
**First Semester Examinations - Feb 2021**

School	Catholic University Institute of Buea (CUIB)			
Course Code	INFORMATION TECHNOLOGY			
Status	SIT 335	Course Title	Mobile Device Programming	
Date	26/02/2021	Credit Value	6	Dept
Course Instructor(s)	Mr. Achankeng Peter	Venue	LH 2 / LH 2/3	Time
				10:30AM - 12:30PM

**Instructions:** Answer ALL questions from both Sections. Penalty for poor presentation and wrong grammar. Computers or Calculators are NOT allowed.

**SECTION A**

**(TOTAL 30 POINTS)**

- ✓1. What is mobile device programming? State and explain any two reasons why this type of programming is relevant today. (1 + 2 = 3 marks)
- ✓2. Distinguish between a mobile device and a smart device. (2 marks)
- ✓3. Mobile applications still face a couple of pertinent issues which must be addressed by the programmer. State and briefly explain any two of these issues. (2 marks)
- ✓4. Two display technologies used in mobile phones are the TFT LCD and the AMOLED.
  - a) What is the full meaning of TFT LCD and AMOLED. (2 marks)
  - b) State two technical differences between these technologies? (2 mark)
- ✓5. System on Chip is useful in mobile devices? Give one advantage and one disadvantage of this? (2 mark)
- ✓6. Distinguish between a hybrid application and a native application. (2 marks)
- ✓7. Sensors are an integral part of mobile devices which make them very relevant in solving real world problems. Explain with a practical example how each of the sensors below can be used:
  - a) Ambient Light Sensor      b) Accelerometer      \*c) Gyroscope (1 x 3 = 3 marks)
- ✓8. Android OS is one of the most popular mobile operating systems used in mobile phones today.
  - a) List all the layers in the Android OS stack (3 marks)
  - b) How do we call the virtual environment on which an android application runs? (1 mark)
  - c) State any other two OS that may be used in mobile phones. (1 marks)
  - d) What is the MVC concept, and how does android development fit this model? (3 marks)
- ✓9. Each application on android runs as a process following 7 activity states.
  - a) List the 7 cash back methods of a process in Android. (2 marks)
  - b) Explain any two consecutive states. (2 marks)

*on Creak (1 - Actn instance on Start (1 - Enter foreground but not necessarily*

*Pause*  
*Resume*  
*Stop*  
*Restart*  
*Destroy*

*Soft Desig pattern used App... which divide the Unit into 3 el...*





customer is allowed three attempts to enter the correct PIN; the card is confiscated if the third attempt fails. Cards that have been reported lost or stolen are also confiscated.

If the PIN is validated satisfactorily, the customer is prompted for a withdrawal, query, or transfer transaction. Before a withdrawal transaction can be approved, the system determines that sufficient funds exist in the requested account, that the maximum daily limit will not be exceeded, and that there are sufficient funds available at the local cash dispenser. If the transaction is approved, the requested amount of cash is dispensed, a receipt is printed containing information about the transaction, and the card is ejected. Before a transfer transaction can be approved, the system determines that the customer has at least two accounts and that there are sufficient funds in the account to be debited. For approved query and transfer requests, a receipt is printed and the card ejected. A customer may cancel a transaction at any time; the transaction is terminated and the card is ejected. Customer records, account records, and debit card records are all maintained at the server.

An ATM operator may start up and close down the ATM to replenish the ATM cash dispenser and for routine maintenance. It is assumed that functionality to open and close accounts and to create, update, and delete customer and debit card records is provided by an existing system and is not part of this problem.

- Propose a Use-case diagram for the above business. (5 marks)
- Pick any three entities in the business and propose a class diagram with all the necessary attributes, methods and access modifiers. (4 marks)
- Propose a simple sequence diagram of any one use case in (a.) above. (3 marks)
- Suggest a java code for implementing the structure of one the classes in (b.) above. (2 marks)

### Question 3: (10 marks)

- What is Software Requirement Specification (SRS)? Why is it important? Give two characteristics of a good quality SRS? (2 marks)
- In a Library Management System, state what could be a functional requirement and what could be a non-functional requirement. (2 marks)
- What is Debugging? Cite 4 debugging approaches. *Search, Munch* (2 marks)
- Consider the problem stated below and propose a decision tree for it. (4 marks)

The Library Membership Automation Software (LMS) should support the following three options: New member, Renewal, Cancel membership.

#### New member option-

**Decision:** When the 'new member' option is selected, the software asks details about the member like the member's name, address, phone number etc.

**Action:** If proper information is entered then a membership record for the member is created and a bill is printed for the annual membership charge plus the security deposit payable.

#### Renewal option-

**Decision:** If the 'renewal' option is chosen, the LMS asks for the member's name and his membership number to check whether he is a valid member or not.

**Action:** If the membership is valid then membership expiry date is updated and the annual membership bill is printed, otherwise an error message is displayed.

#### Cancel membership option-

**Decision:** If the 'cancel membership' option is selected, then the software asks for member's name and his membership number.

**Action:** The membership is cancelled, a cheque for the balance amount due to the member is printed and finally the membership record is deleted from the database.





12. Study the Android Java code snippet in Figure 2 below.

```
package com.sit335.development;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.net.ConnectivityManager;
import android.widget.Toast;

public class MyClass extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent){
        if(Intent.ACTION_BOOT_COMPLETED.equals(intent.getAction())){
            Toast.makeText(context, "Something Happened", Toast.LENGTH_SHORT).show();
        }
    }
}
```

Figure 2: Main Activity Java file for some application (Question 12)

a. Describe step by step what this code is doing. *This is BCR-Android component that listen to* (3 marks)

b. Explain one thing that must be done for the codes above to be complete. *listen to the event* (2 mark)

*- Man Set the receiver of the app*

*- Set the event that the broadcast will receive.*

*- triggered when you put off an on a pt  
- when trigger it do...*

\*\*\*\*\* END \*\*\*\*\* Good Luck!!!! \*\*\*\*\*

