

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF APPLIED SCIENCE
COMPUTER SCIENCE DEPARTMENT
Examination January 2012

SUBJECT: OBJECT ORIENTED PROGRAMMING I
CODE: SCS 5101

Instructions to candidate:

1. Answer any four questions. Paper contains five questions.
2. All programming questions to be answered in Java.

DURATION 3 Hours

QUESTION ONE

a)

- i) What is the output of the following code

```
Class Test {
    static int size = 7;
    static void changeIt(int size) {
        size = size + 200;
        System.out.println("size in changeIt is "+ size);
    }
    public static void main(String... args){
        Test t = new Test();
        System.out.println("size =" +size);
        changeIt(size);
        System.out.println("size after changeIt is "+size);
    }
}
```

[5]

```
String s1 = "Canada";
String s2 = new String(s1);
if(s1 == s2) {
    System.out.println("s1 == s2");
}
if(s1.equals(s2)) {
    System.out.println("s1.equals(s2)");
}
```

[5]

- b) Explain the following terms as pertaining to Object Oriented Concepts

- i) Inheritance
- ii) Polymorphism
- iii) Cohesion

[5]

[5]

[5]

QUESTION TWO

- a) Using a comprehensive coded example explain the concept of constructor chaining employed by the java compiler [15]
- b) Determine the output of the following lines of code

```
public class Pass {
    public static void main(String [] args) {
        int x = 5;
        Pass p = new Pass();
        p.doStuff(x);
        System.out.print(" main x = " + x);
    }

    void doStuff(int x) {
        System.out.print(" doStuff x = " + x++); }
    }
```

[10]

QUESTION THREE

- a) Outline the architectural structure of the Android platform in detail. [10]
- b) Evaluate the importance of the *Dalvik* virtual machine [5]
- c) Justify the necessity of the *Activity Class*. [10]

QUESTION FOUR

A security company has been awarded a tender to provide remote sensing. They decide to attach a GSM modem to their standard alarm, such that if the alarm is triggered a standard alert is sent using the short messages service to a designated number. Generate an activity class for the Android GSM modem which will enable the sending of the short message service (sms). [25]

QUESTION FIVE

Macrohard is a manufacturer of tablet pc's running the Android platform. The company intends to launch a survey of which search engine is the most preferred by their users. You as the junior programmer are tasked with generating such an application for their tablet pc's using Android. The list of search engines is as follows: ding.com, bahoo.com, doogle.com, and dopher.com [25]