Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
200 level 1st Semester Examination – May/July 2017
CST222-3 Object Oriented Programming

Uva Wellassa University

Instructions to candidates
This paper consists of Part A (Essay) and Part B (Practical)
Duration: One (01) hour for Part A
Two (02) hours for Part B

Part A (Essay)

Number of questions: Two (02)
Answer all questions
Mark allocation: 60

1.

a. Describe the importance of data types in programming. (5 mark)

b. Why do you make main() method of a Java program *static*? (2 mark)

c. Re-write the following program using *if-else* control structure. (5 mark)

```
public class SwitchCaseStatement{
  public static void main(String[] args){
      int status = -1;
      switch (status){
        case 1: System.out.println("Number 1");
        break;
        case 2: System.out.println("Number 2");
        break;
        case 3: System.out.println("Number 3");
        break;
        default: System.out.println("Something else");
      }
  }
}
```

d. Briefly explain the following object-oriented concepts.
   i. Encapsulation (2 mark)
   ii. Polymorphism (2 mark)
   iii. Inheritance (2 mark)

e.
   i. Describe the role of constructor in Java programming. (3 mark)
   ii. What is meant by constructor overloading in Java? (3 mark)

f. Describe three (03) access modifiers in Java based on their characteristics. (6 mark)

(14) (39) (40)

2.

a. Write a code snippet (not a complete program) to demonstrate the conversion of a primitive integer variable to its wrapper version. (5 mark)

b.

i. List three (03) types of inheritance in Java programming. (3 mark)

ii. Why Java does not support for multiple inheritance through classes directly? (2 mark)

c. Describe the difference between the inheritance and aggregation in Java. (4 mark)

d. Explain the underlined statement using the relevant object-oriented concept. (4 mark)

```
class Dog extends Animal
{
  void eat()
  {
        System.out.println("Dog is eating...");
  }
  public static void main(String args[])
  {
        Animal a=new Dog();
        a.eat();

  }
}
```

e. Write necessary Java codes to demonstrate the following scenario. (6 mark)

Bike is an abstract class having an abstract method called *speed()* which does not return any value but suppose to display the current speed on the standard output (screen). Additionally, the abstract class has a concreate method called *onLight()* which returns a Boolean value depending on the status of the light (on or off). The second class called *Honda* is defined from *Bike* class. The *main()* method is implemented to create an object of *Honda* bike called *bk_obj* and display its current speed on the standard output.

f.

i. What is the difference between *throw* and *throws* in exception handling in Java? (2 mark)

ii. Write the necessary code snippets to demonstrate *division by zero* exception in Java. (4 mark)