



## EASTERN UNIVERSITY, SRILANKA

### SECOND EXAMINATION IN SCIENCE - 2004/2005

#### FIRST SEMESTER (Jan./Feb.,2006)

#### OC206 JAVA PROGRAMMING

**Answer all questions**

**Time: 2Hours**

Q1.

- (i) What is the purpose of comments in a program and what are the three types of comments in Java?
- (ii) What are packages? What is the use of packages?
- (iii) What do you understand by a package access specifier?
- (iv) Given that the ASCII code for the character 'a' is 97, what is the ASCII code for the character 'c'?

- (v) What is the output of the following Java program?

```
Class ascii{
    Public static void main(String [] args){
        {
            System.out.print((int)'a');
        }
    }
}
```

- (vi) What are primitive data types? What are default values of different primitive types?
- (vii) What is the output of the following Java program:

```
Class F{
    Public static void main(String [] args){
        System.out.println(1+2*3);
    }
}
```

- (viii) What is the output of the following Java program:

```
Class A{
    public static void main(String [] args){
        int aNumber = 50;
        if (aNumber >= 0)
            if (aNumber == 0)
                System.out.println("first string");
            else
                System.out.println("second string");
        System.out.println("third string");
    }
}
```

Q2.

- (i) What do you mean by an array data structure?
- (ii) How do you declare an array? Explain with example.
- (iii) By considering the following program explain the behavior of the **for-loop** and the purpose of its components.

```
class G{
public static void main(String [] args){
    for(int i=0;i<3;i=i+1) System.out.println(i);
}
}
```

Rewrite the program G above using a **while loop**.

- (iv) Write a method `integerPower(base,exponent)` that returns the value of  $\text{base}^{\text{exponent}}$ . For example `integerPower(3,4)` calculates  $3^4$  (or  $3*3*3*3$ ). Assume `exponent` is a positive non-zero integer and that `base` is a non-zero integer.
- (v) Write a method `sortArray()` that sorts the array elements by ascending order. The method should have one parameter, which is an array of type `int`.

Q3.

- (i) Describe the roles of a “constructor”.
- (ii) What is inheritance? Which class does begin Java class hierarchy?
- (iii) What do you mean by the following terms :
  - o static variable
  - o final variable
- (iv) Define a class **Date** consisting of a day, month and year. In your class **Date** include
  - a default constructor with `day=1, month=1, year=1900` and a user defined constructor.
  - an instance method `validDate()` that returns true if the **Date** is a valid date .
  - an instance method `comesBefore(Date d)` which returns true if the date comes before the other **Date** `d`, which is supplied as a parameter to the method.

In a leap year February has 29 days and in non leap year February has 28 days, months January, March ,May, July, August, October, and December have 31 days and all other months have 30 days. All years that are divisible by 400 or are divisible by 4 not divisible by 100 are leap years.

Q4.

- (i) What do you mean by the term “interface”?
- (ii) What is the use of an interface?
- (iii) What is the difference between an **interface** and an **abstract class**?
- (iv) Write an applet program to draw the following figure.

