

Section A

[40 marks]

Answer ALL questions in this section.

A1. State whether each of the following statements is TRUE or FALSE. [10]

- (a) When the number of repetition is not known before a loop begins executing, this is called a sentinel-controlled repetition.
- (b) When a (+) is used in a Java variable name, a syntax error will occur.
- (c) The setColor() method is invoked to change the background color.
- (d) Encapsulation allows the reusability of codes in java environment.
- (e) A parent class typically represents a larger number of objects than its child class represents.
- (f) The javac command from the Java Development Kit runs a Java application.
- (g) When a Java program is compiled, the name of the file produced by the compiler ends with the .class file extension.
- (h) Although the data types are different, the elements of an array are related by the fact that they have the same name.
- (i) The drawRoundRect() method can be used to draw a circle.
- (j) The Color class inherits directly from class Graphics.

A2. Evaluate the below integer expressions in Java. [5]

- (a) $3 + 4 * 2 - 5$
- (b) $8 \% 8 + 4 * 4 - 8 / 2$
- (c) $5 * 9 \% 5 + 24 / 4 - 6$
- (d) $3 != 27 / 9 \parallel 12 > 15$
- (e) $24 / 8 * 6 - 17 / 3$

A3. Identify the correct method, keyword, or term to do the following task. [10]

- (a) The _____ method is used to determine the size of a string.
- (b) The _____ method executes after the init() method.
- (c) The _____ operator is used to find the positive remainder of a integer division.
- (d) The _____ operator is used to allocate memory.
- (e) To use an applet within a HTML document, you include the name of the _____ compiled file.
- (f) The keyword _____ in a variable declaration indicates a symbolic _____.
- (g) The if-else statement belongs _____ structure.
- (h) A decision is based on _____ value in the selection structure.
- (i) A button's label can be changed by using the _____ method.

- (j) Repetition of a set of instructions a specific number of times is called _____ repetition.
- A4.** Briefly explain the purpose of using the stop() method inside an applet program. [2]
- A5.** (a) What is a container object? [2]
- (b) State any THREE types of container which can be used in a Java Applet. [3]
- A6.** Suppose that a Java application program is saved in a file called Examination.java. Write the commands to be given at the prompt, in order to perform the following:
- (a) to compile the program [1]
- (b) to execute the program [1]
- A7.** List any THREE types of operator used in Java programs and give an example of each. [6]

Section B

[60 marks]

Answer ANY TWO questions in this section.

B1.

[30 marks]

- (a) (i) Declare an array product to store 100 floating values. [3]
- (ii) You need to make use of For repetition structure to display the price inside the product array having value greater than 12. [7]
- (b) Write a Java program which will make use of do while loop to display odd numbers from 11 to 77. You are required to make use of % operator. [10]
- (c) Write a Java program that reads an integer and determines and prints whether it is above 50 or below. [10]

B2.

[30 marks]

- (a) Explain the purpose of the following methods used in a Java program.
 - (i) equalsIgnoreCase() method [2]
 - (ii) compareTo() method [2]
 - (iii) add() method [2]
- (b) Explain clearly each of the following method headers.
 - (i) public static float median(float a, float b) [3]
 - (ii) public static boolean check(int w) [3]

(iii) public static void showing() [3]

(c) Consider the class definition below:

```
class Area
{
    int height;
    int width;
}
```

(i) Write a Java statement(s) to create an Area object, called ourArea. [2]

(ii) Add a constructor to this class, so objects are initialized on creation. [2]

(d) Identify the error in each of the following program segments and explain how the error can be corrected.

(i) public static float total(int x, int y)

```
    {
        int result;
        result = a + b;
    }
```

[4]

(ii) public static void calculate()

```
    {
        int a = 2, b = 12, c = 5, w;
        w = a * b \ c;
        System.out.println("Result is "+ w);
    }
```

[4]

(e) Identify the THREE basic concepts of object-oriented programming. [3]

B3.

[30 marsk]

- (a) (i) Explain the term 'recursive'. [2]
- (ii) Recursion and iteration can be used to perform a repetition process in a Java program. Explain the differences between recursion and iteration. [6]
- (iii) Identify TWO benefits of using a recursive routine. [2]
- (b) (i) State THREE methods that could be used to draw geometric shapes in an applet program and explain what each method does. [9]
- (ii) Write a Java applet program to draw a circle with the arguments as follows:
- x is 50 and y is 65
width and height : both 200
- Assume Graphics object g as the argument to the paint() method. [11]

-END OF PAPER-