

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 known before a loop begins executing, this is called a sentinel-controlled repetition.
- (b) When a symbol plus (+) is used in a Java variable name, a syntax error will occur.
- (c) The drawCharacter() method is invoked to draw a character in an applet.
- (d) A child class typically encapsulates less functionality than its parent class.
- (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 .byte 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 drawCircle() method can be used to draw a circle.
- (j) The Color class inherits directly from class Graphics.

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

- (a) $6 + 4 * 7 / 4 - 3$
- (b) $18 \% 4 + 4 * 3 - 6 / 3$
- (c) $5 * 9 \% 5 + 12 / 6 - 5$
- (d) $8 != 42 / 6 \parallel 23 > 55$
- (e) $15 / 3 * 2 - 24 / 5$

A3. Complete the following sentences with the appropriate answer. [10]

- (a) The _____ method is used to determine the size of a string.
- (b) The _____ method executes before the start() method.
- (c) The concept of allowing a class's private data to be changed only by a class's own methods is known as _____.
- (d) To allocate memory you must use the _____ operator.
- (e) The keyword final in a variable declaration indicates a symbolic _____.

A4. State the TWO situations which will activate the stop() method when the user is using an applet. [2]

A5. Identify TWO basic searching techniques. [2]

A6. Suppose that a Java application program is saved in a file called exam.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. State type of operator does each symbol belongs to, and give ONE example of on how to use it. [6]

- (a) /
- (b) &&
- (c) =

A8. State THREE types of comments that can be done inside a java program. [3]

SECTION B

[60 Marks]

Answer ANY TWO questions in this section.

B1.

[30 marks]

- (a) Write Java statements to accomplish each of the following:
- (i) Declare a Button with the caption of "play game". Add the button into the applet. [2]
 - (ii) If the length of the string variable id is greater than 8, display “The id should not be more than 8 characters”, otherwise display “It is valid length”. [4]
 - (iii) Declare an array status to store 20 boolean values. [3]
- (b) State and explain the THREE basic constructs of structured programming. [6]
- (c) Write a Java application that reads an integer mark and determines and prints whether it passes or fails. If the mark is above 39, then it is considered as pass, otherwise it is considered as fail. [15]

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 checking(float a, float b) [3]

(ii) public static int making(int amount) [3]

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

(c) Rewrite the below statement as switch statements. [12]

```
if(status == 'B')
    g=2;
else
    if(status == 'C' || status == 'c')
        g=4;
    else
        g=1;
```

(d) List THREE basic concepts of object-oriented programming. [3]

B3.

[30 marks]

- (a) State the purpose of using a period (dot or full stop) in writing a Java expression. [2]
- (b) For each of the following pieces of information, suggest the most suitable data type.
 - (i) Name of a customer. [1]
 - (ii) Age. [1]
 - (iii) Height. [1]
 - (iv) Gender. [1]
- (c) Write a while structure to print, on the same line, all the multiples of 5, between 40 and 200, inclusive. Declare all necessary variables to be used. [7]
- (d)
 - (i) Explain what a container object is. [2]
 - (ii) List any THREE types of containers which can be used in a Java Applet. [3]
 - (iii) Write a java applet program to draw a square at coordinate x of 20, and coordinate y of 135. Both height and width of the square is 56. The square will be drawn in blue color. You need to set the background to yellow. You need to use Graphics object to draw it. [12]

-END OF PAPER-