GREENLAWNS HIGH SCHOOL
TERMINAL EXAMINATION FOR THE ACADEMIC YEAR 2023-2024
COMPUTER APPLICATION

STD X

MARKS : 100

TIME : 2 HRS

You will not be allowed to write during the first 10 minutes.
This time is to be spent in reading the question paper.
The time given at the head of this paper is the time allowed for writing the answers.
This paper is divided into two Sections.
Attempt all questions from Section A and any four questions from Section B.
The intended marks for questions or parts of questions are given in brackets[]

(SECTION A)

Question 1 [20]

Choose the correct answers to the questions from the given options.

(Do not copy the question, write the correct answers only.)

(i) Name the feature of Java depicted in the above picture.
(a) Abstraction
(b) Encapsulation
(c) Inheritance
(d) Polymorphism

(ii) A student is writing an OOP code for items like circle, rectangle, square etc. These items under the class area are called _____.
(a) methods
(b) items
(c) objects
(d) attributes

(iii)   Which of the following does not represent a character literal?

(a) 'p'   (b) 'q'   (c) '\a'   (d) "z"

(iv) Which of the following is not an integral data type in Java?

(a)short   (b)long   (c) byte   (d)double

(v)Which keyword turns a variable declaration into constant declaration?

(a)const   (b)constant   (c)final   (d)fixed

(vi) The number of bytes occupied by a character array of 10 elements.

(a) 20 bytes   (b) 60 bytes   (c) 40 bytes   (d) 120 bytes

(vii) Among the following which is a keyword:

(a) every   (b) all   (c) case   (d) among

(viii) Assertion(A): In Java, statements written in lower case letter or upper

case letter are treated as the same.

Reason(R): Java is a case sensitive language.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A)

(b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion(A)

(c) Assertion (A) is true and Reason (R) is false

(d) Assertion (A) is false and Reason (R) is true

(ix) Which of the following is used for a non-returnable function?

(a) int
(b) float
(c) double
(d) void

(x) The logical operator which is an unary operator:

(a) &&   (b) || (c)!   (d)>>

(xi) Which of the following is a looping statement?

   (a) for   (b) break   (c) loop   (d)if

(xii) While is a/an ………………

   (a) switch construct   (b) repetitive control structure

   (c)break construct   (d)case construct

(xiii) Different variables in the list of parameters are separated by

   (a) .   (b) ;   (c) ,   (d) :

(xiv) A package can be accessed using _____ statement

   (a) copy   (b)import   (c)access   (d)merge

(xv) An object is an instance of a

   (a) program   (b) method   (c) class   (d)data

(xvi)Which of the following is correct usage?

   (a) int arr[-25]   (b)arr float[-25]

   (c)float arr[25]   (d)int [25]

(xvii)The output of Math.pow(25,0.5)+Math.ceil(4.2) is

   (a) 9.0   (b) 11   (c)11.0   (d)10.0

(xviii) In Java, to retrieve an individual array element, array name along with its subscript should be specified.

   (a)true   (b) false

(xix) Element arr[10] is which element of the array?

   (a)11   (b)10   (c) 9   (d) 12

(xx) Assertion(A): do-while is an exit controlled loop.

   Reason (R) : do-while loop executes at least once even if the condition is false.

(a) Assertion(A) is true and Reason(R) is true.

(b) Assertion(A) is true and Reason(R) is false.

(c) Both Assertion(A) and Reason(R) are false.

(d) Both Assertion(A) and Reason(R) are true and Reason(R) is not a correct explanation of Assertion(A).

Question 2.

(a) Write Java expression for √ $(x+y)^2$ [2]

(b) Evaluate the expression when the value of x=5   [2]

   x=x++ + ++x + x;

(c)Suppose x1 and x2 are two double type variables that you want to add

   as integers and assign to an integer variable. Construct a Java statement

   for doing so.   [2]

(d)What will be the result of following expressions if i=10 initially   [2]

   (i)++i<=10   (ii)i++<=10

(e)Analyze the given program segment and answer the following

   questions: [2]

```
for(int i=3;i<=4;i++)   {
 for(int j=2;j<i;j++)   {
   System.out.print(" ");
 }
   System.out.println("WIN");
 }
```

   (i)How many times does the inner loop execute?

   (ii)Write the output of the program segment.

(f)When there is no explicit initialization, what are the default values

   set for variables in the following cases?   [2]

(a) Integer variable

(b) String variable

(g) Name any two jump statements. [2]

(h) Write the conditional code snippet to determine if a character 'g'

entered by the user is uppercase or lowercase letter. [2]

(i) Consider the following array and answer the questions given below:

int x[] = {33, 45, 6, 8, 99, 23, 66, 9, 21, 27}; [2]

(a)   What is the size of the array?

(b)   What is the position of 66?

(j) Given that in m[][] ={{3,4,6},{7,5,3}} what will be the value of

m[1][0]and m[0][2]? [2]

(SECTION B)

(Answer any four questions from this Section)

The answers in this section should consist of the programs in either BlueJ environment or any program environment with Java as the base.
Each program should be written using variable description/mnemonic codes so that the logic of the program is clearly depicted.
Flowcharts and algorithms are not required.

Question 3.

Define a class student as below:

name,age,m1,m2,m3.(marks in three subjects), maximum, average

Member Methods:

i)   To accept the details of a student.

ii)   To compute the average and the maximum out of three marks.

iii)   To display the name, age, marks in three subjects, maximum and average.

Write a main method to create an object of a class and call the above member methods. [15]

Question 4.
Specify the class check with following overloaded functions:

    i)   void compare(int x, int y) – to compare and print smallest from x,y. If both the numbers are same then print suitable message.

    ii)   void compare(char,char) – to compare the numeric value of the two characters and print the character with higher numeric value. If both characters are same then print any one of them.   [15]

Question 5.
WAP to input a number and check if the number is neon number. (A number is said to be neon, if sum of all the digits of square of a number is equal to the entered number. eg : 9 it square is 81   8+1=9 so 9 is a neon number.   [15]

Question 6.
Define a class to declare an array to accept and store 10 words. Display only those words which begin with the letter 'A' or 'a' and also end with letter 'A' or 'a'.

Example

Anita, Amrit, Alpha, Sonu, APARNA, Sanjay, Milan, Kevin, Feroze, Anjana

Output

Anita, Alpha, APARNA, Anjana   [15]

Question 7.
Write a program to input 10 numbers into an integer array and find the sum of even and odd numbers separately.   [15]

Question 8.
WAP to accept the year of completing twenty years of service of employees in an organization. Using the Binary Search technique on the array of integers given below, output the message "Record exists" if the value input is located in the array. If not, output the message "Record does not exist".
{1980,1985,1990,1995,1997,2000,2003,2006,2008,2012}   [15]