BOYS' HIGH SCHOOL AND COLLEGE
PRELIMINARY EXAMINATION (2023-24)
CLASS – X
COMPUTER APPLICATIONS

Two Hours

M.M 100

This paper is divided into two sections.
Attempts all questions from Section A and any four questions from Section B
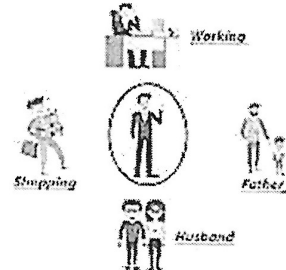### SECTION – A (40 Marks)
(Attempt all questions from this Section)

Question 1. [20]

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

(Do not copy the questions, write the **correct answers** only)

i) Name the feature of java depicted in the given picture.
   a) Polymorphism
   b) Inheritance
   c) Encapsulation
   d) Abstraction

ii) The smallest individual component in a program is called.....
   a) Token
   b) Identifier
   c) Keyword
   d) Method

iii) The extension of Java source code file is:
   a) .java
   b) .class
   c) .txt
   d) .prog

iv) Which of the following is not a default value of primitive data type.
   a) true
   b) 0.0f
   c) 0L
   d) \u0000

v) A statement to invoke the default constructor of a class "Test" is:
   a) Test obj=new Test( );
   b) Test obj= new test( );
   c) Test obj= new test(2);
   d) Test obj= Test( );

vi) An expression char c=(char) 65; is an example of:
   a) Explicit conversion
   b) Type promotion
   c) Implicit conversion
   d) Type coercion

vii) Ternary operator is a:
   a) Conditional operator
   b) Logical operator
   c) Arithmetical operator
   d) Relational operator

viii) It is used to define the position of each element in an array:
   a) Index
   b) Subscript
   c) Variable
   d) Both a and b

ix) An automatic conversion from primitive data type to its corresponding object is called_____.
   a) Autoboxing
   b) Unboxing
   c) Explicit conversion
   d) Type casting

x) Which of the following loop executes at least once:
   a) do-while
   b) for loop
   c) while loop
   d) nested loop

xi) Name the package that contains wrapper classes:
   a) java. lang
   b) java. util
   c) java. awt
   d) java. io

xii) The output of System.out.println(Math. ceil(-6.85)+Math. floor(7.50)):
   a) 1.0
   b) -1.0
   c) 1
   d) 0.55

xiii) The access modifier that gives least accessibility is:
   a) private
   b) protected
   c) public
   d) default

xiv) The output of the following code:
System.out.println("Best ".concat("Wishes"));
- a) Best Wishes
- b) Best wishes
- c) BestWishes
- d) Best Wish

xv) The method to convert a string to lower-case is:
- a) string. toLowerCase( )
- b) string. toLowerCase(char)
- c) string. toLowerCase(string)
- d) string. toUppercase( )

xvi) A static variable is …………..
- a) preceded by static keyword
- b) also called class variable
- c) a single copy to all instances of the class
- d) All of the above

xvii) Which of the following statement is valid array declaration:
- a) int Array [ ];
- b) Double Array [ ]
- c) int Array ( );
- d) Float [ ] Array

xviii) Give the output of the following String methods:
"COMIC". indexOf('C') + "COMIC" . lastIndexOf('C');
- a) 4
- b) 5
- c) 0
- d) 6

xix) Assertion(A): Constructor has the same name as of class. It does not have a return type not even void. Every class has at least one constructor method, the purpose of a constructor is to create and initializes an instance of the class. Constructor can be invoked through the new operator.
Reason(R): Constructor is invoked when object is created.
- 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) are true.

xx) Assertion(A): In call by reference technique, the reference of the actual parameter is passed to the formal parameter. Reference denotes the same memory location. As a result, the actual parameter and the formal parameter represent the same memory location. Hence the called method works with the original data rather than its own copy.
Reason(R): Any Changes made to the value of the formal parameter also get reflected in the actual parameter.
- 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) are true.

Question 2

i) Write a java expression for: $\dfrac{2}{4}\sqrt{a^2-b^2}$ [2]

ii) Evaluate the expression when the value of x=8 [2]
x- =++x + x++ * 4

iii) The following code segment should print "You are selected for the team" [2]
if your height(ht) is above 6 feet and your weight(wt) is less than 65 kg.
however, the code has errors. Fix the code so that it complies and runs correctly.
```
if( ht>= 6 feet and wt<=65kg)
System.out.println("You are selected for the team");
else
System.out.println("You are not selected");
```

iv) The following code segment will display some error, name the error and correct the code. [2]
```
int A[ ]={ 2,4,6,8,10};
System.out.println(A[A.length]);
```

v) How many times will the following loop execute? What will be returned? [2]

```
int loop( )
{
    int a=2; int b=40;
    while ( a<=10)
    {
        ++ a;

        b - = a++;
    }
    return b;
}
```

vi) Write the output of the following code segment: [2]
String st= " Happy New Year";
System.out.println(st. startsWith("Happy"));
System.out.println(st. substring(0, 5)+ st.substring(10));

vii) Give the output of the following code snippet: [2]
String **x**= **"25.65"**;
String **y**= **"50.76"**
double **a**=Double. parseDouble(**x**);
double **b**=Double. parseDouble(**y**);
System.out.println(**a + b**);

viii) Rewrite the following code using ternary operator: [2]
if (ch>= 'A' && ch<= 'Z')
System.out.println("Upper case Letter");
else if (ch>= 'a' && ch<= 'z')
System.out.println("Lower case Letter");
else
System.out.println("Invalid");

ix) Convert the following for loop to do- while loop: [2]
for(int i=20; i>=2; i--) {
  System.out.println(i); }

x) Give the output of the following program segment: [2]
int n [ ] ={ 1,3,5,7,9,11,13};
System.out.println(n[3] * 10 + n[6] – n[5]);

SECTION – B
(Answer any four questions from this Section)
Each program should be written using variable description
Flowcharts and Algorithms are not required

Question 3 [15]
A hotel is giving a seasonal discount on the total amount to be paid by the person staying. The charges for different rooms are given below:

Category	Tariff
Semi-Deluxe Room	₹2500/- per day
Deluxe Room	₹3500/- per day
Super-Deluxe	₹4500/-per day

The discount will be given as per the following criteria:

No. of days stayed	Discount
Up to 3 days	10%
More than 3 days and up to 5 days	15%
More than 5 days	20%

Write a program to input name of the guest and category ('S' for Semi-Deluxe, 'D' for Deluxe, 'SD' for Super-Deluxe) and number of days stayed in the hotel. Calculate the discount and total amount to be paid. Print the bill along with name.

Question 4   **[15]**

Define a class to create an array to accept 10 names. Using Selection Sort technique Arrange the names in ascending order. Display the sorted array.

Question 5   **[15]**

Define a class to accept a string and display the number of Lowercase characters, Uppercase characters and number of vowels in the given string.

Input: Welcome To The World Of Java

Output:

Number of Lowercase Letters=…

Number of Uppercase Letters=…

Number of Vowel = …

Question 6   **[15]**

Define a class to initialize the following array elements to print the matrix and also sum of right and left diagonal elements:

int A[][]={ {1,2,1},{1,1,3},{3,2,1}}

Question 7   **[15]**

Define a class Duck to input a four digit integer number and check whether it is a duck number or not. A number is a duck number if it has zero in it but the number must not begin with zero.

Input: 5063

Output: It is a duck number

Question 8   **[15]**

Define a class to create a single dimension array name as 'Find' to store 10 integer numbers. Find and print smallest and largest element of an array with their index location.

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