ST. JOSEPH'S ACADEMY, DEHRADUN
I[ST] PRELIMINARY EXAMINATION 2022-23

SUBJECT: COMPUTER APPLICATIONS CLASS: X M.M.: 100 TIME: 2 HOURS

NAME OF THE STUDENT... ...CLASS/SECTION ROLL NO..

*This paper is divided into **two** Sections.*
*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

SECTION-A
(ATTEMPT **ALL** QUESTIONS FROM THIS SECTION.)

Question 1. [20]

Choose the correct answer and write the correct option.

(i) Data hiding term is close to:
- (a) Abstraction
- (b) Encapsulation
- (c) Inheritance
- (d) Polymorphism

(ii) The integer data type that reserves one byte of memory is:
- (a) byte
- (b) boolean
- (c) char
- (d) short

(iii) The operator which forms a compound condition is:
- (a) >
- (b) ==
- (c) >=
- (d) &&

(iv) Which of the following is not a wrapper class:
- (a) Integer
- (b) Character
- (c) Math
- (d) Boolean

(v) Math.sqrt(-25) will return:
- (a) NaN
- (b) ButterNaN
- (c) DoubleNan
- (d) NoNaN

(vi) The correct ternary statement for the following if statement is:

```
if (sales>1000)
comi=10/100.0*sales;
else
comi=5/100.0*sales;
```

- (a) sales>1000? comi=10/100.0*sales: comi=5/100.0*sales;
- (b) comi= sales>1000? 10/100.0*sales: 5/100.0*sales;
- (c) sales>1000? comi=10/100.0*sales:5/100.0*sales;
- (d) comi=sales>1000? comi=10/100.0*sales: comi=5/100.0*sales;

(vii) Which of the following is not used for conditional checking:
(a) for
(b) if
(c) switch
(d) ?:

(viii) The number of bytes occupied by "Hey!" are :
(a) Four bytes
(b) Six bytes
(c) Eight bytes
(d) Ten bytes

(ix) for(i=1;i<10;i+=3);
How many times this loop will execute?
(a) 3 times
(b) 4 times
(c) 0 times
(d) report an error

(x)
```
int i=6;
    while(i>0)
        {
          System.out.print(i--);
           --i;
        }
```
Give the output of the above code:
(a) 642
(b) 531
(c) 6420
(d) 5321

(xi) A constructor is used to initialize:
(a) data members
(b) global variables
(c) object variables
(d) class variables

(xii) System.out.println('B'+2); will result in:
(a) B2
(b) 68
(c) 100
(d) D

(xiii) Which of the following is a wrong comment
(a) // a for apple//
(b) /* a for apple /*
(c) /* a for apple */
(d) // a for apple

(xiv) Which of the following does not exist in java:
(a) Character.isLetter()
(b) Character.isLetterDigit()
(c) Character.isDigit()
(d) Character.isWhitespace()

(xv) The output of Integer.toString(45)+true is
(a) 46
(b) error
(c) 45true
(d) "45true"

(xvi) The process of converting int to char is called:
(a) implicit conversion
(b) type casting
(c) type promotion
(d) boxing

(xvii) The output of the method "The sun is shining".substring(0,1) is
(a) T
(b) Th
(c) h
(d) The sun is shining

(xviii) The array int[]arr={10,20,30,40}; occupies
(a) 16 bytes
(b) 8 bytes
(c) 8 bits
(d) 16 bits

(xix) arr.length for the array: int[]arr=new int[1]; is
(a) 0
(b) 1
(c) 2
(d) error

(xx) Name the type of error that occurs for the following statement:
int area=22/7*4*4;
(a) syntax error
(b) logical error
(c) run time error
(d) no error

Question 2.

i) Evaluate the expression: [2]
a+=++i + --j + i++ + j++;
where a=10,i=1,j=2

ii) Write a java expression for: $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ [2]

iii) Rewrite the following using while loop: [2]
```
for(int i=0;i<5;++i)
{
   System.out.println(i++);
}
System.out.println("bye");
```

iv) Rewrite the following using compareTo(): [2]
if(s1.equals(s2))

v) How many times will the loop execute and what will be the output: [2]

```
int i=0;
do
{
  System.out.println(i++);
}while(++i<5);
```

vi) Give the output: [2]
"bear".compareToIgnoreCase("CAT")

vii) Give the output: [2]
"Mississippi".indexof('p') +"Goibibo".lastIndexOf('I');

viii) There can be more than one return statement typed in a method. True or false? Give an example. [2]

ix) Consider the following program and answer the questions that follow: [2]

```
class ABC
{     int a,b;
      ABC(int x,int y)
      { a=x;
        b=y;
      }
      void calcu()
      {
        int p=10,q=20;
        System.out.println(a+b+p+q);
      }
```

i) What type of variables are a,b?
ii) Name the local variables.

x) Mention any two properties required for overloading of functions. [2]

SECTION- B

(ATTEMPT ANY **FOUR** QUESTIONS)

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. [15]

Define a class with the following specifications:

class name	EasyTrip
member variables	name – to store the name of passenger gender- to store 'M'/'F'for male/female km- number of kilometers of journey fare- in rupees
member methods	
void accept()	to input name,gender,km from the keyboard.
void calcu()	to calculate fare as follows: 0-200 km 3000/- 201-500 km 5000/- Above 500 km 10000/- (there is a discount of 10% for females)
void show()	to display all the member variables suitably along with messages.
void main()	create an object of the class and call the functions as required.

Question 4. [15]

Define a class to overload the method over as follows:

void over() - to print the format

@
##
@@@
######



void over(int n) - to check whether the number is a **xylem** number or a **phloem** number.

A number n will be a **xylem number** if the sum of its extreme (first and last) digits is equal to sum of mean(all digits except first and last) digits. If the sum of extreme digits is not equal to the sum of mean digits, the number is called **phloem number**.

Question 5. [15]

Define a class to store names and telephone numbers of 10 persons in two one dimensional arrays N[] and T[] respectively. Search and print the telephone numbers of all the persons whose name matches with "Manmohan Singh".

Question 6. [15]

Define a class to store n integers in a single dimensional array A[]. Create two more arrays E[] and O[] to store even numbers from A[] in E[] and odd numbers from A[] in O[]. Print E[] followed by O[], along with a suitable heading.

Question 7. [15]

Define a class to input a string and count how many capital letters, small letters and digits it contains. Display the three counts.

eg. input is " 12, Rajpur Road" output should be

capitals:2
smalls:8
digits:2

Question 8. [15]

Define a class to input a string. Check that it contains only uppercase characters. If not, display a message "Not Ok" and terminate the program. Otherwise find and print the highest letter in it.

eg. input is "YAK" output should be Y.