



BOYS' HIGH SCHOOL AND COLLEGE
FIRST TERM EXAMINATION (2025-26)
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 or correct options only)

- i) A man is a boss in the office, father at home, is a customer in a mall and a tourist when visiting a place, is an example:
 - a) Abstraction
 - b) Inheritance
 - c) Encapsulation
 - d) Polymorphism
- ii) A class which inherits the features of another class is called:
 - a) Subclass
 - b) Derived class
 - c) Child class
 - d) All of the above
- iii) Which of the following is valid function prototype in Java:
 - a) public void Fun (int a, b, char ch)
 - b) void int Sum (int a, int b)
 - c) public double (double a, double b)
 - d) boolean check (int a, int b, char ch)
- iv) The list of parameters used in a function call statement, is called:
 - a) Local parameters
 - b) Formal parameters
 - c) Informal parameters
 - d) Actual parameters
- v) Invoking a method by passing the objects of a class is termed as:
 - a) Pure method
 - b) Impure method
 - c) Call by value
 - d) Call by reference
- vi) The method that does modify the state of an object is called :
 - a) Mutator Function
 - b) Impure Function
 - c) Both a & b
 - d) Pure Function
- vii) "BHS" library is an example of _____ access specifier.
 - a) public
 - b) protected
 - c) private
 - d) School Library
- viii) The method that does not have a return type not even void.
 - a) Call by value
 - b) Function overloading
 - c) Constructor
 - d) User-defined method
- ix) Name the package that include the Wrapper Classes:
 - a) java.io
 - b) java.Scanner
 - c) java.lang
 - d) java.util
- x) Which is not a composite data type:
 - a) class
 - b) String
 - c) long
 - d) Array
- xi) Automatic conversion of primitive data type float to Float wrapper class is known as:
 - a) Explicit type
 - b) Autoboxing
 - c) Unboxing
 - d) Implicit type
- xii) System.out.println(Integer.toString(987) +Integer.toString(456)); choose the correct output:
 - a) 1443
 - b) 987456
 - c) 987654
 - d) "987564"
- xiii) The following for loop is an example of:


```
int i=0;
for(; true; i++)
{
    System.out.println( i );
}
```

 - a) Null loop
 - b) Infinite loop
 - c) Finite
 - d) Delay loop
- xiv) System.out.println(Math.ceil(Math.max(5.5, 7.8)));

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- a) 7.0
- b) 8.0

- c) 7.8
- d) 7.5

xv) How many times the following loop will get executed:

```
int i=0;
while(i<3)
{
    System.out.println(++ i);
}
```

- | | |
|------|----------|
| a) 1 | c) 0 |
| b) 1 | d) 0 1 2 |
| 2 | |
| 2 | |
| 3 | |

xvi) Select the valid Character wrapper class method:

- a) Character.isLetterOrDigit(char)
- b) Character.isDigitOrLetter(char)
- c) Character.isWhitespaces(char)
- d) Character.isWhiteSpace(char)

xvii) Select the valid example of Unboxing:

- a) Float a=13.06;
float f=a;
- b) float a=13.06;
Float f=a;
- c) Float a=new Float(23.56);
- d) Float a=13.06;

xviii) The output of the following program segment:

```
System.out.println(Character.isLowerCase(Character.toUpperCase('a')));
```

- | | |
|----------|---------|
| a) false | c) True |
| b) False | d) True |

xix) **Assertion(A):** Name of the constructor must be same as of class name and do not have void and return type.

Reason(R): Constructors are only used to initializes and allocate storage space for the data members of the class.

- a) Both A and R are true and R is the correct explanation of A
- b) A is correct explanation but R is not the correct explanation of A
- c) A is true but R is false
- d) A is false but R is true

xx) **Assertion(A):**In Java, method overloading allows a class to have multiple methods with same name but different parameter list.

Reason(R): Method overloading improves code readability and eliminates the need for multiple method names.

- a) Both A and R are true and R is the correct explanation of A
- b) A is correct explanation but R is not the correct explanation of A
- c) A is true but R is false
- d) A is false but R is true

Question 2

i) Show the output of the following valid program segment:

```
for( int n=625, sum=0; n>0; n=n/10 )
{
    sum+=n%10;
    System.out.println( sum);
}
```

[2]

ii) Evaluate the given expression when the value of int a=2 and int b=3:

b* = a++ - ++b + ++a;

[2]

iii) Show the output of the following program segment:

```
char ch= 'C';
char chr= Character.toLowerCase(ch);
int n=(int)chr-10;
System.out.println((char) n+ "\t" + chr);
```

[2]

iv) Convert the following loop into exit controlled loop.

```
int a, b;
for( a=20, b=1; a>=10; a-=2 )
```

[2]

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

System.out.println( b);
```

- v) Give the output of the following program segment and specify how many times, the outer and inner loop will be executed. [2]

```
for( int i=1, sum=0; i<=5;i++)
{
    for( int j=1; j<=i; j++)
    {
        if( j%2==0)
            break;
        else
            sum+=j;
    }
    System.out.println(sum);
}
```

- vi) Show the output of the following program segment: [2]

```
System.out.println( " Dear Ma'am, \n \ " I will complete my work today.\n " );
```

- vii) Write the valid java expression for the following : [2]

```
double result = | a - b | * (  $\sqrt{x^2 - y^3}$  )
```

- viii) Sam has created the following program to return the factorial of n natural numbers, [2]
but there are some errors, help him to correct errors.

```
class Demo
{
    public int Factorial( x)
    {
        for( int i = x; fact=1; i<=1 ; i--)
        {
            Fact*=i }
            System.out.println( factorial); }
}
```

- ix) Consider the following program and answer the questions given below: [2]

```
class Exam
{
    int a, b;
    Exam ( )
    {
        a = 0;
        b = 0;
    }
    public void Grade ( )
    {
        char grade;
    }
    public static void main( String args[ ] )
    {
        //.....
    }
}
```

Question:

1. Name what type of variables a, b and grade are?
2. Name what type of function Exam() and void Grade() are?
3. Write a statement to create an object named grade of class Exam.

- x) Consider the following program segment and answer the questions given below: [2]

```
class Test
{
    int a, b;
    Test( )
    {
        a = 15;
        b = 25;
    }
    Test ( int x, int y)
```

```

    {
        a=x;
        b=y;
    }
    public void Display()
    {
        System.out.println( a * b);
    }
    public static void main(String args[] )
    {
        Test obj= new Test( );
        obj.Display( );
        Test obj = new Test( 25, 35);
        obj.Display( );
    }
}

```

- Name the OOP'S concept depicted in the above program.
- Show the output of the following program.

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]

Design a class Payment with the following specifications:

Data members:

String name	Name of the customer
double bill_amt	Input bill amount
String mode	Input payment mode
double tot_amt	Amount to be paid by the customer after discount

Member Method:

void Accept() Input name of the customer, bill amount & payment mode,
use Scanner class to input above values

void calculate ()

Bill Amount	Payment mode	Discount
less than ₹50,000	Credit Card(CC)	20%
	Debit Card(DC)	10%
	E_wallet(EW)	5%
	Cash	No Discount

More than or equal to
₹50,000

Credit Card(CC)	30%
Debit Card(DC)	20%
E_wallet(EW)	10%
Cash	No Discount

void Display ()

Display the customer's name, bill amount, payment mode
discount amount paid by the customer.

Write a main method to create an object and call the above functions.

Question 4

[15]

Define a class to overload the method Display() to perform the following task:

void Display (double, double, double) - Calculate and print the area of scalene triangle:

Area = $\sqrt{s(s-a)(s-b)(s-c)}$, $s = (a + b + c)/2$

void Display (int, char) - Use nested loop to generate the following

pattern:

EEEE

DDDD

CCC

BB

A

void Display (int)

- Calculate and print the sum of the following series:

$S = \frac{x^1}{2!} + \frac{x^2}{3!} + \frac{x^3}{4!} + \frac{x^4}{5!} + \dots + \frac{x^n}{(n+1)!}$

Question 5

[15]

Design a class 'Task' to perform the following function:

(You must use the following function definition only)

public String Toggle (String st) - Using Character wrapper class methods convert all the upper case character in lowercase and all the lower case character in upper case in the given word and return the toggle case string.

public boolean Password (String Str)-Using Character wrapper class methods to check whether the given string is a strong password. A strong password must be 8 characters in length and should be the combination of uppercase, lowercase, digits and special character. If, it is eight characters returns true else return false.

uppercase characters + lowercase characters + digits + special character = 8

Write a main method to create an object and call the above functions by passing actual parameters only.

Question 6

[15]

Design a class 'Number' to perform the following functions:

(You must use the following function definition only)

public void SuperSpy (int n) - Check and print an appropriate message, if the given number is a superspy number or not. A number is superspy if the sum of digits is equal to the number of digits.

Example: 1021, 1+0+2+1 = 4

public void Magic (int n) - Check and print a message "Magic Number" else print "Not a Magic Number". A magic number is a number whose eventual sum of digits is equal to 1.

Example: 28= 2 + 8 = 1+ 0 = 1

Write a main method to create an object and call the above functions by passing actual parameters only.

Question 7

[15]

Write a program to input a string using Scanner class function. Use Character wrapper class methods only to count the number of alphabets, digits, blank spaces and special characters.

Example: Input String:

Boys' High School And College, 4, P. D
Tandon Road Prayagraj-211001

Display the output:

Number of alphabets....
Number of digits....
Number of blank spaces....
Number of special characters....

Question 8

[15]

Design a class 'Palindrome' to check whether the input number is a palindrome number or not. Class details are as follows:

class name Palindrome

Data members:

int num to store integer number
int revnum to store reverse number

Member Method:

Palindrome (int n) Parameterized constructor to assign num=n
boolean Reverse () Using while loop reverse the number and store it revnum.

void check () Check whether the number is Palindrome by invoking the function Reverse () and print "It is Palindrome number" else print "It is not a Palindrome number"

Write a main method to create an object and call the above functions by passing actual parameter only by using input through Scanner class.