I TERM EXAMINATION : 2025-26

Class - X

Time : 2 hrs. **Subject - Computer Application** **M.M. : 100**

Answers to this paper must be written on the paper provided separately.
You will not be allowed to write during the first 15 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 to write the answers.
This paper is divided into TWO sections.
Answer ALL the questions in Section A and any FOUR questions from Section B.
The intended marks for questions or parts are given in [ ].

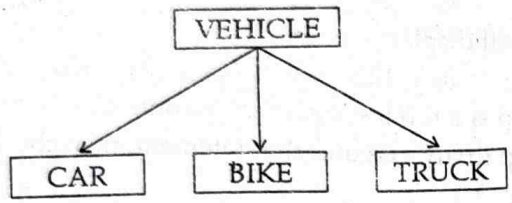
SECTION - A [40 MARKS]

Attempt ALL questions from this section.

[20]

Q.1- Choose the correct answer from the following option:-

i. Name the feature of Java depicted in the picture.



a) Vehicle is the object and it's examples are classes.
b) Both Vehicle and it's examples are classes.
c) Vehicle is a class and it's examples are objects.
d) Both Vehicle and it's examples are objects.

ii. *Assertion (A)* : The += operator can be used to add a value to a variable and assign the result to that variable.

Reason (R) : The += operator is a compound assignment operator that combines addition with assignment.

a) Assertion and Reason both are correct.
b) Assertion is true and Reason is false.
c) Assertion is false and Reason is true.
d) Assertion and Reason both are false.

iii. A keyword, to use the classes defined in package is -

a) static b) import c) switch d) public

iv. Which of the following keyword is used to create symbolic constants in Java?

a) final b) Final c) Constant d) Const

v. The fundamental building block of a Java program is -

a) object b) class c) variable d) method

vi. The extension of byte code file is -

a) .jvm b) .java c) .class d) .javac

vii. Which OOP'S principle works on the principle of reusability?

a) Encapsulation b) Inheritance
c) Polymorphism d) Data Abstraction

viii. Identify the operator that gets the highest precedence while evaluating the given expression : 2a + b % c * 3d - 2e

a) + b) - c) % d) *

ix. Which method returns the smallest integer that is greater than or equal to the argument?

a) Math.floor( ) b) Math.ceil( )
c) Math.abs( ) d) Math.round ( )

x. Which keyword causes an immediate exit from the switch case or loop?

a) break b) continue c) jump d) exit

xi. Arrange the following code snippets to form a valid Java while loop.

A. i++;
B. while(i<10)
C. int i = 1;
D. System.out.println(i) ;

a) B, C, D, A b) C, B, D, A
c) A, D, B, C d) C, A, D, B

xii. The output of the following code is :

System.out.println (Math.ceil(11.4) + Math.floor(–8–6)) ;

a) –2.0 b) 2.0 c) 2 d) None

xiii. System.out.println('Z' + 32) will display -

a) z b) Z c) 122 d) 154

xiv. *Assertion (A)* : While loop is a top testing or entry controlled loop.
Reason (R) : While loop firstly executes the statement, then check the condition.

a) Assertion and Reason both are correct.
b) Assertion is true and Reason is false.
c) Assertion is false and Reason is true.
d) Assertion and Reason both are false.

xv. How many times int i = 10; while (i > 4) System.out.println(i--); executes?

a) 5 b) 6 c) 3 d) 4

xvi. System.out.println("Top ranking student is " + "\' Amit Saxena \' ");
The output of the above statement is :

a) Top ranking student is "Amit Saxena "
b) Top ranking student is ' Amit Saxena '
c) "Top ranking student is ' Amit Saxena ' "
d) Top ranking student is Amit Saxena

xvii. The output of 42/6%2 is

a) 0 b) 2 c) 10 d) 1

xviii. A data type which contains integer, as well as fractional part and occupies 32 bits of space is -

a) float b) char c) double d) byte

xix. The Scanner class is a ____ class.

a) Primitive b) Derived
c) Wrapper d) Super class

xx. Math.pow(625,1/2) + Math.sqrt(144) will give the output -

a) 17.0 b) 13.0 c) 37.0 d) 13

Q.2- i. Write Java expression - [2]

$$\sqrt{x+y(a+b)^2}$$

ii. Find the value of the following expression? If a = 12, b = 8 [2]

a* = ++a/6+b++?3+4

iii. How many times will the following loop executes? What will be the output? [2]

```
int  x = 2, y = 50;
do
    {    ++x ;
    y-= x++; }
    while (x <= 10) ;
    System.out.println( y) ;
```

iv. The following code segment should print the factors of a number input from the user, but has errors. Correct the code. [2]

```
Scanner sc = new Scanner ( System. in)
    int n = sc. nextLine( );
    for ( int i = 1, i <= n, i++)
    if(i%n == 0)
    System.out.println( i ) ;
```

v. Convert the given loop into exit controlled loop. [2]

```
int a, b;
for (a = 10, b = 4; a <= 16; a++, b+ = 2)
{    System.out.println(a--);  }
```

vi. Rewrite the following program segment using if-else statement. [2]

```
String g=(m >= 90) ? "A" : ( m>=80) ? "B" : "C" ;
```

vii. Give the output : [2]

a) Math.floor(-4.7) * Math.cbrt(27)

b) Math.ceil (3.4) + Math.pow(2, 3)

viii. Rewrite the following condition without using logical operator : [2]

```
if ( a>b || a>c )
    System.out.println( a ) ;
```

ix. Answer the following : [2]

a) Name the package which contains the function System. exit(0) ;

b) What is an instance of the class called?

x. Name any two classes of java.lang package related to your syllabus. [2]

SECTION - B [60 MARKS]

Attempt any FOUR questions from this Section.

The answer in this section should consist of the programs either Blue J environment or any program environment with Java as the base.

Each program should be written using ***variable description/mnemonic*** codes such that the logic of the program is clearly depicted.

Flow charts and algorithms are not required.

Q.3- Define a class CloudStorsge to input the user's account number and amount of storage space in GB. Calculate the bill as per the following criteria : [15]

Storage range	***Price per GB(Rs)***
First 15 GB	₹ 15
Next 15 GB	₹ 13
Above 30 GB	₹ 11

Print the account number, storage space and bill to be paid.

Q.4- Write a menu driven program to perform the following according to user's choice. [15]

a) To input a number. If the number is positive even, display three succeeding even numbers. If the number is negative odd, display three preceding odd numbers otherwise, display the message "Number is neither a positive even nor a negative odd"

eg. Sample Input : -21 Output : -19, -17, -15
Sample Input : 34 Output : 36, 38, 40
Sample Input : 41 Output : The number is neither a positive even nor a negative odd.

b) To input three unequal numbers and display the second largest number.
eg. Sample Input : 66, 41, 98 Sample Output : 66

Q.5- Write separate programs to find the sum of the following series.

a) 2 - 4 + 6 - 8 + ... - 20 [8]

b) (1 * 2) + (2 * 3) + ... (19 * 20) [7]

Q.6- Write a program to input a number and check if it is a Disarium number Or not. (It is a number whose sum of digits powered with their respective position is equal to the number.)

eg. 175 = ~~11~~ + ~~72~~ + ~~53~~ $1^1+7^2+5^3$ [15]

Q.7- Write a program to input a number and check if the sum of largest and the smallest digit is an even number or an odd number. Print appropriate message. [15]

eg. : Sample Input : 6425 → 6 + 2 → Sum is even
Sample Input : 3748 → 8 + 3 → Sum is odd

Q.8- Write separate programs for thr following patterns:- [8]

a.
```
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
```

b. [7]
```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

#####

SECTION - A

[20]

Q1 i) c
ii) a
iii) b
iv) a
v) a
vi) c
vii) b
viii) d
ix) b
x) a
xi) b
xii) a
xiii) c
xiv) b
xv) b
xvi) b
xvii) d
xviii) a
xix) b
xx) b

Q2 i) `Math.sqrt(x+y * Math.pow((a+b),2))` [2]

ii) a = 96 [2]

iii) loop will execute 5 times and y = 15 [1+1]

iv) [1/2 * 4]

```
Scanner sc = new Scanner (System.in);
int n = sc.nextInt();
for(int i=1; i<=n; i++)
  if (n%i==0)
  System.out.println(i);
```

v) [2]

```
int a=10, b=4;
do {
    System.out.println(a--);
    a++; b+=2; }
while (a<=16);
```

[2]

vi)
```
String g;
if (m>=90)
    g="A";
else if (m>=80)
    g="B";
    else
    g="C";
```

[1+1]

vii) a) -15.0

b) 12.0

viii) [2]
```
if (a>b)
    System.out.println(a);
else if (a>c)
    System.out.println(a);
```

ix) [1+1]

a) java.lang

b) object

x) Math class, String class [1+1]

SECTION - B

Q3-
```
import java.util.*;
public class CloudStorage
{ public static void main()
  { Scanner sc = new Scanner (System.in);
    long an;
    int ss, bill = 0;
    System.out.println("Enter account number");
    an = sc.nextLong();
    System.out.println("Enter storage space in GB");
```

```
ss = sc.nextInt();
if (ss<=15)
    bill = ss*15;
else if (ss>=16 && ss<=30)
        bill = (15*15) + (ss-15)*13;
    else
        bill = (15*15) + (15*13) + (ss-30)*11;
System.out.println("Account Number = " + an);
System.out.println("Storage space = " + ss);
System.out.println("Bill to be paid = " + bill);
}}
```

[13]
[VD+2]

Q4-

```
import java.util.*;
public class Q4
{ public static void main()
  { Scanner sc = new Scanner(System.in);
    char ch;
    int n,a,b,c;
    System.out.println("Enter 'a' for first option and 'b' for
        second option");
    ch = sc.next().charAt(0);
    switch(ch)
    { case 'a': System.out.println("Enter a number");
                n = sc.nextInt();
                if (a>0 && a%2==0)
                    System.out.println("The succeeding numbers
are = " + (a+2) + ", " + (a+4) + ", " + (a+6));
else if (a<0 && a%2!=0)
  System.out.println("The preceding numbers are = " + (a-2) + ",
        + (a-4) + ", " + (a-6));
else
```

```
System.out.println("The number is neither a positive even nor
a negative odd");
break;
case 'b': System.out.println("Enter three numbers");
          a = sc.nextInt();
          b = sc.nextInt();
          c = sc.nextInt();
if((a>b)&&(a>c))
 { if(b>c)
      System.out.println("The second largest number = " + b);
   else
      System.out.println("The second largest number = " + c);
 }
if((b>c)&&(b>a))
 { if(c>a)
      System.out.println("The second largest number = " + c);
   else
      System.out.println("The second largest number = " + a);
 }
if((c>a)&&(c>b))
 { if(a>b)
      System.out.println("The second largest number = " + a);
   else
      System.out.println("The second largest number = " + b);
 }
 break;
default:
    System.out.println("Wrong choice");
 }
}
}
```

[13]

[XD+2]

Q5 a)
```
public class Q5a
{ public static void main()
  { int i, s=0, c=2;
    for(i=1; i<=10; i++)
    { if (i%2 != 0)
      { s=s+c;
        c=c+2;
      }
    else
      { s=s-c;
        c=c+2;
      }
    }
  System.out.println("Sum of the series =" + s);
}}
```

[7]
[VD + 1]

b)
```
public class Q5b
{ public static void main()
  { int i, s=0;
    for(i=1; i<=19; i++)
    { s=s+(i*(i+1));
    }
  System.out.println("Sum of the series =" +s);
  }
}
```

[6]
[VD + 1]

84-

```
import java.util.*;
public class Disarium
{public static void main()
  { Scanner sc = new Scanner(System.in);
    int n,d,s=0,dup,c=0,p=0
    System.out.println("Enter a no");
    n= sc.nextInt(); dup=n;
    while (dup!=0)
    { d=dup % 10;
        c++;
    }
     dup=n;
    while (dup!=0)
    { d= dup%10;
      p = (int) Math.pow(d,c);
       s=s+p; c--;
       dup= dup/10;
    }
    if(n==s)
     System.out.println(n+"is a Disarium number");
    else
      System.out.println(n+" is not a Disarium number");
  }
}.
```

[13]
[VD+2]

Q7-

```
import java.util.*;
public class Q7
{ public static void main()
  { Scanner sc = new Scanner (System.in);
    int n, s=0, l=0, sum=0;
    System.out.println("Enter a number");
    n= sc.nextInt(); dup = n;
    s= n%10;
    l = n%10;
     while (dup!=0)
     { d= dup%10;
        if (d<=s)
          s=d;
        if (d>=l)
          l=d;
        dup = dup/10;
     }
      sum = s+l;
  if(sum%2==0)
  System.out.println("Sum of largest and smallest no. is Even");
  else
   System.out.println("Sum of largest and smallest no. is Odd");
  }
}
```

[13]

[VD+2]

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Date

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Q8 a)

```
public class Q8a
{ public static void main()
  { int i, j;
    for(i=1; i<=5; i++)
    { for(j=1; j<=i; j++)
      { if(j%2==1)
          System.out.print("1 ");
        else
          System.out.print("0 ");
      }
      System.out.println();
    }
  }
}
```

[7]
[VD + 1]

b)

```
public class Q8b
{ public static void main()
  { int i, j;
    for(i=1; i<=5; i++)
    { for(j=5; j>=i; j--)
      { System.out.print(j+" ");
      }
      System.out.println();
    }
  }
}
```

[6]
[VD + 2]