PRELIMINARY EXAMINATION: 2024-2025

CLASS: X C, D, E, F, G

SUBJECT: COMPUTER APPLICATIONS

NAME OF STUDENT:..... MAX. MARKS: 100

DATE:..... TIME: 2 HOURS

NOTE: 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 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

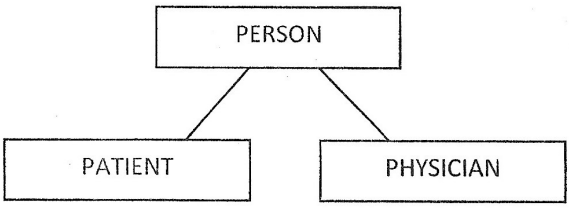
(Attempt all questions from this Section.)

Question 1 **[20]**

Choose the correct answer and write the correct option.

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

(i)



Name the feature of java depicted in the above picture.

(a) Encapsulation (b) Inheritance

(c) Abstraction (d) Polymorphism

(ii) Identify the type of operator &&:

(a) ternary (b) unary

(c) logical (d) relational

(iii) Name the type of error, if any in the following:

System.out.print("Hello")

(a) logical (b) no error

(c) runtime (d) syntax

(iv) A mechanism of binding data and methods in a unit is called:

(a) Abstraction (b) Encapsulation

(c) Inheritance (d) Polymorphism

(v) The Scanner class method used to accept words with space:

(a) next() (b) Next()

(c) nextLine() (d) nextString()

(vi) The absence of _____ statement leads to fall through situation in switch case statement.

(a) continue (b) break

(c) return (d) System.exit(0)

(vii) A method which does not modify the value of variables is called:

(a) Impure method (b) Primitive method

(c) Pure method (d) User-defined method

(viii) Which of the following is a valid integer constant:

1. 4
2. 4.0
3. 4.3f
4. "four"

(a) Only 1 (b) 1 & 3
(c) 2 & 4 (d) 1 & 2

(ix) Give the output of:
"devote".compareTo("DEVOTE")
(a) 32 (b) true
(c) -32 (d) false

(x) What will be value of y after execution of the following code:

```
int x=3,y=4;
switch(x+3)
{
case 6: y=0;
case 7: y=1; break;
default: y+=1;
}
System.out.println(y);
```

(a) 0 (b) 1
(c) 5 (d) 8

(xi) The scope of local variables is within the:
(a) class (b) package
(c) block in which variable is declared (d) method

(xii) What is the size of int and long data type in bits?
(a) 32 and 32 (b) 32 and 64
(c) 64 and 32 (d) 64 and 64

(xiii) Method that checks whether a character is a letter or digit:
(a) Isletterordigit(char) (b) LetterOrDigit(char)
(c) isLETTERorDIGIT(char) (d) isLetterOrDigit(char)

(xiv) What will be the output of Math.round(6.6)+Math.ceil(3.2)?
(a) 11.0 (b) 11
(c) 10.0 (d) 10

(xv) What will be the output of Math.sqrt(16)+Math.floor(-2.0)?
(a) -2.0 (b) 2.0
(c) -1.0 (d) -3.0

(xvi) **Assertion(A)**: Java is a platform independent language.
Reason(R): Java byte code can run on any platform that has JVM.
(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

(xvii) What is the output of the following statement:
d=Math.pow("256".indexOf('5'),3);
(a) 8.0 (b) 27.0
(c) 125.0 (d) 1.0

(xviii) Java statement to access the 5th element of an array is:
(a) X[4] (b) X[5]
(c) X[3] (d) X[0]

(xix) Identify the correct array declaration statement:
(a) int a[10]; (b) int a[ ]=new int [10];
(c) int a[i]=10; (d) int a[10]=new int[ ];

(xx) If arr[]={7, 5, 3, 1, 4, 8}; what will be the value of b?
b=arr.length*arr[5];
(a) 48 (b) 24
(c) 40 (d) 30

Question 2

(i) Write the Java expression for: [2]

$$X=\frac{\sqrt{A^2+B^2}}{A+B}$$

(ii) Evaluate the expression: [2]

```
int x=4;
x*= --x + x++ + x;
```

(iii) Give the output of the following code: [2]

```
String A="52.0", B="48.0";
Double C=Double.parseDouble(A);
Double D=Double.parseDouble(B);
System.out.println((C+D));
```

(iv) Give the output of the following code: [2]

```
String wd="CONVENTIONAL";
System.out.println(wd.substring(0,7));
System.out.println(wd.lastIndexOf(wd.charAt(2)));
```

(v) What is the return type of the following methods? [2]

(a) isWhitespace(char)

(b) toUpperCase(char)

(vi) Determine how many times the loop will be executed and what will be the output of the program segment? [2]

```
int n=5634;
while(n>0)
{
    int d=n%10;
    System.out.println(d);
    n=n/100;
}
```

(vii) Name the following: [2]

(a) Instance of the class.

(b) Method which has the same name as that of the class name.

(viii) Determine the value of a and b: [2]

```
int x[][]={{4,6,8,2},{7,4,1,9}, {1,6,3,2}};
```

(a) a=x.length;

(b) b=x[0].length;

(ix) Find the value of res: [2]

```
int n1=10, n2=20;
res=(n1>n2)? (n1+n2):(n1-n2);
```

(x) Differentiate between constructor and method. [2]

SECTION B

(Answer any four questions from this Section.)

The answers in this section should consist of the programs in either BlueJ environment on 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 [15]

Design a class with the following specifications:

Class name : Student

Member variables:

name : name of student

age : age of student

mks : marks obtained

stream : stream allocated

(Declare the variables using appropriate data types)

Member methods:

void accept() : Accept name, age and marks using methods of Scanner class.

void allocation() : Allocate the stream as per following criteria:

mks	stream
>= 300	Science and Computer
>= 200 and < 300	Commerce and Computer
>= 75 and < 200	Arts and Animation
< 75	Try Again

void print() : Display student name, age, mks and stream allocated.

Call all the above methods in main method using an object.

Question 4 **[15]**

Define a class to accept values into an array of double data type of size 20. Sort the array in descending order using Selection Sort technique.

Question 5 **[15]**

Define a class to overload the function display as follows:

void print(): To display the following pattern:

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

void print(int x, int y, char ch): if ch=='r' or ch=='R' displays the remainder when x is divided by y else displays the quotient.

Question 6 **[15]**

Define a class to accept values into a 3x3 array and check if it is a Diagonal Special array. An array is said to be Diagonal Special if the sum of the left diagonal is equal to the sum of right diagonal.

Example:

A[][]={{3, 2, 1}, {5, 9, 7}, {6, 2, 4}};

Sum of the left diagonal=3+9+4=16

Sum of the right diagonal=1+9+6=16

Question 7 **[15]**

Write a java program to input a number and check whether it is EvenPal or not. A number is said to be EvenPal if the sum of the digits is an even number and the number is palindrome(reverse is equal to the number).

Example:343 is an EvenPal number, 3+4+3=10 and 343 is palindrome

Question 8 **[15]**

Define a class to accept a string and print the characters with the uppercase and lowercase reversed, but all the other characters should remain same as before.

Example:

INPUT: WelCoMe_2025

OUTPUT: wELcOmE_2025