

1st Pre-Board Examination 2023-24**Class : X****Sub : Computer Application****Time : 2 Hrs.****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 for writing the answer.

This paper is divided into two section, section A & B. Attempt all questions from section A, and any four questions from section B.

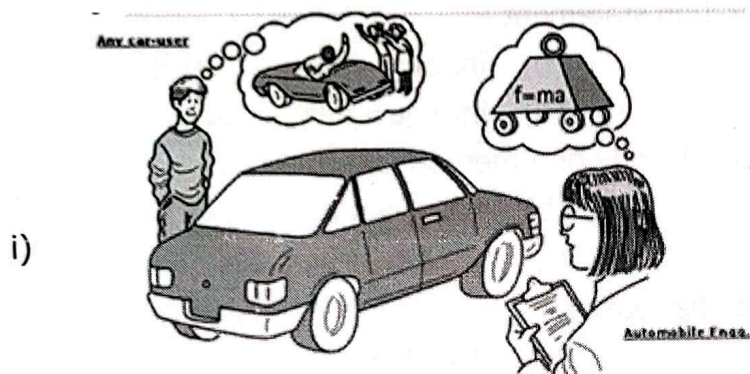
The intended marks for questions or parts of questions are given in brackets [].

Section - A (40 marks)
(Attempt all questions)

Question : 1

Choose the correct answers to the questions from the given options : [20]

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



Name the feature of java depicted in the above picture.

- (a) Encapsulation (b) Inheritance
(c) Abstraction ✓ (d) Polymorphism
- ii) The expression which uses ! operator is known as :
(a) Relational (b) Logical ~
(c) Arithmetic (d) Assignment
- iii) Name the type of error, if any in the following statement :
✓ `System.out.print(Math.cbrt(- 64));`
(a) Logical (b) no error
(c) Runtime (d) Syntax
- iv) What will be the output of following :
✓ `int x[] [] = { {1,2,3,4}, {5,6,7,8,9,10}};`
`int c = x[1].length;`
`System.out.print(" columns=" + c);`
(a) 4 (b) 5
(c) 6 ✓ (d) 10
- v) Procedure oriented programming gives importance to
(a) Instructions only (b) Instructions and data
(c) Data only (d) None of the above

- xvi) R In be
- vi) Which of the following is not a binary operator?
 (a) == ✓ (b) &&
 (c) ! (d) ||
- vii) The technique in which the change in the formal parameter gets reflected in the actual parameter is known as
 (a) Call by value (b) Call by argument
 (c) Pass by reference (d) Pass by value
- viii) Give the output of `Math.ceil(- 47.7);`
 (a) 47.0 (b) -48.0
 (c) -47.0 (d) 48
- ix) Which of the following is not a conditional construct?
 (a) if (b) if else ladder
 (c) continue ✓ (d) switch
- x) Give the output of `Math.cbrt(-729) + Math.sqrt(256);`
 (a) 25.0 ✓ (b) 7
 (c) 7.0 (d) -7.0
- xi) Identify the correct array declaration statement :
 (a) `int a[10] ;` (b) `int a[] = new a [10] ;`
 (c) `int []a= new int[10] ;` (d) `int []a= new a[10] ;`
- xii) Variable that is declared within the body of a method is termed as
 (a) instance variable (b) class variable
 (c) local variable (d) argument variable
- xiii) Corresponding wrapper class of char data type
 (a) character (b) CHAR
 (c) Character (d) CHARACTER
- xiv) **Assertion (A)** : Return keyword is used to finish the execution of a method.
Reason (R) : It returns control back to the calling function.
 (a) Both Assertion (A) and Reason (R) are true and Reason is correct explanation of Assertion (A).
 (b) Both Assertion (A) and Reason (R) are true and Reason is not correct explanation of Assertion (A).
 (c) Both Assertion (A) and Reason (R) are false
 (d) Assertion (A) is true and Reason is false
- xv) **Assertion (A)** : final defines an entity once that can not be changed.
Reason (R) : if a class is declared as final, it cannot be derived later..
 (a) Both Assertion (A) and Reason (R) are true and Reason is correct explanation of Assertion (A).
 (b) Both Assertion (A) and Reason (R) are true and Reason is not correct explanation of Assertion (A).
 (c) Both Assertion (A) and Reason (R) are false
 (d) Assertion (A) is true and Reason is false

xvi) Read the following text and choose the correct answer :

Inheritance in Java is a mechanism in which one object acquires all the properties and behavior of a parent object. It is an important part of OOPs (Object Oriented Programming system) . The idea behind inheritance in Java is that you can create new classes that are built upon existing classes.

A class member declared protected becomes a member of subclass of which type?

- (a) public member (b) private member
(c) protected member (d) static member

xvii) A documentation comment start with

- (a) // (b) /**
(c) /*** (d) None of these

xviii) get method is an example of

- (a) Mutator method (b) Accessor method
(c) Class method (d) Static method

xix) It is also known as desktop application or window based application.

- (a) Stand alone Application (b) Java Applet
(c) Servlet (d) Package

xx) Array elements are stored in memory location.

- (a) Contiguous (b) Random
(c) Sequence and random (d) Binary

Question : 2

i) State the number of bytes and bits occupied by a character array of 20 elements. [2]

ii) If `String x = "Computer";` [2]

`String y = "Science";`

What will be the following return?

- (a) `System.out.println(x.substring(2,6));`
(b) `System.out.println(x.indexOf(y.charAt(3)));`

iii) Write java statement for following mathematical expression : [2]

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

iv) Find the value of `+ + a * (a++ +5) + 3 * - - a`, if `a = 12`. [2]

v) State the type of errors, if any in the following statement. [2]

(a) `Switch(x < 2)`

(b) `int a = 100, b = 0 ;`

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

vi) What will be the output of the following code? [2]

```
int num = 10;
```

```
if ( num < 20 )
```

```
System.out.print(num + +);
```

```
else
```

```
System.out.println( - - num);
```

vii) Find the output of the given code :

```
int a, b =100;
for( a= 10; a< = 12; a + +)"
{
b + = a;
}
System.out.println( "a : " + a + " " + "b : " + b );
```

viii) The following code has some error(s) underline it and correct error(s).

```
int x = 4, y = 8;
{
y = y + ( x + +)
} while( x< = 10)
System.in.println( y );
```

[2]

- ix) State the method that determines, if the specified character is an uppercase character. [2]
- x) Write the data type of the following functions. [2]
 - (a) startsWith()
 - (b) log()

Section - B (60 marks)
(Attempt any four questions)

Question : 3

[15]

Define a class to declare an array of size 20 of double datatype, accept the elements into the array and perform the following :

- i) Calculate and print the sum of all the odd elements.
- ii) Calculate and print smallest and largest value of the array.

Question : 4

[15]

Write a program to print following pattern on the basis of user's choice.

i) 1 2 3 4 5
 2 3 4 5
 3 4 5
 4 5
 5

ii) d
 e f
 g h i
 j k l m
 n o p q r

Question : 5

[15]

Write a program to accept a string, convert the string to uppercase. Count and print the number of double letter sequences that exist in the string.

e.g. **Input :** Aarav will buy a ball and bat tomorrow

Output : 4

Question : 6

[15]

Design a class RailwayTicket with following description :

Instance variable/ data member :

- name : to store the name of customer
- coach : to store the type of coach, customer wants to travel
- mobno : to store the mobile number of a customer
- amt : to store basic amount of ticket
- totamt : to store the amount to be paid after updating the original amount

:: 4 ::

Member methods :

- RailwayTicket() : to initialize data members of class with their default values.
- void accept() : to take input for name, coach, mobile number and amount.
- void update() : to update the amount as per the coach selected. Extra amount to be added as follows

Type of Coaches

Amount (₹)

First AC	700
Second AC	500
Third AC	250
Sleeper	50

void display() : to display all details of a customer such as name, coach, total amount and mobile number.

Write main method to create an object of class and call the above member methods.

Question : 7

[15]

Write a menu driven program to accept a number and choice from the user and check whether it is a palindrome or a Niven number.

- Palindrome number** - A number is a palindrome which, when read in reverse order is same as read in the right order. eg. 111, 121, 434 etc.
- Niven number** - Any positive number which is divisible by the sum of its digits is a Niven number or Harshad Number. eg. 111, 81, 42 etc.

Question : 8

[15]

Design a class to overload a function polygon() as follows:

- void polygon(int n , char ch) : with one integer and one character type argument that draw a filled square of side n using the character stored in ch.
- void polygon(int x , int y) : with two integer arguments that draw a filled rectangle of length x and breadth y. using symbol '@'
- void polygon() : with no argument that draws a filled triangle shown below.

Example :

i) **Input :** n = 2, ch = 'A'

Output : A A

A A

ii) **Input :** x = 3, y = 4

Output : @ @ @ @

@ @ @ @

@ @ @ @

iii) **Output :** #

#

#

#