

Sample Paper 01
ICSE Class X 2024-25
COMPUTER APPLICATIONS

Time: 2 Hours

Max. Marks: 100

General Instructions :

1. Answers to this Paper must be written on the paper provided separately.
 2. You will not be allowed to write during the first 15 minutes.
 3. This time is to be spent in reading the question paper.
 4. The time given at the head of this Paper is the time allowed for writing the answers.
 5. This Paper is divided into two Sections.
 6. Attempt all questions from Section A and any four questions from Section B.
 7. The intended marks for questions or parts of questions are given in brackets [].
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SECTION A

Attempt all questions from this part.

QUESTION 1.

Choose the correct answer and write the correct option.

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

- (i) What will this code produce as output ?

```
int a[] = {2, 4, 6, 8, 10};  
a[0] = 23;  
a[3] = a[1];  
int c = a[0] + a[1];  
System.out.println("Sum = " + c);
```

- | | |
|--------|--------|
| (a) 26 | (b) 23 |
| (c) 25 | (d) 27 |

- (ii) The process of binding the data and method together as one unit is called as

- | | |
|---------------------|-------------------|
| (a) Dynamic binding | (b) Inheritance |
| (c) Polymorphism | (d) Encapsulation |

- (iii) A collection of classes is known as a _____.

- | | |
|-------------|-------------------|
| (a) Package | (b) Function |
| (c) Method | (d) Wrapper class |

- (iv) What is the return type of the following function?

isLetterOrDigit(char)

- | | |
|-------------|-------------|
| (a) String | (b) Char |
| (c) Integer | (d) Boolean |

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- (v) What will the following code output?
- ```
String str = "Computer Applications" + 1 + 0;
System.out.println("Understanding " + str);
```
- (a) Understanding Computer Applications 10                      (b) Understanding Computer Application 20  
(c) Understanding Computer Application 10                      (d) Error
- (vi) What is the output of the following code.
- ```
String s1 = "welcome";  
String s2 = "island";  
System.out.println(s1.substring(0).concat(s2.substring(2)));  
System.out.println(s2.toUpperCase());
```
- (a) Welcome-land ISLAND (b) Welcome Land Island
(c) WELCOME LAND (d) Welcome land ISLAND Island
- (vii) This term refers to the name assigned to a package, class, interface, method, or variable.
- (a) Keyword (b) Token
(c) Literal (d) Identifier
- (viii) These constructors require parameters to be provided when creating objects.
- (a) Copy (b) Default
(c) Parameterized (d) None of the above
- (ix) `int code[] = [25, 37, 38, 42];`
The given statement
- (a) assigns 37 to code [1] (b) assigns 25 to code [1]
(c) assigns 38 to code [3] (d) assigns 42 to code [0]
- (x) The automatic conversion of a primitive data type into an object of its corresponding wrapper class is called:
- (a) auto-boxing (b) explicit conversion
(c) shifting (d) None of the above
- (xi) The `parseInt()` function is a member of
- (a) integer wrapper class (b) character wrapper class
(c) boolean wrapper class (d) None of these
- (xii) _____ members are accessible inside their own class, classes within the package and subclasses.
- (a) Private (b) Protected
(c) Public (d) None of these
- (xiii) Iteration is also known as
- (a) looping (b) repetition
(c) Both (a) and (b) (d) None of these
- (xiv) _____ are reference types, which hold the reference id of a memory location.
- (a) Composite types (b) Primitive types
(c) Attribute types (d) None of the above

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- (xv) Classes that inherit from Runtime-exception are referred to as:
- (a) Checked exceptions
 - (b) Unchecked exceptions
 - (c) Impure exceptions
 - (d) Static exceptions
- (xvi) Which of the following are invoked directly when an object is created?
- (a) Methods
 - (b) Arrays
 - (c) Constructors
 - (d) Strings
- (xvii) **Assertion (A) :** Array is a data type which can store multiple homogenous variables.
Reason (R) : Elements of array are stored in an indexed manner starting with index 0.
- (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.
- (xviii) Read the following text and choose the correct answer.
Abstraction is a key concept in Object-Oriented Programming (OP) that focuses on representing essential features while omitting unnecessary background details or explanations..
What is an abstraction?
- (a) Abstraction is more about 'What' a class can do.
 - (b) Abstraction is more about 'How' to achieve that functionality.
 - (c) It binds data and methods in a single unit.
 - (d) It implements using private access modifier.
- (xix) **Assertion (A) :** The factory of object means a factory that produces the objects.
Reason (R) : Class is known as object factory because single class generates a lot of objects.
- (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.
- (xx) Which of the following statement is incorrect?
- (a) Array can be initialized when they are declared.
 - (b) Array can be initialized using 'comma' separated expressions surrounded by curly braces.
 - (c) It is necessary to use 'new' operator to initialize an array.
 - (d) None of the above

QUESTION 2.

- (i) If `int a[] = {7, 3, 4, 8, 9, 2};` what are the values of x and y?
- (a) `x=a[1]*a[0]+a[3]`
 - (b) `y=a.length`

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- (ii) Determine the values of n and m after executing the following code:

```
int m;  
int n;  
m=5;  
n=(5*++m)%3;  
System.out.println("n="+n+"m="+m);
```

- (iii) Identify the keyword that:

- (a) Indicates an error has occurred during an input/output operation.
- (b) Differentiates between an instance variable and a class variable.

- (iv) What will be the outcome of the following statements?

```
int a=3;  
System.out.println(" "+(1+a));  
System.out.println(" "+1+a);
```

- (v) Name the primitive data type in Java that is a 64 bits integer and is used when you need a range of values under than those provided by int.

- (vi) Give the prototype of a function search, which receives a sentence sentc and a word wrd and returns 1 or 0.

- (vii) Determine the output of the following code.

```
String str = "I Love My Family";  
System.out.println(Integer.toStr  
ing(str.length()));  
System.out.println(str.substring  
(12));
```

- (viii) Write a Java statement for the following mathematical expression :

$$V = \frac{1}{3}\pi r^2 h$$

- (ix) What will be the output of the following expressions?

- (a) Math.pow(3.4, 2)+2*Math.sqrt(64)
- (b) Math.ceil(3.4)+2*Math.floor(3.4)+2

- (x) How many times will the loop in the following code execute?

```
int x=2, y=50;  
do  
{  
    ++x;  
    y-=x++;  
}while (x<=10);  
return y;
```

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SECTION B

Attempt any four questions from this section.

QUESTION 3.

Write a program in Java which prints Fibonacci series using arrays.

QUESTION 4.

Rahul Transport Company charges customers for parcel deliveries based on the following specifications:

Class name	Atransport
Member variables	
String name	to store the name of the customer
int w	to store the weight of the parcel in Kg
int charge	to store the charge of the parcel
Member functions	
void accept ()	to accept the name of the customer, weight of the parcel from the user (using Scanner class)
void calculate ()	To calculate the charge as per the weight of the parcel as per the following criteria
Weight in Kg Charge per Kg	
Upto 10 Kgs Rs. 25 per Kg	
Next 20 Kgs Rs. 20 per Kg	
Above 30 Kgs Rs. 10 per Kg	
A surcharge of 5% is charged on the bill.	
void print()	to print the name of the customer, weight of the parcel, total bill inclusive of surcharge in a tabular form in the following format: Name Weight Bill amount ----- ----- -----

Define a class with the above-mentioned specifications, create the main method, create an object and invoke the member methods.

QUESTION 5.

Use a switch statement to draw the following patterns:

- (i) A B C D E D C B A
 A B C D C B A
 A B C B A
 A B A
 A
- (ii) 1
 2 1
 3 2 1
 4 3 2 1
 5 4 3 2 1

QUESTION 6.

Using the switch statement, write a menu driven program for the following :

(i)

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

(ii)

```
B
B L
B L U
B L U E
```

QUESTION 7.

A showroom offers the following discounts based on the total cost of items purchased::

Total Cost	Discount	Item
Less than or up to Rs. 1000	3%	Teapot
Rs. 1001 to R s. 3000	5%	Dinner set
Rs. 3001 to Rs. 5000	10%	Plate
More than Rs. 5000	15%	Rack

Write a program to input the total cost of the item purchased, discount, amount to be paid after availing discount.

QUESTION 8.

Write a Java program to display the pattern of the string entered by user. There are two choices F and L. If user choose F, then first character of each word display. But if user choose L, then last character of each word display.

Sample Input HELLO WONDERS WORLD

Output	Choose F	Choose L
	H	O
	W	S
	W	D
