

**ICSE 2025 EXAMINATION**  
**Sample Question Paper – 2**  
**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 [ ].

**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) Identify the statement that involves a fall-through behavior:**

- |                |              |
|----------------|--------------|
| (a) Switch     | (b) For loop |
| (c) If-else-if | (d) If-else  |

**Answer:** (d) If-else

**(ii) This variable can be accessed by calling with the class name.**

- |              |                   |
|--------------|-------------------|
| (a) Instance | (b) Local         |
| (c) Class    | (d) None of these |

**Answer:** (c) Class

**(iii) Which of the following statements is true about logical errors?**

- (a) The compiler cannot detect these errors.
- (b) No error indication is shown when the program runs.
- (c) The program may yield correct results for some inputs but incorrect results for

others.

(d) All of the above

**Answer:** (d) All of the above

**(iv) Object-oriented programming primarily utilizes which of the following approaches?**

(a) Bottom-up approach

(b) Top down and bottom up approach

(c) Top down approach

(d) None of the above

**Answer:** (c) Top down approach

**(v) In which technique are the values of actual parameters copied to the formal parameters?**

(a) Call by reference

(b) Call by value

(c) Call by argument

(d) Call by method

**Answer:** (b) Call by value

**(vi) What is the main purpose of passing arguments to functions?**

(a) Message passing

(b) Parameter passing

(c) Variable passing

(d) Argument passing

**Answer:** (a) Message passing

**(vii) Which package would you import for the Scanner class?**

(a) java.util.\*;

(b) java.awt.\*;

(c) java.io.\*;

(d) java.lang.\*;

**Answer:** (a) java.util.\*;

**(viii) Give the output of Math.abs(x); when x = - 15.75**

(a) - 15.75

(b) 15.75

(c) 0.75

(d) None of these

**Answer:** (b) 15.75

**(ix) Which of the following is the correct way to declare an integer array with 10 elements?**

(a) int[ ] arr = new int[10];

(b) int arr;

(c) int arr (10);

(d) int ( ) arr = new int (10);

**Answer:** (a) int[ ] arr = new int[10];

**(x) This access specifier is the most open access level.**

- |               |             |
|---------------|-------------|
| (a) Protected | (b) Public  |
| (c) Default   | (d) Private |

**Answer:** (b) Public

**(xi) A/An \_\_\_\_ is an abstract description of a set of objects.**

- |                  |                   |
|------------------|-------------------|
| (a) Class        | (b) Encapsulation |
| (c) Polymorphism | (d) Abstraction   |

**Answer:** (a) Class

**(xii) What is the corresponding wrapper class for the float data type?**

- |           |              |
|-----------|--------------|
| (a) FLOAT | (b) Float    |
| (c) Float | (d) Floating |

**Answer:** (c) Float

**(xiii) What will be the output of the following code snippet?**

```
int size = 2;  
if (size < 0)  
    System.out.println("Small");  
else if (size == 0)  
    System.out.println("Medium");  
else  
    System.out.println("Large");
```

- |            |                   |
|------------|-------------------|
| (a) Small  | (b) Large         |
| (c) Medium | (d) Runtime error |

**Answer:** (b) Large

**(xiv) What will be the output of the following code snippet?**

```
System.out.println("Bangalore".substring(1, 5));
```

|               |          |
|---------------|----------|
| (a) Bangalore | (b) Bang |
| (c) Anga      | (d) Lore |

**Answer:** (c) Anga

**(xv) If int arr[ ] = {2, 4, 6, 8, 10}; what is the value of arr.length?**

- |       |                          |
|-------|--------------------------|
| (a) 5 | (b) 4                    |
| (c) 6 | (d) Cannot be determined |

**Answer:** (a) 5

**(xvi) A binary search**

- (a) Can be used with sorted arrays only.
- (b) Can be used with unsorted arrays only.
- (c) Can be used with both sorted and unsorted arrays.
- (d) Cannot be used with arrays.

**Answer:** (a) Can be used with sorted arrays only.

**(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.

**Answer:** (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A).

**(xviii) Read the following text and choose the correct answer:**

The public access specifier enables a class to make its member variables and functions accessible to other functions and objects. With this specifier, any public member can be accessed from outside the class. Which access specifier is required for a class to ensure it can be inherited by a subclass?

- (a) Public
- (b) Private
- (c) Protected
- (d) None of the mentioned

**Answer:** (a) Public

**(xix) Assertion (A) :** Method should be called explicitly either with object reference or class reference.

**Reason (R) :** Method can be any user defined name.

- (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.

**Answer:** (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A).

**(xx) Which method is used to check if a specified char value is uppercase?**

- |                       |                       |
|-----------------------|-----------------------|
| (a) toUpperCase(char) | (b) toLowerCase(char) |
| (c) isLowerCase(char) | (d) isUpperCase(char) |

**Answer:** (d) isUpperCase(char)

## QUESTION 2.

**(i) Write the values that will be assigned to x,y and t after executing the following code.**

```
public class StringManipulation {  
    public static void main(String[] args) {  
        String s1, s2, x, y;  
        int t;  
  
        s1 = "computer";  
        s2 = "science";  
  
        x = s1.substring(3, 6);  
        y = s2.concat(s1);  
        t = y.length();  
  
        System.out.println("x=" + x);  
        System.out.println("y=" + y);  
        System.out.println("t=" + t);  
    }  
}
```

**Answer:**

Output

x=put

y=sciencecomputer

t=15

**(ii) The following code has some error(s). Rewrite the correct code and underlining all the corrections made.**

```

int counter=0;
integer i=15; num;
for(num=i; num>=1; num- -)
{
    If i%num=0
    {
        counter=counter+1;
    }
}

```

**Answer:**

```

int counter = 0;
int i = 15; // _integer_ changed to _int_
for (int num = i; num >= 1; num--) // Added _int_ before num, fixed _- _
to _--_
{
    if (i % num == 0) // Fixed _i%num_ to _i % num_ for readability
    {
        counter = counter + 1;
    }
}

```

**(iii) Rewrite the following program segment using while instead of for loop.**

```

int f=1, i;
for(i=1; i<=5; i++)
{
    f *=i;
    System.out.println(f);
}

```

**Answer:**

```

int f = 1, i = 1;
while (i <= 5)
{
    f *= i;
    System.out.println(f);
    i++;
}

```

**(iv) Write the values of c and d after execution of following code.**

```
int a = 3;  
int b = 4;  
int c;  
int d;  
c = ++b;  
d = a++;  
c++;
```

**Answer:**

value of c is 6.

value of d is 3.

**(v) Write the values that will be stored in variables num and sum after executing of following code.**

```
int sum = 5;  
int num = -3;  
  
do {  
    sum = sum + num;  
    num++;  
} while (num < 2);
```

**Answer:**

value of num = 0

value of sum = 2

**(vi) Predict the output of the following.**

(a) Math. pow(3.5, 3) + Math. ceil (4.2)

(b) Math. round (3.6) + Math. log (10)

**Answer:**

(a) 47.875

(b) 6.302

**(vii) Observe the following code and write how many times will be the loop execute?**

```

a = 8;
b = 6;
while (b != 0) {
    r = a % b;
    a = b;
    b = r;
}
System.out.println(" " + a);

```

**Answer:** The loop will be executed 2times.

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

$$a = \frac{0.02 - 3y^3}{x + y}$$

**Answer:**

```

a = (0.02 - 3 * Math.pow(y, 3)) / (x + y);

```

**(ix) Give the output of the following expression, when a=6.**

`a += ++ +a +a++ +a-- +a-- + --a + ++a`

**Answer:**

```

a += ++a + a++ + a-- + a-- + --a + ++a [a = 6]
a = a + (++a + a++ + a-- + a-- + --a + ++a) [a = 6]
a = 6 + (7 + a++ + a-- + a-- + --a + ++a) [a = 7]
a = 6 + (7 + 7 + a-- + a-- + --a + ++a) [a = 8]
a = 6 + (7 + 7 + 8 + a-- + --a + ++a) [a = 7]
a = 6 + (7 + 7 + 8 + 7 + --a + ++a) [a = 6]
a = 6 + (7 + 7 + 8 + 7 + 5 + ++a) [a = 5]
a = 6 + (7 + 7 + 8 + 7 + 5 + 6) [a = 6]
a = 6 + 40
a = 46

```

**(x) State the method that**

(a) converts a string to a primitive float data type.

(b) determines if the specified character is an uppercase character.

**Answer:**

- (a) Float.parseFloat()
- (b) Character.toUpperCase()

## **SECTION B**

Attempt any four questions from this section.

### **QUESTION 3.**

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

**Answer:**

```
import java.util.*;

public class Fibonacci {
    static int fib(int n) {
        int f[] = new int[n + 2];
        f[0] = 0;
        f[1] = 1;
        for (int i = 2; i <= n; i++) {
            f[i] = f[i - 1] + f[i - 2];
        }
        return f[n];
    }
    public static void main(String
args[]) {
        int N = 10;
        for (int i = 0; i < N; i++) {
            System.out.print(fib(i) + " ");
        }
    }
}
```

### **QUESTION 4.**

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

|                                           |                                                                                                                                                                                                   |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Class name</b>                         | <b>Atransport</b>                                                                                                                                                                                 |
| <b>Member variables</b>                   |                                                                                                                                                                                                   |
| 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                                                                                                                                                                 |
| <b>Member functions</b>                   |                                                                                                                                                                                                   |
| 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                                                                                                             |
| <b>Weight in Kg    Charge per Kg</b>      |                                                                                                                                                                                                   |
| 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:<br>Name    Weight    Bill amount<br>-----    -----    ----- |

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

**Answer:**

```
import java.util.Scanner;

class Atransport {
    String name;
    int w, charge;

    void accept() {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the name of the customer: ");
        name = sc.nextLine();
        System.out.print("Enter the weight of the parcel in Kg: ");
        w = sc.nextInt();
    }
}
```

```

void calculate() {
    if (w <= 10) {
        charge = w * 25;
    } else if (w <= 30) {
        charge = 250 + (w - 10) * 20;
    } else {
        charge = 550 + (w - 30) * 10;
    }

    // Add 5% surcharge
    charge += charge * 0.05;
}

void print() {
    System.out.println("Name\tWeight\tBill amount");
    System.out.println(name + "\t" + w + "\t" + charge);
}

public static void main(String[] args) {
    Atransport obj = new Atransport();
    obj.accept();
    obj.calculate();
    obj.print();
}
}

```

### 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

**Answer:**

```

import java.util.Scanner;

public class PatternSwitch {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the pattern number (1 or 2): ");
        int pattern = sc.nextInt();

        switch (pattern) {
            case 1:
                drawPattern1();
                break;
            case 2:
                drawPattern2();
                break;
            default:
                System.out.println("Invalid pattern number.");
        }

        sc.close();
    }
}

```

```

private static void drawPattern1() {
    System.out.println("Pattern 1:");
    for (int i = 1; i <= 5; i++) {
        for (int j = 1; j <= 9 - 2 * i; j++) {
            System.out.print(" ");
        }
        for (int j = i; j >= 1; j--) {
            System.out.print((char) ('A' + j - 1));
        }
        for (int j = 2; j <= i; j++) {
            System.out.print((char) ('A' + j - 1));
        }
        System.out.println();
    }
}

```

```

private static void drawPattern2() {
    System.out.println("Pattern 2:");
    for (int i = 1; i <= 5; i++) {
        for (int j = 1; j <= i; j++) {
            System.out.print(j);
        }
        System.out.println();
    }
}

```

### 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

```

### Answer:

```

import java.util.Scanner;

public class MenuDrivenProgram {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int choice;

        do {
            System.out.println("Menu:");
            System.out.println("1. Print pattern (i)");
            System.out.println("2. Print pattern (ii)");
            System.out.println("3. Exit");
            System.out.print("Enter your choice: ");
            choice = scanner.nextInt();
        }
    }
}

```

```

        switch (choice) {
            case 1:
                printPattern1();
                break;
            case 2:
                printPattern2();
                break;
            case 3:
                System.out.println("Exiting program.");
                break;
            default:
                System.out.println("Invalid choice. Please try again.");
        }

    } while (choice != 3);

    scanner.close();
}

public static void printPattern1() {
    for (int i = 1; i <= 5; i++) {
        for (int j = 1; j <= i; j++) {
            System.out.print(j + " ");
        }
        System.out.println();
    }
}

public static void printPattern2() {
    String word = "BLUE";
    for (int i = 0; i < word.length(); i++) {
        for (int j = 0; j <= i; j++) {
            System.out.print(word.charAt(j) + " ");
        }
        System.out.println();
    }
}
}

```

### 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.

**Answer:**

```
import java.util.Scanner;

public class DiscountCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the total cost of the item purchased: ");
        double totalCost = scanner.nextDouble();

        double discount = 0;
        String item = "";

        if (totalCost <= 1000) {
            discount = 3;
            item = "Teapot";
        } else if (totalCost <= 3000) {
            discount = 5;
            item = "Dinner set";
        } else if (totalCost <= 5000) {
            discount = 10;
            item = "Plate";
        } else {
            discount = 15;
            item = "Rack";
        }

        double discountAmount = (totalCost * discount) / 100;
        double amountToPay = totalCost - discountAmount;

        System.out.println("Item Purchased: " + item);
        System.out.printf("Discount: %.2f%%\n", discount);
        System.out.printf("Discount Amount: Rs. %.2f\n", discountAmount);
        System.out.printf("Amount to Pay: Rs. %.2f\n", amountToPay);

        scanner.close();
    }
}
```

### 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        |

**Answer:**

```
import java.util.Scanner;

public class DisplayPattern {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a string: ");
        String inputString = scanner.nextLine();

        System.out.print("Choose F for first character or L for last character: ");
        char choice = scanner.next().charAt(0);

        scanner.close();

        String[] words = inputString.split("\\s+");

        System.out.println("Output:");

        if (choice == 'F') {
            for (String word : words) {
                System.out.println(word.charAt(0));
            }
        } else if (choice == 'L') {
            for (String word : words) {
                System.out.println(word.charAt(word.length() - 1));
            }
        } else {
            System.out.println("Invalid choice. Please choose F or L.");
        }
    }
}
```