ICSE 2025 EXAMINATION

SPECIMEN QUESTION PAPER

COMPUTER APPLICATIONS

Maximum Marks: ***100***

Time allowed: ***Two hours***

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 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[ ].

Instruction for the Supervising Examiner

Kindly read aloud the Instructions given above to all the candidates present in the Examination Hall.

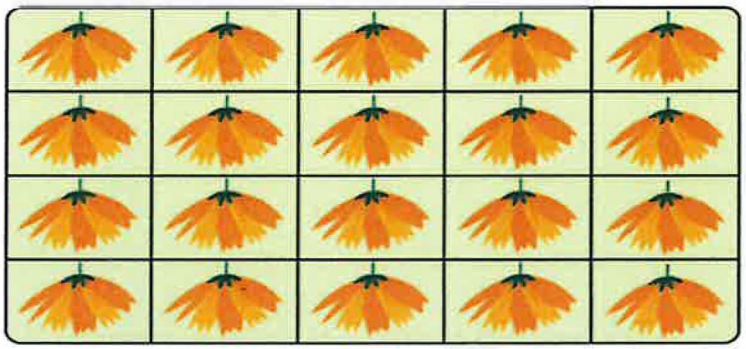
SECTION A

*(Attempt **all** questions from this **Section**.)*

Question 1 [20]

Choose the correct answers to the questions from the given options.

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

(i) 

Name the above structure:

(a) One dimensional array

(b) Two Dimensional array with 4 rows and 5 columns

(c) Three dimensional array

(d) Two Dimensional array with 5 rows and 4 columns **[Analysis]**

(ii) "Java compiled code (byte code) can run on all operating systems"
– Name the feature.

(a) Robust and Secure

(b) Object Oriented

(c) Platform Independent

(d) Multithreaded **[Understanding]**

(iii) The size of '\n ' is:

(a) 2 bytes

(b) 4 bytes

(c) 8 bytes

(d) 16 bytes **[Recall]**

(iv) Identify the operator that gets the highest precedence while evaluating the given expression:

a + b % c * d – e

(a) +

(b) %

(c) –

(d) * **[Analysis]**

(v) Which of the following is a valid java keyword?

(a) If

(b) BOOLEAN

(c) static

(d) Switch **[Understanding]**

(vi) The output of the following code is:

System.out.println(Math.ceil(6.4)+Math.floor(-1-2));

(a) 3.0

(b) 4

(c) 3

(d) 4.0 **[Analysis]**

(vii) Which of the following returns a String?

(a) length()

(b) charAt(int)

(c) replace(char, char)

(d) indexOf(String) **[Understanding]**

(viii) Which of the following is not true with regards to a switch statement?

(a) checks for an equality between the input and the case labels

(b) supports floating point constants

(c) break is used to exit from the switch block

(d) case labels are unique **[Understanding]**

(ix) Consider the array given below:

char ch[]={ 'A','E','I','O', 'U'};

Write the output of the following statements:

System.out.println(ch[0]*2);:

(a) 65

(b) 130

(c) 'A'

(d) 0

[Analysis]

(x) To execute a loop 10 times, which of the following is correct?

(a) for (int i=11;i<=30;i+=2)

(b) for (int i=11;i<=30;i+=3)

(c) for (int i=11;i<20;i++)

(d) for (int i=11;i<=21;i++)

[Analysis]

(xi) A single dimensional array has 50 elements, which of the following is the correct statement to initialize the last element to 100.

(a) x[51]=100

(b) x[48]=100

(c) x[49]=100

(d) x[50]=100

[Analysis]

(xii) Method prototype for the method compute which accepts two integer arguments and returns true/false.

(a) void compute (int a, int b)

(b) boolean compute (int a, int b)

(c) Boolean compute (int a,b)

(d) int compute (int a, int b)

[Understanding]

(xiii) The statement that brings the control back to the calling method is:

(a) break

(b) System.exit(0)

(c) continue

(d) return **[Recall]**

(xiv) The default value of a boolean variable is:

(a) False

(b) 0

(c) false

(d) True **[Recall]**

(xv) The method to convert a lowercase character to uppercase is:

(a) String.toUpperCase( )

(b) Character.isUppercase (char)

(c) Character.toUpperCase(char)

(d) toUpperCase ( ) **[Recall]**

(xvi) **Assertion (A):** Integer class can be used in the program without calling a package.

Reason (R): It belongs to the default package java.lang.

(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 **[Application]**

(xvii) A student executes the following code to increase the value of a variable 'x' by 2.

He has written the following statement, which is incorrect.

$x = +2;$

What will be the correct statement?

A. $x +=2;$

B. $x =2;$

C. $x = x +2;$

(a) Only A

(b) Only C

(c) All the three

(d) Both A and C **[Analysis]**

(xviii) The statement used to find the total number of Strings present in the string array String s[] is:

(a) s.length

(b) s.length()

(c) length(s)

(d) len(s) **[Analysis]**

(xix) Consider the following program segment in which the statements are jumbled, choose the correct order of statements to swap two variables using the third variable.

```
void swap(int a, int b)
{   a = b;        → (1)
    b = t;        → (2)
    int t = 0;    → (3)
    t = a;        → (4)
}
```

(a) (1) (2) (3) (4)

(b) (3) (4) (1) (2)

(c) (1) (3) (4) (2)

(d) (2) (1) (4) (3) **[Analysis]**

(xx) **Assertion(A):** An argument is a value that is passed to a method when it is called.

Reason(R): Variables which are declared in a method prototype to receive values are called actual parameters

(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 **[Application]**

Question 2

(i) Rewrite the following code using single if statement. [2]

```
if (code== 'g ')
System.out.println ("GREEN ");
else if (code== 'G ')
System.out.println ("GREEN ");
```

[Understanding]

(ii) Evaluate the given expression when the value of a=2 and b=3 [2]

```
b*=a++ - ++b + ++a;
System.out.println ("a= "+a);
System.out.println ("b= "+b);
```

[Analysis]

(iii) A student executes the following program segment and gets an error. Identify the statement which has an error, correct the same to get the output as WIN. [2]

```
boolean x = true;
switch(x)
{   case 1: System.out.println ("WIN"); break;
    case 2: System.out.println ("LOOSE");
}
```

[Analysis]

(iv) Write the Java expression for $\sqrt[3]{x} + \sqrt{y}$ [2]

[Understanding]

(v) How many times will the following loop execute? Write the output of the code: [2]

```
int x=10;
while (true) {
System.out.println (x++ * 2);
if (x%3==0)
break;
}
```

[Analysis]

(vi) Write the output of the following String methods: [2]

String x= "Galaxy ", y= "Games ";

(a) System.out.println (x.charAt(0)==y.charAt(0));

(b) System.out.println (x.compareTo(y)); **[Analysis]**

(vii) Predict the output of the following code snippet: [2]

```
char ch='B';
char chr= Character.toLowerCase(ch);
int n=(int) chr-10;
System.out.println((char)n+"\t"+chr);
```

(viii) A student is trying to convert the string present in x to a numerical value, so that he can find the square root of the converted value, However the code has an error. Name the error (syntax / logical / runtime). Correct the code so that it compiles and runs correctly. [2]

```
String x= "25";
int y=Double.parseDouble (x);
double r=Math.sqrt (y);
System.out.println (r);
```

[Analysis]

(ix) Consider the following program segment and answer the questions below: [2]

```
class calculate
{
    int a; double b;
    calculate()
    {
    a=0;
    b=0.0;
    }
    calculate(int x, double y)
    {
    a=x;
    b=y;
    }
  void sum()
  {
    System.out.println(a*b);
  }}
```

[Analysis]

Name the type of constructors used in the above program segment?

(x) Consider the following program segment and answer the questions given below: [2]

```
int x[ ] [ ] = { {2,4,5,6}. {5,7,8,1}, {34, 1,10, 9}};
```

(a) What is the position of 34?

(b) What is the result of x[2][3] + x[1][2]?

[Analysis]

SECTION B

*(Answer **any four** questions from this **Section**.)*

The answers in this section should consist of the programs in either BlueJ environment or 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.

Buffered Reader / Data Input Stream should not be used in the programs.

Question 3 [15]

Define a class with the following specifications:

Class name: Bank

Member variables:

double p – stores the principal amount

double n – stores the time period in years

double r – stores the rate of interest

double a – stores the amount

member methods:

void accept () – input values for p and n using Scanner class methods only.

void calculate () – calculate the amount based on the following conditions:

Time in (Years)	Rate %
Upto ½	9
> ½ to 1 year	10
> 1 to 3 years	11
> 3 years	12

$$a = p\left(1 + \frac{r}{100}\right)^n$$

void display () – display the details in the given format.

Principal	Time	Rate	Amount
xxx	xxx	xxx	xxx

[Understanding / Application]

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

Question 4 [15]

Define a class to search for a value input by the user from the list of values given below. If it is found display the message "Search successful", otherwise display the message "Search element not found" using Binary search technique.

[Understanding / Application]

5.6, 11.5, 20.8, 35.4, 43.1, 52.4, 66.6, 78.9, 80.0, 95.5.

Question 5 [15]

Define a class to accept a string and convert the same to uppercase, create and display the new string by replacing each vowel by immediate next character and every consonant by the previous character. The other characters remain the same.

Example: Input : #IMAGINATION@2024

Output : #JLBFJMBSJPM@2024

[Understanding / Application]

Question 6 [15]

Define a class to accept values into 4x4 array and find and display the sum of each row.

Example:

A[][]={1,2,3,4},{5,6,7,8},{1,3,5,7},{2,5,3,1}}

Output:

sum of row 1 =10 (1+2+3+4)

sum of row 2= 26 (5+6+7+8)

sum of row 3=16 (1+3+5+7)

sum of row 4= 11 (2+5+3+1)

[Understanding / Application]

Question 7

Define a class to accept a number and check whether it is a SUPERSPY number or not. A number is called SUPERSPY if the sum of the digits equals the number of the digits. [15]

Example1:

Input: 1021

output: SUPERSPY number [SUM OF THE DIGITS = 1+0+2+1 = 4,
NUMBER OF DIGITS = 4]

Example2:

Input: 125

output: Not an SUPERSPY number [1+2+5 is not equal to 3]

[Understanding / Application]

Question 8 [15]

Define a class to overload the method display() as follows:

void display(): To print the following format using nested loop.

1 2 1 2 1

1 2 1 2 1

1 2 1 2 1

void display (int n, int m) : To print the quotient of the division of m and n if m is greater than n otherwise print the sum of twice n and thrice m.

double display (double a, double b, double c) – to print the value of z where

$z = p \times q$

$p = \frac{a+b}{c}$ $q = a + b + c$

[Understanding / Application]

ICSE 2025 – SPECIMEN PAPER

DRAFT MARKING SCHEME – COMPUTER APPLICATIONS

Question 1		[20]
(i)	(b) Two Dimensional array with 4 rows and 5 columns	
(ii)	(c) Platform Independent	
(iii)	(a) 2 bytes	
(iv)	(b) %	
(v)	(c) static	
(vi)	(d) 4.0	
(vii)	(c) replace(char, char)	
(viii)	(b) supports floating point constants	
(ix)	(b) 130	
(x)	(a) for (int i=11;i<=30;i+=2)	
(xi)	(c) x[49]=100	
(xii)	(b) boolean compute (int a, int b)	
(xiii)	(d) return	
(xiv)	(c) false	
(xv)	(c) Character.toUpperCase(char)	
(xvi)	(a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A)	
(xvii)	(d) Both A and C	
(xviii)	(a) s.length	
(xix)	(b) (3) (4) (1) (2)	
(xx)	(c) Assertion (A) is true and Reason (R) is false	
Question 2		
(i)	if (code == 'g' || code == 'G') System.out.println("GREEN");	[2]
(ii)	a = 4, b = 6	[2]
(iii)	Statement with error - boolean x=true ; To get the required output - int x = 1;	[2]

(iv)	Math.cbrt(x) + Math.sqrt(y)	[2]
(v)	Loop is executed two times 20 22	[2]
(vi)	(a) true (b) -1	[2]
(vii)	X b	[2]
(viii)	Syntax error, double y = Double.parseDouble(x)	[2]
(ix)	Default constructor, Parameterized Constructor	[2]
(x)	(a) x[2][0] (b) 17 (9+8)	[2]
Question 3		

	import java.util.*;
	class bank
	{
	double p,n,r,a;
	Scanner ob = new Scanner(System.in);
	void accept()
	{
	System.out.println("Enter principal");
	p=ob.nextDouble();
	System.out.println("Enter number of years");
	n=ob.nextDouble();
	}
	void calculate()
	{
		[15]

```
    if(n<=0.5)
    r=9;
    else
    if(n>0.5&&n>=1)
    r=10;
    else
    if(r>1&&n<=3)
    r=11;
    a=p*Math.pow(1+r/100,n);
  }
  void display()
  {
    System.out.println("Principal"+"\t"+"Rate"+"\t"+"Time"+"\t"+"Amount");
    System.out.println(p+"\t"+r+"\t"+n+"\t"+a);
  }
  void main()
  {
    bank b = new bank();
    b.accept();
    b.calculate();
    b.display();
  } }
```

Question 4

[15]

```
class binary
{
  double x[]= {5.6, 11.5, 20.8, 35.4, 43.1, 52.4, 66.6, 78.9, 80.0, 95.5};
  double n;
  binary(double z)
  {
    n=z;
  }
  void search()
  {
    int f=0, l =x.length,m;
    while(f<=l)
    {
```

```
            m=(f+l)/2;
            if(x[m]==n)
            {
               System.out.println("Search Successful");
               System.exit(0);
            }
            if(x[m]<n) f=m+1;
            if(x[m]>n) l=m-1;
         }
         System.out.println("Search Unsuccessful");
      }
   }
```

Question 5 [15]

```
class convert
{
   String s;
   convert (String z)
   {
      s=z;
   }
   void convert()
   {
      int i, l= s.length();char ch; String ns="";
      for(i=0;i<l;i++)
      {
         ch=s.charAt(i);
         if(Character.isLetter(ch))
         {
         if("AEIOUaeiou".indexOf(ch)>=0)
            ns=ns+(char)(ch+1);
         else
            ns=ns+(char)(ch-1);
         }
         else
            ns=ns+ch;
         }
```

```
            System.out.print(ns);
        }
    }
```

Question 6

[15]

```
class sumrow
{
   int x[][]=new int[4][4];
   sumrow(int z[][])
   {
      x=z;
   }
   void calculate()
   {
      int r, c, s=0;
      for(r=0;r<4;r++)
      {
         for(c=0;c<4;c++)
         {
            s=s+x[r][c];
         }
         System.out.println("sum of row="+r+"="+s);
         s=0;
      }
   }
}
```

Question 7

[15]

```
class superspy
{
   int n;
   superspy(int x)
   {
      n=x;
   }
   boolean superspy()
   {
```

```
        int d,s=0,c=0;
        while(n>0)
        {
           d=n%10;
           s=s+d;
           c++;
           n=n/10;
        }
        if(s==c)
        return true;
        else
        return false;
    }
}
```

Question 8

[15]

```
class overload
{
   void display()
   {
      int r,c;
      for(r=1;r<=3;r++)
      {
         for(c=1;c<=5;c++)
         {
            if(c%2==0)
            System.out.print(2);
            else
            System.out.print(1);
         }
         System.out.println();
      }
   }
   void display(int m, int n)
   {
      if(m>n)
      System.out.println(m/n);
```

```
        else
        System.out.println(2*n+3*m);
    }
    void display(double a,double b, double c)
    {
        double z, p, q;
        p=(a+b)/c;
        q=a+b+c;
        z=p*q;
        System.out.println(z);
    }
}
```