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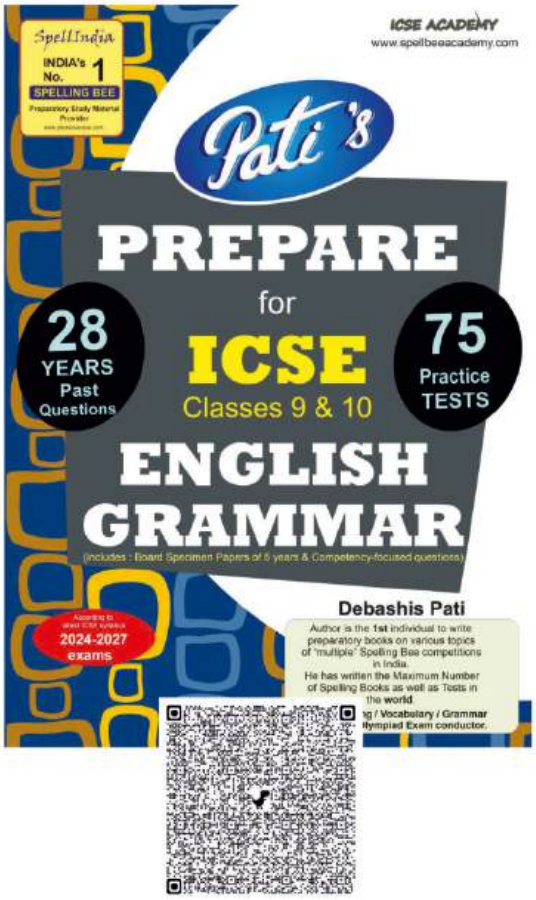

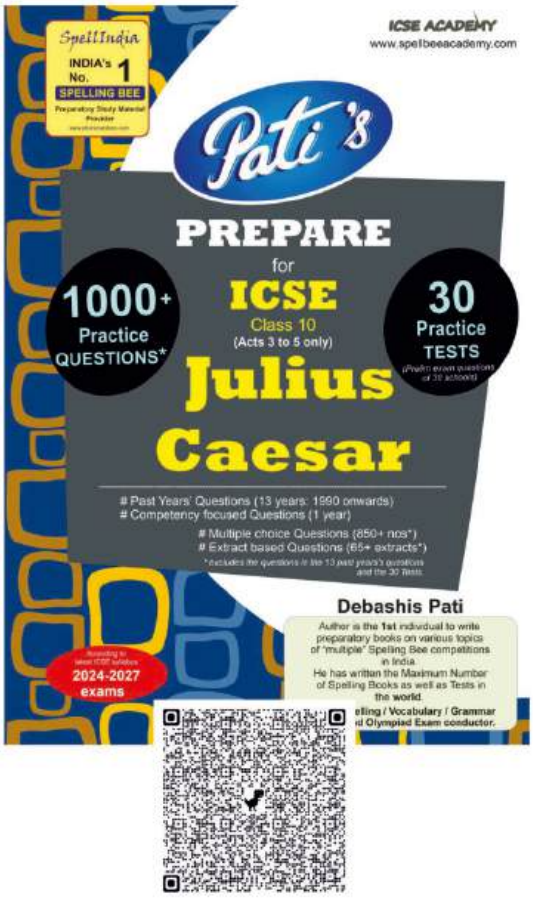

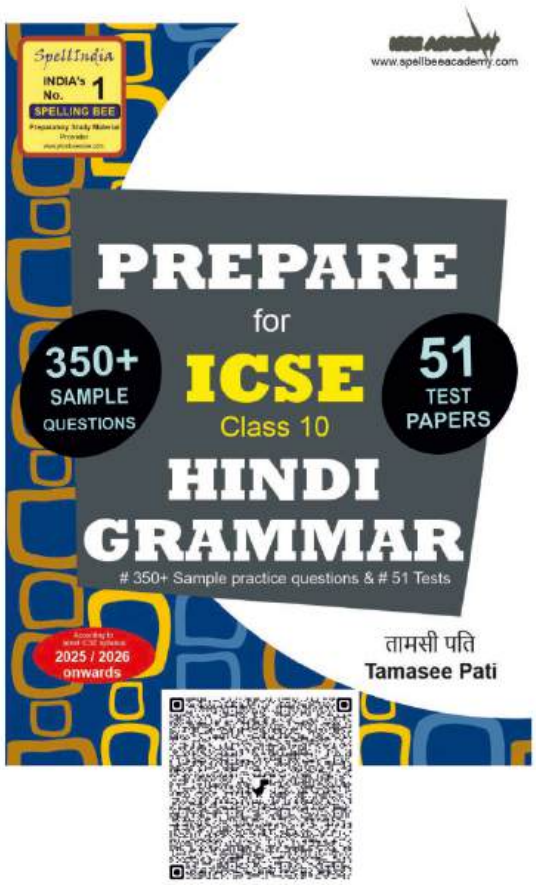

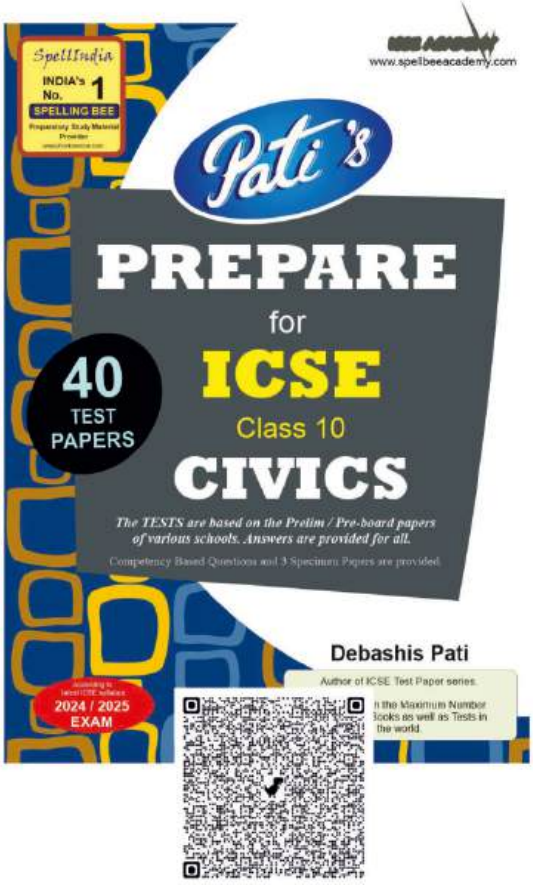

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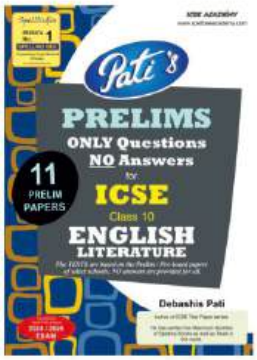

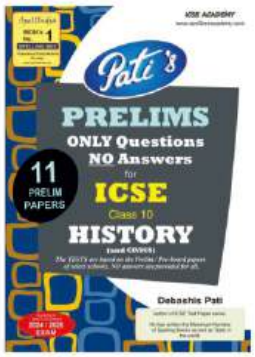

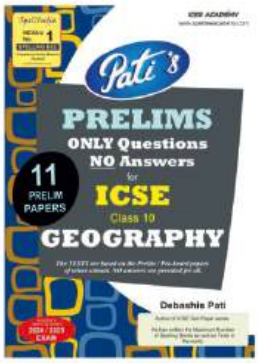

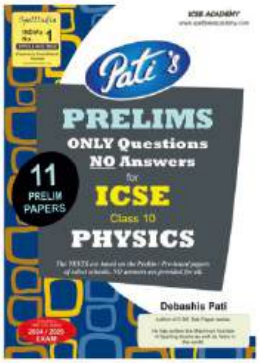

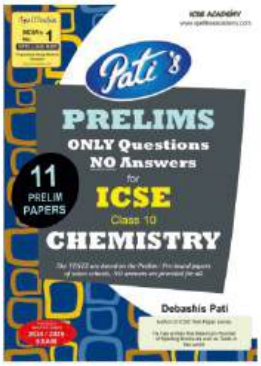

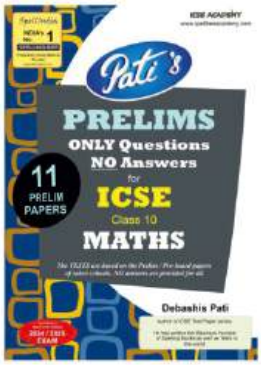

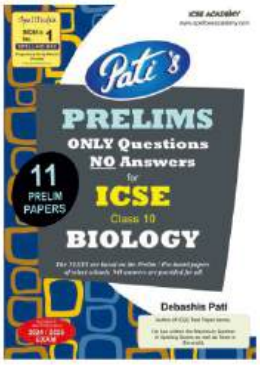

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Specimen Papers

- 2025

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Note this is a CISCE Question and Answer set.

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

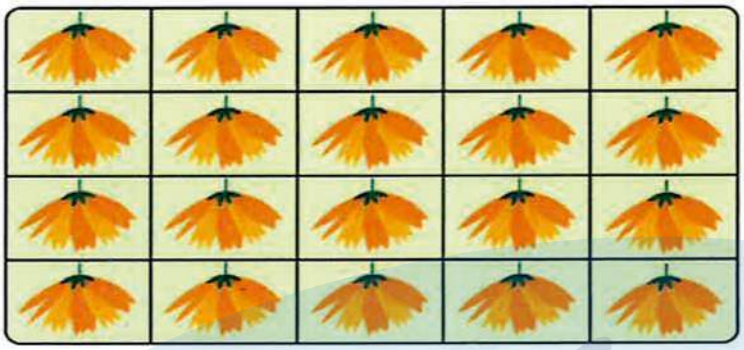
*(Attempt **all** questions from this **Section**.)*

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)

[An

(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");
}
```

[Ana

(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);
  }}
```

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

[Analysis]

(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 / Appli

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;	

(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);
    }
}
```

ICSE 2024 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[ ].

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 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) Ternary operator is a:

(a) logical operator

(b) arithmetic operator

(c) relational operator

(d) conditional operator

(iv) When primitive data type is converted to a corresponding object of its class, it is called:

(a) Boxing

(b) Unboxing

(c) explicit type conversion

(d) implicit type conversion

(v) The number of bytes occupied by a character array of 10 elements.

(a) 20 bytes

(b) 60 bytes

(c) 40 bytes

(d) 120 bytes

(vi) The method of Scanner class used to accept a double value is:

(a) nextInt()

(b) nextDouble()

(c) next()

(d) nextInteger()

(vii) Among the following which is a keyword:

(a) every

(b) all

(c) case

(d) each

(viii) The output of Math.round(6.6) + Math.ceil(3.4) is:

(a) 9.0

(b) 11.0

(c) 10.0

(d) 11

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

System.out.print("HELLO")

(a) logical

(b) no error

(c) runtime

(d) syntax

(x) Java statement to access the 5th element of an array is:

(a) X[4]

(b) X[5]

(c) X[3]

(d) X[0]

(xi) The output of "Remarkable".substring(6) is:

(a) mark

(b) emark

(c) marka

(d) able

(xii) Which of the following is the wrapper class for the data type char?

(a) String

(b) Char

(c) Character

(d) Float

(xiii) Name the package that contains wrapper classes:

(a) java.lang

(b) java.util

(c) java .io

(d) java.awt

(xiv) Constructor overloading follows which principle of Object Oriented programming?

(a) Inheritance

(b) Polymorphism

(c) Abstraction

(d) Encapsulation

(xv) Which of the following is a valid Integer constant:

1. 4

2. 4.0

3. 4.3f

4. “four”

(a) Only 1.

(b) 1. and 3.

(c) 2. and 4.

(d) 1. and 2.

(xvi) The method compareTo() returns _____ when two strings are equal and in lowercase :

(a) true

(b) 0

(c) 1

(d) false

(vii) Assertion(A): In java statements written in lower case letter or upper case letter are treated as the same.

Reason(R): Java is a case sensitive language.

(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:

A class encapsulate Data Members that contains the information necessary to represent the class and Member methods that perform operations on the data member.

What does a class encapsulate?

(a) Information and operation

(b) Data members and Member methods

(c) Data members and information

(d) Member methods and operation

(xix) Assertion(A): call by value is known as pure method

Reason(R): The original value of variable does not change as operation is performed on copied values.

(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 false and Reason (R) is true

(d) Assertion (A) is false and Reason (R) is true

(xx) What Will be the output for:

System.out.print(Character.toLowerCase('1'));

(a) 0

(b) 1

(c) A

(d) true

Question 2

(i) Write the Java expression for $(p + q)^2$ [2]

(ii) Evaluate the expression when the value of $x = 2$: [2]

$x = x ++ + ++ x + x$

(iii) The following code segment should print "You can go out" if you have done your homework (dh) and cleaned your room(cr). However, the code has errors. Fix the code so that it compiles and runs correctly. [2]

```
boolean dh = True;
boolean cr= true;
if (dh  &&  cr)
System.out.println("You cannot go out");
else
System.out.println("You can go out");
```

(iv) Sam executes the following program segment and the answer displayed is zero irrespective of any non zero values are given. Name the error. How the program can be modified to get the correct answer? [2]

```
void triangle(double b, double h)
{       double a;
a = ½ * b * h;
System.out.println("Area="+a);      }
```

(v) How many times will the following loop execute? What value will be returned? [2]

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

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

(a) "ARTIFICIAL ".indexOf('I')

(b) "DOG and PUPPY". trim().length()

(vii) Name any two jump statements. [2]

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

```
String a="20";
String b="23";
int p=Integer.parseInt(a);
int q=Integer.parseInt(b);
System.out.print(a+"*"+b);
```

(ix) When there is no explicit initialization, what are the default values set for variables in the following cases? [2]

(a) Integer variable

(b) String variable

(x) int P [ ]={ 12,14,16,18}; int Q[ ]={ 20,22,24}; [2]

Place all elements of P array and Q array in the array R one after the other.

(a) What will be the size of array R [ ] ?

(b) Write index position of first and last element?

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.

Question 3 [15]

Define a class called with the following specifications:

Class name: Eshop

Member variables:

String name: name of the item purchased

double price: Price of the item purchased

Member methods:

void accept(): Accept the name and the price of the item using the methods of Scanner class.

void calculate(): To calculate the net amount to be paid by a customer, based on the following criteria:

Price	Discount
1000 – 25000	5.0%
25001 – 57000	7.5 %
57001 – 100000	10.0%
More than 100000	15.0 %

void display(): To display the name of the item and the net amount to be paid.

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

Question 4 [15]

Define a class to accept values in integer array of size 10. Sort them in an ascending order using selection sort technique. Display the sorted array.

Question 5 [15]

Define a class to accept a string and convert it into uppercase. Count and display the number of vowels in it.

Input: robotics

Output: ROBOTICS

Number of vowels: 3

Question 6 [15]

Define a class to accept values into a 3×3 array and check if it is a special array. An array is a special array if the sum of the even elements = sum of the odd elements.

Example:

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

Sum of even elements = 4+6+2+4+2 =18

Sum of odd elements= 5+5+3+5=18

Question 7

Define a class to accept a 3 digit number and check whether it is a duck number or not. [15]

Note: A number is a duck number if it has zero in it

Example1:

Input: 2083

Output: Invalid

Example 2:

Input: 103

Output: Duck number

Question 8 [15]

Define a class to overload the method display as follows:

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

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

void display(int n): To print the square root of each digit of the given number

Example: n = 4329

output – 3.0

1.414213562

1.732050808

2.0

ICSE 2023 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[ ].

SECTION A

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

Question 1 [20]

Choose the correct answer and write the correct option.

(i) Wrapping up of data and methods together as one unit is termed as:

(a) Inheritance

(b) Polymorphism

(c) Encapsulation

(d) Abstraction

(ii) The datatype which is specified that the method does not return a value is:

(a) Void

(b) void

(c) VOID

(d) boolean

(iii) The logical operator which is an unary operator:

(a) &&

(b) ||

(c) !

(d) >>

(iv) The Scanner class is a _____ class.

(a) Primitive

(b) Derived

(c) Wrapper

(d) super class

(v) Math.pow(625, ½) + Math.sqrt(144)

(a) 17.0

(b) 13.0

(c) 37.0

(d) 13

(vi) The correct if statement for the following ternary operation statement is:

System.out.println(n%2 == 0? "true":"false");

(a)
```
if(n%2==0)
return true;
else
return false;
```

(b)
```
if(n%2==0)
return "true";
else
return "false";
```

(c)
```
if(n%2==0)
System.out.println("true");
else
System.out.println("false");
```

(d) if(n%2==0)
return false;
else
return false;

(vii) Multiple branching statement of java is:

(a) For

(b) while

(c) do… while

(d) switch

(viii) The number of bytes occupied by the constant 45 are:

(a) Four bytes

(b) two bytes

(c) Eight bytes

(d) one byte

(ix) do…..while loop is an

(a) entry controlled loop

(b) infinite loop

(c) exit controlled loop

(d) Finite loop

(x)
```
for(k=1;k<=2;k++)
{ for(m=1;m<=4;m++)
{ System.out.println(m*2);
}
}
```
How many times the inner loop is executed?

(a) 4 times

(b) 8 times

(c) 2 times

(d) 16 times

(xi) A method with the same name as of the class and with arguments and no return data type is termed as:

(a) parameterized constructor

(b) default constructor

(c) Non – parameterized constructor

(d) wrapper class method

(xii) int res='A'; What is the value of res?

(a) A

(b) 66

(c) 65

(d) 97

(xiii) The style of expressing single line comment is:

(a) /* comment*/

(b) * comment

(c) // comment

(d) /* comment

(xiv) The method to check if a character is an alphabet or not is:

(a) isLetter(char)

(b) isAlpha(char)

(c) isUppercase(char)

(d) isLowercase(char)

(xv) The output of Double.parseDouble("71.25") +0.75 is:

(a) 72

(b) 72.0

(c) 71.0

(d) 71.75

(xvi) The method to convert a string to upper case is:

(a) toUpperCase(char)

(b) toUPPERCASE(String)

(c) toUpperCase(String)

(d) touppercase(String)

(xvii) The output of the method "DETERMINATION".substring(2, 6) is:

(a) "TERM"

(b) term

(c) "Term"

(d) "TERMI"

(xviii) The array int x[10] occupies:

(a) 10 bytes

(b) 40 bytes

(c) 20 bytes

(d) 80 bytes

(xix) The element in x[4] of the array {3, 5, 7, 12, 16, 18, 20, 35, 42, 89} is:

(a) 16

(b) 12

(c) 7

(d) 18

(xx) Name the type of error that occurs for the following statement:

System.out.println(Math.sqrt(24 - 25));

(a) Syntax error

(b) run time error

(c) logical error

(d) no error

Question 2

(i) Evaluate the expression: [2]

Z += a++ + --b + ++a + --b;

where a = 10, b = 5, Z = 10

(ii) Write java expression for: $\left| x^2 + xy \right|$ [2]

(iii) Rewrite the following using ternary operators: [2]

```
if ( x > y )
c = 'A';
else
c = 'a';
```

(iv) Rewrite the following while loop using for loop: [2]

```
int x = 5;
while ( x <= 5)
{
x++;
}
System.out.println(x);
```

(v) How many times the following loop will gets executed? What is the output of the same? [2]

```
int counter=1;
do
{
System.out.println(counter);
} while ( counter ++ < 5 );
```

(vi) ."MISSISSIPPI".replace('S', 't').toLowerCase() [2]

(vii) "REDUCE".compareTo("REVOLT") + "ANTARTICA".lastIndexOf('A') [2]

(viii) Define boxing with an example. [2]

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

```
class sample
{     int a, b;
```

```
    sample(int x, int y)
    {     a = x; b = y;
    }
    void calculate()
    {     int z;
          z = a+b;
          System.out.println(z);
    }
}
```

(a) Name the global variables.

(b) What are the method variables?

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

int x [ ] = {23, 45, 67, 12, 45, 89, 24, 12, 9, 7}

(a) What is the size of the array?

(b) What is the position of 89?

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.

Question 3 [15]

Define a class with the following specifications:

Class name: employee

Member variables: eno – employee number

ename – name of the employee

age – age of the employee

basic – basic salary

[Declare the variables using appropriate data types]

Member methods:

void accept() –	accept the details using scanner class
void calculate () –	to calculate the net salary as per the given specifications: net = basic + hra + da – pf hra = 18.5% of basic da = 17.45% of basic pf = 8.10% of basic if the age of the employee is above 50 he/she gets an additional allowance of Rs.5000.
void print() –	to print the details as per the following format eno ename age basic net
void main() –	to create an object of the class and invoke the methods

Question 4 [15]

Define a class to overload the method print as follows:

void print () – to print the format

1

2 3

4 5 6

7 8 9 10

boolean print (int n) –	to check whether the number is a Dudeney number , a number is dudeney if the cube of the sum of the digits is equal to the number itself. Eg : 512 = (5+1+2)3 = (8)3 = 512
void print (int a, char ch) –	if ch = s or S print the square of the number else if ch = c or C print the cube of the number.

Question 5 [15]

Define a class to accept 10 integers and arrange them in descending order using bubble sort. Print the original array and the sorted array.

Question 6 [15]

Define a class to accept values into a double array of size 20 and print the range of the array, range is the difference between the largest and the smallest elements of the array.

Question 7 [15]

Define a class to accept a string and print the same in reverse, also print the number of vowels in the string.

Eg : S = "BEAUTIFUL" Output – "LUFITUAEB"

No. of vowels = 5

Question 8 [15]

Define a class to accept the names of 10 students in an array and check for the existence of the given name in the array using linear search, if found print the position of the name, if not found print the appropriate message. Also print the names which begins with the word "SRI".

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