ICSE QUESTION PAPER

2024

ICSE SUDY MATERIAL

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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 (40 Marks)

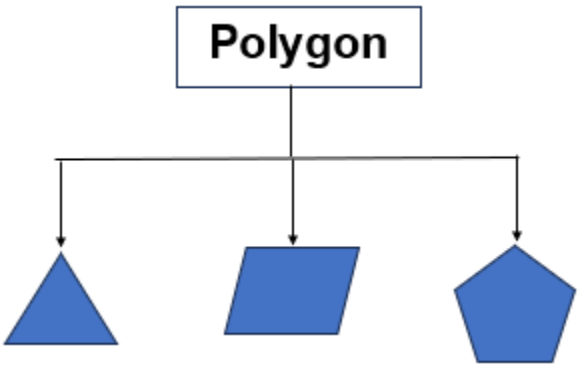
*(Attempt **all** questions from this **Section**.)*

Question 1 [20]

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

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

(i)



Consider the above picture and choose the correct statement from the following:

(a) Polygon is the object and the pictures are classes

(b) Both polygon and the pictures are classes

(c) Polygon is the class and the pictures are objects

(d) Both polygon and the pictures are objects

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(ii) int x = 98; char ch = (char)x; what is the value in ch?

(a) b

(b) A

(c) B

(d) 97

(iii) The output of the statement **"CONCENTRATION".indexOf('T')** is:

(a) 9

(b) 7

(c) 6

(d) (-1)

(iv) The access specifier that gives least accessibility is:

(a) package

(b) public

(c) protected

(d) private

(v) The output of the statement **"talent".compareTo("genius")** is:

(a) 11

(b) –11

(c) 0

(d) 13

(vi) Which of the following is an escape sequence character in Java?

(a) /n

(b) \t

(c) /t

(d) //n

(vii) if (a>b&&b>c) then largest number is:

(a) b

(b) c

(c) a

(d) wrong expression

(viii) What is the output of **Math.ceil(5.4)+Math.ceil(4.5)**?

(a) 10.0

(b) 11.0

(c) 12.0

(d) 9.0

(ix) What is the method to check whether a character is a letter or digit?

(a) isDigit(char)

(b) isLetterOrDigit()

(c) isLetterOrDigit(char)

(d) isLETTERorDIGIT(char)

(x) The extension of a Java source code file is:

(a) exe

(b) obj

(c) jvm

(d) java

(xi) The number of bytes occupied by a character array of four rows and three columns are:

(a) 12

(b) 24

(c) 96

(d) 48

(xii) Which of the following data type cannot be used with switch case construct?

(a) int

(b) char

(c) String

(d) double

(xiii) Which of the following are entry controlled loops?

1. for
2. while
3. do..while
4. switch

(a) only 1

(b) 1 and 2

(c) 1 and 3

(d) 3 and 4

(xiv) Method which reverses a given number is:

(a) Impure method

(b) Pure method

(c) Constructor

(d) Destructor

(xv) If the name of the class is "Yellow", what can be the possible name for its constructors?

(a) yellow

(b) YELLOW

(c) Yell

(d) Yellow

(xvi) Invoking a method by passing the objects of a class is termed as:

(a) Call by reference

(b) Call by value

(c) Call by method

(d) Call by constructor

(xvii) The correct statement to create an object named mango of class fruit:

(a) Fruit Mango= new fruit();

(b) fruit mango = new fruit();

(c) Mango fruit=new Mango();

(d) fruit mango= new mango();

(xviii) **Assertion (A):** Static method can access static and instance variables.

Reason (R): Static variable can be accessed only by static method.

(a) Assertion and Reason both are correct.

(b) Assertion is true and Reason is false.

(c) Assertion is false and Reason is true.

(d) Assertion and Reason both are false.

(xix) What is the output of the Java code given below?

```
String color [ ] = {"Blue", "Red", "Violet"};
System.out.println(color[2].length());
```

(a) 6

(b) 5

(c) 3

(d) 2

(xx) Which of the following mathematical methods returns only an integer?

(a) Math.ceil(n)

(b) Math.sqrt(n)

(c) Math.floor(n)

(d) Math.round(n)

Question 2

(i) Write Java expression for: [2]

$$\frac{|a+b|}{\sqrt{a^2+b^2}}$$

(ii) Evaluate the expression when *x* is 4: [2]

x += x++ * ++x % 2;

(iii) Rewrite the following *do while* program segment using for: [2]

```
x = 10; y = 20;
do
{
    x++;
    y++;
} while (x<=20);
System.out.println(x * y );
```

(iv) Give the output of the following program segment. How many times is the loop executed? [2]

```
for(x=10; x>20;x++)
System.out.println(x);
System.out.println(x*2);
```

(v) String s1 = "45.50"; String s2 = "54.50"; [2]

double d1=**Double.parseDouble(s1);**

double d2=**Double.parseDouble(s2);**

int x= (int)(d1+d2);

What is value of x?

(vi) Consider the following two-dimensional array and answer the questions given below: [2]

int x[ ][ ] = {{4,3,2}, {7,8,2}, {8, 3,10}, {1, 2, 9}};

(a) What is the order of the array?

(b) What is the value of x[0][0]+x[2][2]?

(vii) Differentiate between boxing and unboxing. [2]

(viii) The following code to compare two strings is compiled, the following syntax error was displayed – incompatible types – int cannot be converted to boolean. Identify the statement which has the error and write the correct statement. Give the output of the program segment. [2]



```
void calculate()
    {
    String a = "KING", b = "KINGDOM";
    boolean x = a.compareTo(b);
    System.out.println(x);
    }
```

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

```
class temp
    {
    int a;
    temp()
```

```
{
a=10;
}
temp(int z)
{
a=z;
}
void print()
{
System.out.println(a);
}
void main()
{
temp t = new temp();
temp x = new temp(30);
t.print();
x.print();
}
}
```

(a) What concept of OOPs is depicted in the above program with two constructors?

(b) What is the output of the method main()?

(x) Primitive data types are built in data types which are a part of the wrapper classes. These wrapper classes are encapsulated in the java.lang package. Non primitive datatypes like Scanner class are a part of the utility package for which an object needs to be created. [2]

(a) To which package the Character and Boolean classes belong?

(b) Write the statement to access the Scanner class in the program.

SECTION B (60 Marks)

*(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]

DTDC a courier company charges for the courier based on the weight of the parcel. Define a class with the following specifications:

class name: courier

Member variables: name – name of the customer

weight – weight of the parcel in kilograms

address – address of the recipient

bill – amount to be paid

type – 'D'- domestic, 'I'- international

Member methods:

void accept ( ) – to accept the details using the methods of the *Scanner class* only.

void calculate ( ) – to calculate the bill as per the following criteria:

Weight in Kgs	Rate per Kg
First 5 Kgs	Rs.800
Next 5 Kgs	Rs.700
Above 10 Kgs	Rs.500

An additional amount of Rs.1500 is charged if the type of the courier is I (International)

void print ( ) – To print the details

void main ( ) – to create an object of the class and invoke the methods

Question 4 [15]

Define a class to overload the method perform as follows:

double perform (double r, double h)	to calculate and return the value of Curved surface area of cone $CSA = \pi rl \quad l = \sqrt{r^2 + h^2}$
void perform (int r, int c)	Use NESTED FOR LOOP to generate the following format r = 4, c = 5 output – 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
void perform (int m, int n, char ch)	to print the quotient of the division of m and n if ch is Q else print the remainder of the division of m and n if ch is R

Question 5 [15]

Define a class to accept a number from user and check if it is an EvenPal number or not. (The number is said to be EvenPal number when number is palindrome number (a number is palindrome if it is equal to its reverse) and sum of its digits is an even number.)

Example: 121 – is a palindrome number

Sum of the digits – 1+2+1 = 4 which is an even number

Question 6 [15]

Define a class to accept values into an integer array of order 4 x 4 and check whether it is a DIAGONAL array or not. An array is DIAGONAL if the sum of the left diagonal elements equals the sum of the right diagonal elements. Print the appropriate message.

Example:

3 4 2 5	Sum of the left diagonal elements =
2 5 2 3	3 + 5 + 2 + 1 = 11
5 3 2 7	Sum of the right diagonal elements =
1 3 7 1	5 + 2 + 3 + 1 = 11

Question 7 [15]

Define a class pin code and store the given pin codes in a single dimensional array. Sort these pin codes in ascending order using the Selection Sort technique only. Display the sorted array.

110061, 110001, 110029, 110023, 110055, 110006, 110019, 110033

Question 8 [15]

Define a class to accept the gmail id and check for its validity.

A gmail id is valid only if it has:

- ➔ @
- ➔ . (dot)
- ➔ gmail
- ➔ com

Example: icse2024@gmail.com is a valid gmail id.

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2 Result
3 Syllabus

OTHER RESOURCES
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Writing Skill Formats
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CLASS	STUDY MATERIAL
9	Specimen Paper
10	Specimen Paper
11	Specimen Paper
12	Specimen Paper
10	Question Paper
12	Question Paper
9/10	Lab Manuals
11/12	Lab Manuals

BOOKS

- ICSE Class 10 Prescribed Books
- ISC Class 12 Prescribed Books
- ISC Class 12 Project Work

ENTRANCE EXAMS

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