



DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2022-23
FINAL EXAMINATION

CLASS: IX
SUBJECT: COMPUTER APPLICATIONS [SET A]

FULL MARKS: 100
TIME: 2 HOURS

Answer 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[].

This paper consists of eight printed pages.

Section A (40 Marks)

(Attempt all questions from this section)

Question 1

Choose the correct answer from the choices given:

[20×1=20]

i) Constants are declared using the modifier

- a) Static b) final c) integer d) float

ii) State the values of 'n' and 'ch' based on the given code snippet.

`char c= 'A'; int n=c+1; char ch = (char)n++;`

- a) n = 66 & ch = 'B' b) n = 67 & ch = 'B' c) n = 66 & ch = 'C' d) n = 67 & ch = 'C'

iii) Which operator is used to invoke members of a package?

- a) + (plus) b) *(asterisk) c) .(dot) d) /(division)

iv) In java, primitive data types are passed by

- a) object b) value c) reference d) all of these

v) Consider the following code:-

```
for (int i=1; i<10; i=i+2)
```

How many times the loop will execute?

- a) 10 times b) 11 times c) 4 times d) 5 times

vi) The for loop executes a set of statements repeatedly for a _____ number of times.

- a) uncertain b) fixed c) unfixed d) same

vii) Consider the following code, find the final value of 's':

```
int i, s=0; i=2;
```

```
do { s=s+i; i=i+2;} while(i<=4);
```

- a) 8 b) 6 c) 0 d) 4

viii) Which operator allocates memory for an object at runtime ?

- a) = b) == c) new d) dot(.)

ix) The java package that gets imported into every class by default is:

- a) java.io b) java.lang c) java.net d) java.util

x) Which statement takes the control back to the caller module from the method?

- a) return b) void c) break d) None

xi) Predict the output:-

```
for( int i=20; i >= 5; i = i -5 )
```

```
{ if( i%3== 0)
```

```
{ break; }
```

```
else { continue; } }
```

```
System.out.println(i);
```

- a) 15 b) 14 c) Infinity d) 13

xii) What is the value of x?

```
int a=10, b=15, c=20;
```

```
int x = (a>b) && (a>c) ? a : (b>c) ? b : c ;
```

a) 20 b) 15 c) 0 d) 5

xiii) If the test condition is checked after executing the body of the loop then it is called

a) exit controlled loop b) entry controlled loop c) null loop d) step-loop

xiv) What is the return type and output of the following expression?

```
S = 2+ 1/2 + 3 * -3 + 3.0
```

a) int -5 b) double -4.5 c) int -4 d) double -4.0

xv) State the output of the following code:-

```
class MyClass1
{ public static void main()
{ boolean a, b, c;  a = b = c = true;
  if( !a || ( b && c ) )
  { System.out.println("If executed"); }
  else { System.out.println("else executed"); } } }
```

a) If executed b) Run time error c) Compile-time error d) else executed

xvi) What keyword is used to end the current loop iteration and proceed with execution of the next iteration of that loop?

a) break b) continue c) skip d) end

xvii) Predict the output of this code snippet:-

```
class NestedFor
{ public static void main()
{ int sum = 23;
  for(int i = 2; i<= 5; i++ )
  { for(int j = 7; j <= 9; j++ )
    { sum += ( i * j); } }
  System.out.println("sum = " +sum); }}
```

a) sum = 336 b) sum = 359 c) sum = 45 d) Compilation errors

xviii) What is the output of the following code snippet?

```
int i = 0;

for(i = 0 ; i<5; i++)

{ } System.out.println(i);
```

- a) 5 b) 0 c) 4 d) compilation error**

xix) Predict the output of the following code:-

```
public class Prog2

{ public static void main()

{ int x=10; final int y=20;

switch(y)

{ case 10: System.out.println("Hello World"); break;

case 'y': System.out.println("World of Music"); break; }}}}
```

- a) World of Music b) Compile time error c) Hello World d) No output**

xx) The prototype of a function Show() that returns float and takes two integers is :

- a) public void Show() b) public void Show(int a, int b)**
c) public void Show(int,float) d) public float Show(int, int)

Question 2

a) Predict the output and also mention how many times the loop is executed:

[2]

```
class code{

public static void main (){

for(int i=0; i<6;i=i+3){

System.out.println ("Java");}}}
```

b) Answer the following question based on the given snippet of program: [2]

```
int count =12;

do{ count++;} while(count<20);

System.out.println(count);
```

i) What will be the final value of “count”?

ii) What will be the value of “count” if condition statement is changed to while(count<=20);

c) Correct the error:- [2]

```
for( int j=0; i<20; +i ) {
    int j=j+2;}
```

d) What is the result of evaluating the following expression: [2]

```
double a=(2.0/4.0 +4.5)*3;

System.out.println(a);
```

e) If p= -2, then find the value of q, if q= (- - p * (p++ + 6)); [2]

f) Write the java expression for the following: $a^2 + b^2 / \sqrt{x}4ab$ [2]

g) Predict the output: System.out.println(Math.ceil(3.9) + Math.floor(-3.5)); [2]

h) What are the values of n and p when the following statements are executed? [2]

```
int l=110, m= -113; boolean n=(l>m)? true : false; int p=(l<m)? l : m;
```

i) Find the output of the following program: [2]

```
public class Solution
{ void main( )
{ int y=10;

if((y++>9) && (y++!=10) && (y++>11))

System.out.println(y);

else    System.out.println(y); } }
```

j) Convert the following into for loop:-

[2]

```
public class convert
{ void main ()
{ int sum=0; int i=0;
do{ sum=sum+i;
System.out.println (sum);
i++;} while(i<=7);
```

Section B(60 marks)

[Attempt any four questions from this section.]

The answer 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 ElectricBill with the following description:

class - ElectricBill

Instance variable/data member:

String n - to store the name of the customer

int units - to store the number of units consumed

double bill - to store the amount to be paid

Member methods:

void accept () - to accept the name of the customer and number of units consumed.

void calculate () - to calculate the bill as per the following tariff:

Number of units	Rate per unit
First 100 units	₹ 2.00
Next 200 units	₹ 3.00
Above 300 units	₹ 5.00

A surcharge of 2.5% charged if the number of units consumed is above 300 units.

void print () - To print the details as follows:

Name of the customer: _____

Number of units consumed: _____

Bill amount: _____

Write a main method to create an object of the class and call the above member methods.

Question 4

[15]

Design a class Armstrong_series with two methods:

- **boolean getArmstrong(int n)** it checks and returns true if number *n* is armstrong otherwise returns false. A positive integer of *n* digits is called an Armstrong number of order *n* (order is number of digits) if, $abcd... = pow(a,n) + pow(b,n) + pow(c,n) + pow(d,n) +$

Input : 153 Output : Yes, 153 is an Armstrong number. ($1*1*1 + 5*5*5 + 3*3*3 = 153$)

- **void printSeries()** to generate first ten armstrong numbers by calling **getArmstrong(int n)** method to determine if the number is armstrong or not.

[Hint: 1,2,3,4,5,6,7,8,9,153]

Question 5

[15]

A shop has announced New Year discount on special products as per the following table:

Amount (in ₹)	Discount
1001 to 5000	10%
5001 to 7500	12%
7501 to 10000	15%
10001 to 15000	20%
15001 and above	25%

A special discount of ₹ 100 will be given to the customer on purchase of products above ₹ 10000.

Write a program in java to take required inputs and calculate the gross amount and net amount to be paid by the customer and display all the details in tabular format. (Note: No discount on purchase of ₹ 1000 or below)

Question 6

Write the program to display the following patterns:-

[15]

a) 5 4 3 2 1

b) Q

4 3 2 1

Q R

3 2 1

Q R S

2 1

Q R S T

1

Q R S T U

Question 7

[15]

Write a program in java to accepts three sides of triangle and check whether triangle is possible Or not, if possible then check whether it is Equilateral, Isosceles or scalene. On the basis of side lengths, the triangles are classified into the following types:

- **Equilateral Triangle:** A triangle is considered to be an equilateral triangle when all three sides have the same length.
- **Isosceles triangle:** When two sides of a triangle are equal or congruent, then it is called an isosceles triangle.
- **Scalene triangle:** When none of the sides of a triangle are equal, it is called a scalene triangle.

Question 8

[15]

Write a menu driven program to find and display the sum of the following series:

a) $S = (5*4*3*2*1) + (4*3*2*1) + (3*2*1) + (2*1) + 1$

b) $S = x - x/2^2 + x/3^3 - x/4^4 + \dots \dots \dots n \text{ terms}$