DELHI PUBLIC SCHOOL NEWTOWN
SESSION 2021-22
FINAL TERM EXAMINATION

CLASS: IX **TOTAL MARKS: 100**
SUBJECT:COMPUTER APPLICATIONS **TIME: 2 HOURS**

Instructions:

(Candidates are allowed additional 10 minutes for only reading the paper. They must NOT start writing during this time.)
The Question Paper comprises of Two Parts. Part-I is based on Multiple Choice Questions. Part -II is based on Subjective long questions. The intended marks for questions are given in brackets[ ]. This paper consists of ten printed pages.

PART-I (40 marks)
[Attempt all questions]

Question 1
Choose the correct answer from the choices given:

i) What is the return type and output of the following expression? (Notice the integer division)
S= 4 + 1/2 + 2 * -3 + 5.0 **[2]**

a) int -5
b) double -4.5
c) int -4
d) double -5.0

ii) Predict the output:- **[2]**

```
public class LoopExample
    {  public static void main() {
       int i=12;
        do
        {  ++i;
           if((i%2)==0)
           {    continue;
           } System.out.print(i+"");
           }while(i<10);   }}
```

a) 13
b) 1 3 5 7 9
c) Infinite Loop
d) None

iii) Predict the output of the following code snippet:- **[2]**

```
public class prog
{   public static void main()
    {  int a=5;
       a+=5;
      switch(a)
      {   case 5:System.out.print("5");break;
          case 10:System.out.print("10");
          System.out.print(((a%2==0)? "-even-": "-odd-"));
          default: System.out.print("0");       }}}
```

a) 10-odd-
b) 10-even-0.
c) Compilation Error
d) 10-even-

iv) The prototype of a function "Show( )" that returns float and takes two integers is : **[2]**

a) public void Show( )

b) public void Show(int a, int b)

c) public void Show(int,float)

d) public float Show(int, int)

v) Predict the output of this code snippet: - **[2]**

```
class Test1
{  static int i=1;
   public static void main()
   {    int i=1;
        for(Test1.i=1;Test1.i<10;Test1.i++)
       {  i=i+2;
          System.out.print(i+" ");       }}}
```

a) 1 3 9
b) 1 2 3 … 9
c) 3 5 7 9 11 13 15 17 19
d) None

vi) Predict the output of this code snippet:- **[2]**

```
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

vii) Predict the output:- **[2]**

```
class Test2
{   public static void main()
    {   float f = 75.0f;
        double d = 75.0;
        int i = 75;
        if( f == d )
        {   if( f == i )
            {  System.out.println("f, d and i are equal");    }
            else    {
            System.out.println("f, d are equal but i is not equal");          } }
            else   {    System.out.println("f and d are not equal");    }}}
```

a) f, d are equal but i is not equal

b) f, d and i are equal

c) f and d are not equal

d) Program does not compile since data types are different

viii) Predict the output of the following code:- **[2]**

```
public class Prog2
{  public static void main()
   {   int x=10;
       final int y=20;
       switch(x)
       {  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

ix) State the output of the following code:- **[2]**

```
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

x) Predict the output:- **[2]**

```
public class kk
 {  public static void main()
    {   int b=3,k,r;  float a=15.5,c=0;
        if(k==1)
        {  r=(int)a/b;
           System.out.println(r);   }
           else   {  c=a/b;
                     System.out.println(c);      }}}
```

a) 5.1666665
b) 5.17
c) Compile time error
d) none of the above

xi) What keyword is used to end the current loop iteration and proceed with execution of the next iteration of that loop? **[1]**

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

xii) What is the output of the following code snippet? **[2]**

```
int i = 0;
for(i = 0 ; i< 5; i++)
{   } System.out.println(i);
```

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

xiii) Variable that is declared within the body of a method is termed as: [1]

a) Instance variable
b) class variable
c) Local variable
d) Argument variable

xiv) What will be printed by the following code snippet? [2]

```
public static void main( )
{  for(int i = 0; i< 10; i++){
   if(i % 2 == 0)
   {    continue;    }
        System.out.println(i);     }    }
```

a) Program will print all even numbers between 0 to 10
b) Program will print all odd numbers between 0 to 10
c) Program will print all numbers between 0 to 10
d) Program gives a compilation error

xv) An IF-ELSE statement is also called _____. [1]

a) Branching statement
b) Control statement
c) Block statements
d) All

xvi) Identify the correct statements from the choices given: [5x1=5]

This method will check whether a given is a palindrome or not.
E.g of palindrome numbers:121,131,454,686 etc.

```
void Palindrome( int num )
{     int cNum= ?1?; int rNum = 0;
      while(?2?)
      {    int digit = ?3?;
           cNum /= 10;
           rNum = ?4?
       }      if (?5?)
```

```
System.out.println(num + " is palindrome");
else
System.out.println(num + " is not palindrome");
```

1) Identify the statement at ?1?

a) rNum

b) 1

c) 0

d) num

2) Identify the statement at ?2?

a) rNum != 0

b) cNum != 0

c) cNum==num

d) num==rNum

3) Identify the statement at ?3?

a) rNum % 10;

b) rNum

c) cNum % 10

d) cNum

4) Identify the statement at ?4?

a) rNum * 10 + digit;

b) 0

c) 1

d) cNum * 10 + digit;

5) Identify the statement at ?1?

a) num==0

b) cNum==0

c) rNum == num

d) cNum==num

xvii) Predict the output: **[2]**

```
int v, s, n=550;
s = n + v > 1750? 400:200;
```

When, v = 500 and 1500

a) 200,400
b) 200,300
c) 300,400
d) 400,200

xviii) Evaluate the following expressions if the values of the variables are a = 2, b = 3, and c = 9.

p=a - (b++) * (--c); **[2]**

q= a * (++b) % c;

a) p=22,q=2

b) p=21,q=9

c) p=23,q=9

d) p=21,q=8

xix) What will be the output of the following code? **[2]**

```
int k=5,j=9;
k+= k++ - ++j + k;
System.out.print("k="+k);
System.out.println("j="+j);
```

a) k=5 j=9

b) k=5 j=10

c) k=6 j=10

d) k=6 j=9

xx) Presict the output: **[2]**

```
public class Test
{  public static void main(String[] args)
   {  int a = 1, b = 2;
      System.out.println( “”+a + b);
      System.out.println( “”+(a + b));}}
```

[Assume the answer is printed in different lines]

a) 3,12

b) 12,3

c) 12,2

d) 12,12

PART-II (60 marks)
[Attempt any four questions.]
Each program should be written using Variable descriptions/Mnemonic Codes so that the logic of the program is clearly depicted.

Question 2 **[13+2]**

i) A special two-digit number is such that when the sum of its digits is added to the product of its digits, the result is equal to the original two-digit number.

Example: Consider the number 59.
Sum of digits = 5 + 9 = 14
Product of digits = 5 * 9 = 45
Sum of the sum of digits and product of digits = 14 + 45 = 59

Write a program to accept a two-digit number. Add the sum of its digits to the product of its digits. If the value is equal to the number input, then display the message "Special two—digit number" otherwise, display the message "Not a special two-digit number".

ii) "Data Abstraction refers to the act of representing essential features without including the background details." Explain the given statement with example.

Question 3 **[13+2]**

i) Write a menu driven program using a method Number() to perform the following tasks:

1. **Accept a number from the user and display it in its Binary Equivalents.**
   For example:
   Sample Input: $(21)_{10}$
   Sample Output: $(10101)_2$
2. **Accept a binary number from the user and display it in its Decimal Equivalents.**
   For example:
   Sample Input: $(11101)_2$
   Sample Output: $(29)_{10}$

ii) What is the problem of *fall through*? When does this problem arise? Give example.

Question 4 **[13+2]**

i) Write a program to enter a two digit number and find out its first factor excluding 1 (one). The program then find the second factor (when the number is divide by the first factor) and finally

displays both the factors.

Hint: Use a non-return type function as void fact(int n) to accept the number.

Sample Input: 21

The first factor of 21 is 3 Sample Output: 3, 7

Sample Input: 30

The first factor of 30 is Sample Output: 2, 15

ii) What is a Package? Give an example.

Question 5 **[13+2]**

i) Write a program to generate a triangle or an inverted triangle based upon user's choice of triangle to be displayed.
Example 1:
Input: Type 1 for a triangle
Enter your choice: 1
Sample Output:
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

Example 2:
Input: Type 2 for an inverted triangle
Enter your choice: 2
Sample Output:
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1

ii) A class is also referred as 'Object Factory'. Explain the statement with a real life example.

Question 6 **[6+7+2]**

i) Write a program to display the Mathematical Table from 5 to 10 for 10 iterations in the given format:

Sample Output: Table of 5

5*1 = 5

5*2 =10

10*10 = 100

ii) Write a program to compute and display the sum of the following series:
S = (1 + 2) / (1 * 2) + (1 + 2 + 3) / (1 * 2 * 3) + -------- + (1 + 2 + 3 + ----- + n) / (1 * 2 * 3 * ----- * n)

iii) What are the rules to assign a variable in a Java programming?

Question 7 **[13+2]**

i) An Electricity Board charges for electricity per month from their consumers according to the units consumed. The tariff is given below:

Units Consumed	Charges
Up to 200 units	₹3.80/unit
More than 200 units and up to 300 units	₹4.40/unit
More than 300 units and up to 400 units	₹5.10/unit
More than 400 units	₹5.80/unit

Write a program to calculate the electricity bill taking consumer's name and units consumed as inputs. Display the output.

ii) Give two differences between do-while and while loop with suitable examples.