SECTION II   (MARKS-40)

ATTEMPT ANY FOUR QUESTIONS FROM THIS SECTION

Q.5

a) Explain how Sukhomajri became a model of community participatory management?   (6)

b) What is food adulteration? Name one common adulterant for edible oil. Give a simple test on how it can be detected?   (4)

Q.6

a) What is Greenhouse effect? What is its impact? What efforts can we make to control greenhouse gases?   (6)

b) Why has forest productivity declined? What effect does this have on the economy?   (4)

Q.7

a) What should your role be in abatement of pollution?   (6)

b) What are oil spills? How do they affect coastal activities?   (4)

Q.8

a) Write short notes on: Ganga action plan

                           Bioremediation.   (6)

b) What is the purpose of social forestry?   (4)

Q.9

a) What are the advantages of wildlife? How is it threatened?   (6)

b) What are the effects of pollution on the environment?   (4)

Q.10

a) What are conventional and non-conventional energy resources? Give there advantages and disadvantages.   (6)

b) List the main measures to be taken for sustainable use of minerals and agriculture.   (4)

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Computer Applications

Section A is compulsory.

Section A

Question 1.

Answer in brief

a. Define Inheritance. [2]
b. Define the purpose of the main method. [2]

Question 2.

a. Give the syntax with an explanation - To call a method of the Math class. [2]
b. Give the Syntax of the switch statement , what type of values can a switch statement compare. [2]

Question 3.

a. What are differences between break and continue statements? [2]
b. Write the difference between formal parameters and actual parameters. [2]
c. Explain Method Overloading [2]
d. When do you use the keyword this? [2]
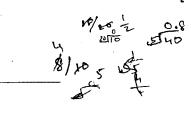e. Differentiate between a class method and an instance method. [2]

Question 4.

Read each of the following questions

a. State the output. Explain [2]

```
int a = 8;
int b = 10;
double c;
c = a + b;
if (a<b)
c= c+a/b;
else
c= c + a*b;
System.out.println(c);
```

b. State the output for the first 3 iterations. What type of a loop is it? [2]

```
int m=1;
do
{
System.out.println(m + "    " + (m-1));
m+=2;
} while (m != 10);
```

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Question 5.

Read the question from the given options write the correct statement.   **[6]**

1. What is the output of the following program?

```java
public class Question {
    public void main() {
        String s1 = "abc";
        String s2 = "def";
        String s3 = s1.concat(s2.toUpperCase( ) );
        System.out.println(s1+s2+s3);
    }
}
```

    a. abcdefabcdef
    b. abcabcDEFDEF
    c. abcdefabcDEF
    d. None of the above

2. In Java, for an array having N elements, legal subscripts are
    a. 0 to N
    b. 0 to N-1
    c. 1 to N
    d. 1 to N-1

3. Which of the following statement is an invalid array declaration
    a. int [ ] [ ] n ;
    b. int n [ ];
    c. int n [4];
    d. int n [ ] [ ];

4. Which one of the following logical operators indicates "logical and"
    a. ||
    b. &&
    c. ££
    d. ==
    e. $$

5. Which list contains valid identifier names
    a. Nov   nov2003   2003Dec   Oct
    b. $year _rename   mnc   m1b
    c. old   ancient   new   present   past
    d. private   public   false   null

6. Which is the result produced by the following Java program

```java
int a, b, c;
a = 2;   a = a + 4;   b = 3*a;   c = a - b;
System.out.println(2+c+c);
```

    a. 22222
    b. 2cc
    c. -22
    d. 24
    e. 22

Question 6.

a. Write Java statements to.   **[4]**

i)   Write a statement to import the NumberFormat class of the java.text package.

ii)   Write a statement to find if a character variable called var contains a letter or not.

iii)   Write a statement to find the integer variable that stores a smaller value between 2 variables. (Use Math methods)

iv)   Declare a constant variable to store the value of number of Days in December.

b. Read the following class and answer the questions that follow:

```
public class ProfitLoss
{    private int sp;
     private double percentage;
publicProfitLoss( int sp, double percentage)
     {  // initialize instance variable
     }
public double calculatePL()
     { // Java statements
     }
}
```

Write Java statements

i)	Declare an object whose data type is ProfitLoss	[1]
ii)	Initialize the above object	[1]
iii)	Call calculatePL method and store the result in a suitable variable.	[1]

c. Evaluate the following   [2]

i)   20 / (2 * 5)

ii)   17 % 3 – 5

d. Read the algebraic expression and rewrite it as a valid Java statement.   [2]

i) $a = \dfrac{yb}{x} + y^3 - \sqrt{\dfrac{xy}{2}}$

e. What will be the output of the following statements (show the working) :   [3]

i)   What will be the value of y, when x = 2

       y = x++ * 6 – ++x;

ii)   What will be the value of y, when x = 2

       y = ++x * 6 – --x;

iii) What will be the value stored in m. The Unicode value of 'a' = 97

     char m = (char)('d' + 5);

Section B

Do any four

Describe the variables used for each program.

Each question is for 15 marks

Question 7.

In "Pig Latin" a word such as KING is replaced by INGKAY while TROUBLE becomes OUBLETRAY, and so on. The first vowel of the original word becomes the start of the translation, any preceding letters shifted towards the end and followed by AY. Words that begin with a vowel are left unchanged. Write a program in Java to translate a word in Pig Latin.

Question 8.

The employees of a firm are classified into four grades(1,2,3,4) and a salary computed by the following formula : 12000 x (5 – A) + 250 x B + 200

Where A denotes the grade and B denotes the number of years of experience. Write a program in Java to compute the salary of the following staff:

The J. B. Petit High School for Girls

Name	Grade	Experience
Ms. Lobo	1	5
Ms. Shah	2	3
Ms. Mehta	3	6
Mr. Ghosh	4	4
Mr. Patel	4	1
Ms. Basu	3	8
Mr. Gupta	1	4

Your program should output the Name of the person and his/her corresponding Salary.

Question 9.

A class room has 4 rows with 5 benches in each row. The class teacher enters the names of all the students in the computer in a double dimensional array. At the beginning of the year each student on arrival, enters her name and her place is automatically displayed as per the following format, (the rows are numbered 1 to 4 and the benches are numbered from 1 to 5)

    Enter your name please? Nitika
    Your place is Row 4 Bench 2
    Enter your name please? Kruti
    Your place is Row 2 Bench 5
    Enter your name please? None
    Welcome to class 2009

The above program exits when the user enters, at the prompt "none". In case, a student who does not belong to the class enters her name , the program displays the message "Sorry, you do not belong to this class".

Write a program in Java to do the above job and displays the places of all the students of the class.

Question 10.

a. The rate y(cm/h) at which water moves through the soil at a place may be expressed as   [9]

$$y = 48.291 - 286.99x + 378.866x^2$$

where x = volumetric soil moisture content. Write a program to find y for x = 0.8, 0.9, 1.0, 1.1 upto 2.5

b. Write the syntax of the ternary operator, give explanation and example   [3]

c. Write a Java statement to construct a character array that stores the following letters – x, y, z. then write a statement to convert a character array into a String object.   [3]

Question 11.

Write a program that includes methods to calculate and print the sum of each of the following series:

a. $s = 2 - 4 + 6 - 8 + \dots -20$ [7]

b. $s = \dfrac{x}{2} + \dfrac{x}{5} + \dfrac{x}{8} + \dfrac{x}{11} + \dots + \dfrac{x}{20}$ where the value of x is inputted by the user.   [8]

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Question 12.

Define a class Student having the following description: [15]

Data Members / Instance variables	String name	Name of student
	int marks	Total marks secured by the student
	a constant variable stores MAXMARKS	Max. marks initialized to 600.
Constructor	Parameterized constructor	Initializes the instance variables
Methods	1. To calculate the percentage marks of the student : $\dfrac{marks}{MAXMARKS} x100$ The method should return the rounded value.	

	2. To return a String stating what stream should the student should take on the percentage the student has secured in his exams, based on the following criteria	
	Percentage	Stream
	90% or above	Science with computers
	80% -89%	Science without computers
	70% - 79%	Commerce with Math
	60%- 69%	Commerce without Math
	0 – 59%	None will be allocated

	3. To print the Report card that calls the methods of the class to print the output as follows where the Data member values are as follows:
	Name : Neeti Marks: 550 MAXMARKS : 600
	The Report looks as follows:
	Name : Neeti
	Marks secured : 550 Out of 600
	Percentage Secured : 92%
	Stream allocated : Science with computers

~~Question 13.~~

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BEST   OF   LUCK !

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