I PRE BOARD EXAMINATION
COMPUTER APPLICATIONS
(Theory)
(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.

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*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 are given in [ ].

SECTION A [40 Marks]

*Attempt **all** questions from this section.*

Question 1

Choose the correct answer and write the correct option:- **[20]**

(a) Find the output if the values of the variables are x = 2, y = 3 and z = 9 :

x * (++y) % z

i. 7 ii. 8

iii. 9 iv. 10

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

i. parameterized constructor

ii. default constructor

iii. non-parameterized constructor

iv. wrapper class method

(c) An instance of a class is termed as :

i. Attribute ii. Object

iii. Value iv. Message

(d) The access modifier that gives most accessibility is :

i. private
ii. public
iii. protected
iv. package

(e) Any object of a class has the type :

i. int
ii. char
iii. string
iv. class

(f) Choose the odd one out :

i. Encapsulation
ii. Data Abstraction
iii. Portable
iv. Polymorphism

(g) The blueprint from which objects are created in Java is known as :

i. Objectifier
ii. Interface
iii. Class
iv. Language

(h) Find the output :

x+ = x++ + ++x + −−x + x; [x = 5]

i. 29
ii. 28
iii. 26
iv. 25

(i)
```
switch(r)
{
    case 'a' : system.out.println("Discipline");
    case 'b' : system.out.println("Dedication"); break;
    case 'c' : system.out.println("Success");
}
```

when x = 'A'

i. Discipline
ii. Dedication
iii. Success
iv. ~~Commitment~~ None of these

(j)
```
n = 1000;
while(n > 100)
{
    n = n/10;
}
    System.out.println(n);
```

How many times the loop is executed and what is the output?

i. loop is executed 2 times and the output is 100

ii. loop is executed 3 times and the output is 10

iii. loop is executed 2 times and the output is 10

iv. loop is executed 2 times and the output is 1000

(k) Which of the following types of function does not return a value?

i. Pure method

ii. Impure method

iii. Specific method

iv. None of these

(l) Find the odd one out :

i. min( )

ii. abs( )

iii. ceil( )

iv. parseInt( )

(m) See the below code and answer the question that follow :

```
int bYear = Integer.parseInt(bornYear);
```

What is the data type of born year?

i. int

ii. char

iii. double

iv. string

(n) The statement to invoke the default constructor of a class 'State' is :

i. State obj = new State;

ii. State obj = State( );

iii. State obj = new State( );

iv. State obj = new state( )

(o) Math.pow(625, ½) + Math.sqrt(144)

i. 17.0

ii. 13.0

iii. 27.0

iv. 13

(p) "AMAN".compareTo("AMIT")

i. 8

ii. 0

iii. –8

iv. 2

(q) Which is correct to find the size of the given array?

char m[ ] = {'R', 'A', 'H', 'V', 'L'};

i. m.size of(m)

ii. m.elements of(m)

iii. m.length

iv. m.length( )

(r) Which of the following makes a function non-returnable?

i. public

ii. static

iii. void

iv. new

(s) Which of the following is an operator?

i. **

ii. //

iii. */

iv. ||

(t) Which one of the following loops will not be executed even once?

i. for(k = 1; k <= 100, k++);

ii. for(k = 10; k<1; k++);

iii. for(k = 1; k >= 1; k++)

iv. for(k = 0; k <10; k++)

Question 2

(a) Write JAVA expression for $|x^2 + xy|$ [2]

(b) Rewrite the following using ternary operator : [2]

```
if(p >= 450)
        x = p * 5/100;
else
        x = p * 10/100;
```

(c) Design a function 'check' which takes two strings as arguments and returns whether the first string is a prefix of the second string. [2]

(d) What will be the output of the following code? [2]

```
int m = 2;
int n = 15;
for(int i = 1; i <5; i++)
        m++;
        – – n;
System.out.println("m=" + m)'
System.out.println("n=" + n);
```

(e) Rewrite the following loop using 'for' loop. [2]

```
        int i = 1
        int d = 5;
        do
{
        d = d * 2;
        System.out.println(d);
        i++;
}
        while(i <= 5);
```

(f) Give the output: [2]

(i) "MIDAS".indexOf('e');

(ii) "sAyan".equalsIgnoreCase('SAYAn');

(g) Give the output of the following code:- [2]

```
String x[ ] = {"SAMSUNG", "NOKIA", "SONY", "MICROMAX",
                "BLACKBERRY"};
System.out.println(x[1]);
System.out.println(x[3].length( ));
```

(h) Rewrite the following code using switch statement:- [2]

```
if(x = = 5)
{     y = y – 5;
      System.out.println(y);
}
else if(x = = 10)
      {     y = y – 10;
            System.out.println(y);
      }
      else
            {     y = y – 15;
                  System.out.prinln(y);
            }
```

(i) State the type of errors if any in the following statements:- [2]

(i) switch(n . 2)

(ii) System.out.println(100/0);

(j) What are the two ways of invoking methods? [2]

SECTION B [60 Marks]

*Attempt **any four** questions from this Section.*

The answers in this Section should consist of the programs either Blue J environment or any program environment with Java as the base.

Each program should be written using variable descriptions/Mnemonic Codes so that the logic of the program is clearly depicted.

Flow charts and algorithms are not required.

Question 3 **[15]**

Define a class ElectricBill with the following specification :

Class : ElectricBill

Instance variables / Data members :

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]

Write a program to input 20 integer elements in an array. Input a number to be searched in the array using linear search technique. If the number is present then display appropriate message and also display the position where the number is found.

Question 5 [15]

Using switch statement, write a menu driven program for the following:-

(i) To find and display the sum of the series given below :

$S = x^1 - x^2 + x^3 - x^4 + x^5 \ldots . - x^{20}$ (where x = 2)

(ii) To display the following series :

1 11 111 1111 11111

Question 6 [15]

Design a class Overload to overload a function Sum( ) as follows :

(i) int Sum(int A, int B) ; with two integer arguments to calculate and return the sum of all even integers in the range of A and B.

(ii) int Sum(int N) : with one integer argument to calculate and return the sum of only odd digits of the number N.

Question 7 [15]

Write a program to input a word in Uppercase. Find the highest and the lowest character present in the word. Display the word along with the highest and lowest character.

Question 8 [15]

A tech number has even number of digits. If the number is split in two equal halves, then the square of sum of these halves is equal to the number itself. Write a program to generate and print all four digits tech numbers.

Eg. - consider the number = 3025

Square of sum of the halves of 3025 = (30 + 25)2

= (55)2

= 3025 is a tech number

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