#### DBSSSV IX, S2,024

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 from **Section B**. The intended marks for questions or parts of questions are given in brackets[].

#### Section A

#### **Question 1**

Choose the correct answer.

(i) Assertion (A): In Java, statements written in lower case letter or upper case letter are [1] treated as the same.

Reason (R): Java is a case sensitive language.

a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A)

b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A)

c) Assertion (A) is true and Reason (R) is false

- d) Assertion (A) is false and Reason (R) is true
- (ii) \_\_\_\_\_\_ is the technique of binding both data and functions together to keep [1] them safe from unauthorized access and misuse.

a) Encapsulation b) Abstraction c) Data hiding d) Polymorphism

| ( <b>iii</b> ) | Data moves freely from function to function. This is a feature of | [1] |
|----------------|---|-----|
|                | language.   |     |
|                | a)POP b) OOP c) Low level d) none of these                        |     |

(iv) An object is \_\_\_\_\_\_ of a class. [1]
a)Method b) Factory c) Prototype d) Instance
(v) x="6785933"; [1]
What is the data type of x?

a)Integer b) String c) Short d) Long

(vi) Which of the following is not a component of multiple branching statement? [1]a) break b) case c) default d) continue

(vii) true is a \_\_\_\_\_ literal.

|            | a)String b) string c) Boolean d) float   |        |
|------------|--|--------|
| (viii)     | statement can be used in switch case and loop statement.   | [1]    |
|            | a)break b) continue c) both d) none of these   |        |
| (ix)       | While designing a Java program, the keyword is used to include the   | [1]    |
|            | package of Scanner class.  |        |
|            | a)include b) insert c)import d) inbuilt  |        |
| <b>(x)</b> | Which of the following is not a literal?   | [1]    |
|            | a) P b) 'P' c) -99.99 d) "java"  |        |
| (xi)       | Which of the following is an exit controlled loop?   | [1]    |
|            | a)do-while b) while c) for d) all of the above   |        |
| (xii)      | What is the output it the following statement is executed?   | [1]    |
|            | System.out.println(Math.sqrt(-25));  |        |
|            | a)Syntax error b) -5.0 c) Runtime error d) Logical error   |        |
| (xiii)     | Math.random() returns a random number in the range   | [1]    |
|            | a) between 0 and 1 b) between -1 and 0 c) between -1 and 1 d) None of the above  |        |
| (xiv)      | Which of these is not a logical operator?  | [1]    |
|            | a)++ b) && c) $   d) !$  |        |
| (xv)       | Which of the following is not true about ternary operator?   | [1]    |
|            | a)It is also called conditional operator.  |        |
|            | b)It is a replacement for if-else statement.   |        |
|            | c)It makes program lengthy, if applied in Java programming.  |        |
|            | d)It allows us to write concise and readable expressions that perform conditional  |        |
|            | operations in only one line.   | [1]    |
| (XVI)      | It is an unfixed or unknown iterative loop i.e, the user may not be aware of the number of times be iterations take place. In this loop, the condition is checked at | [1]    |
|            | first before entering into the loop.   |        |
|            | a)For loop b) do-while loop c) while loop d) switch construct  |        |
| (xvii)     | Given a statement:   | [1]    |
|            | double ans= $(-29.97, -29.99);$  |        |
|            | Which of the following Java Mathematical functions can be applied in the above   |        |
|            | statement to result in -29.99?   |        |
|            | a)Math.ceil() b) Math.floor () c) Math.max() d)Math.min()  |        |
| (xviii)    | Which among the following is not a Token?  | [1]    |
|            | a) Keywords b) Identifiers c) Literals d) Data Type  |        |
| (xix)      | Which of these jump statements can skip processing remainder of code in its body for   | or [1] |

|               | a particular iteration?   |     |
|---------------|---|-----|
|               | a) break b) return c) exit d) continue                          |     |
| (xx)          | What will be the output of the following, if $x = 5$ initially? | [1] |
|               | i. 5 *++x ii. 5*x++   |     |
|               | a)30,25 b) 25,30 c)30,30 d) 30,35                               |     |
| Ques          | tion 2  |     |
| Answ          | ver the following.  |     |
| (i)           | Find the output.  | [2] |
|               | int a, b;   |     |
|               | for $(a = 6, b = 4; a \le 24; a = a + 6)$                       |     |
|               | { if $(a \% b == 0)$  |     |
|               | break;}   |     |
|               | System.out.println(a);  |     |
| ( <b>ii</b> ) | Find the output.  | [2] |
|               | for (int i = 3; i <= 4; i++)                                    |     |
|               | {   |     |
|               | for (int $j = 2; j < i; j++$ )                                  |     |
|               | {   |     |
|               | System.out.print("");   |     |
|               | }<br>System out println("WIN"):                                 |     |
|               | }   |     |
| (iii)         | Predict the output  | [2] |
| (111)         | int i:  | [-] |
|               | for $(i=5:i>=1:i-)$   |     |
|               | {   |     |
|               | if(i%2 ==1)   |     |
|               | continue;   |     |
|               | System.out.print( i+ "");                                       |     |
|               | }   |     |
| (iv)          | Due d'at the autout   | [2] |
|               | for (int $i = 0$ , $i = 5$ , $i = 1$ )                          | L#] |
|               | $\int \int (1111 = 0, 1 \le 3, 1++)$                            |     |
|               | $\lim_{t \to 0} (1 - J)$  |     |
|               | Ultar,<br>System out print(i $\perp$ " ").                      |     |
|               | System.out.prim(1 + j,  |     |

}

| ( <b>v</b> ) | <ul><li>a) What is Math.round(Math.pow(2.4,2))?</li><li>b) double k=Math.round(-9.4)+Math.sqrt(9.0)?</li></ul> | [2] |
|--------------|--|-----|
| (vi)         | Give the output of the following code fragment when<br>(i) $opn = b'$  | [2] |
|              | (i) $opn = 0$<br>(ii) $opn = x'$   |     |
|              | switch (opn)   |     |
|              | {  |     |
|              | case 'a':  |     |
|              | System.out.println("Simply Coding");   |     |
|              | break;   |     |
|              | case 'b':  |     |
|              | System.out.println("Online Tutor");  |     |
|              | case c:<br>System out println("Online Courses"):   |     |
|              | default  |     |
|              | System.out.println("Invalid Input");   |     |
|              | }  |     |
| (vii)        | Write 2 features of POP language.  | [2] |
| (viii)       | Write the two types or classification of loops   | [2] |
| (ix)         | What is the output of the following code?  | [2] |
|              | System out println("\t\tTomorrow"):  | [=] |
|              | System.out.print("\"is\"").  |     |
|              | System.out.print("\n a holiday");  |     |
| ( <b>x</b> ) | Convert the following code into if else structure.   | [2] |
|              | switch (n)   |     |
|              | {  |     |
|              | case 1:  |     |
|              | s = a + b:   |     |
|              | System.out.println("Sum = "+s);  |     |
|              | break;   |     |
|              | case 2:  |     |
|              | d = a - b;   |     |
|              | System.out.println("Difference = "+d);   |     |

```
break:
```

default:

```
System.out.println("Wrong Choice!");
```

```
}
```

#### Section B

## **Question 3**

| Write a menu driven program to calculate:         | [15] |
|---|------|
| Area of a square = side*side                      |      |
| Area of a circle $=3.14 \text{ * } \text{ r}^2$ , |      |
| Area of a rectangle = $length*breadth$            |      |
| Question 4  |      |

Write a program in Java to find the sum of the given series: [10]

 $S = a + a^2 / 2 + a^3 / 3 + \dots + a^{10} / 10$ 

### Question 5

Write a program to print Floyd's triangle as shown below: [10]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

# Question 6

A happy number is a number which eventually reaches 1 when replaced by the sum of [10] the square of each digit. For example, consider the number 320.

 $3^{2} + 2^{2} + 0^{2} \Rightarrow 9 + 4 + 0 = 13$   $1^{2} + 3^{2} = 10$  $1^{2} + 0^{2} \Rightarrow 1 + 0 = 1$ 

Hence, 320 is a Happy Number.

Write a program in Java to enter a number and check if it is a Happy Number or not.

### **Question 7**

Write a program to find the G.C.D of a given number.

### [10]

### **Question 8**

Write a program to input a number. Check and display whether it is a Niven number [5] or not. (A number is said to be Niven which is divisible by the sum of its digits).

Example: Sample Input 126

Sum of its digits = 1 + 2 + 6 = 9 and 126 is divisible by 9.

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