Started on	Wednesday, 28 May 2025, 2:20 PM
State	Finished
Completed on	Wednesday, 28 May 2025, 2:48 PM
Time taken	28 mins 1 sec
Marks	13.00/20.00
Grade	**65.00** out of 100.00

Question 1

Complete

Mark 0.00 out of 1.00

Which of the following are true?

☑ a. this.variableName can be called from any instance method in the class.

☐ b. this.variableName can be called from any static method in the class.

☑ c. You can call the default constructor written by the compiler using this().

☐ d. this() can be called from any instance method in the class.

☑ e. You can access a private constructor with the main() method.

☐ f. You must include a default constructor in the code if the compiler does not include one.

☐ g. this() can be called from anywhere in a constructor.

Question 2

Complete

Mark 1.00 out of 1.00

Arrays in JavaScript are defined by which of the following statements?

○ a.   It is an ordered list of string

○ b.   It is an ordered list of objects

○ c.   It is an ordered list of functions

◉ d.   It is an ordered list of values

Question 3

Complete

Mark 1.00 out of 1.00

Which statement is used to remove a trigger?

○ a. REMOVE

◉ b. DROP

○ c. DELETE

○ d. CLEAR

Question 4

Complete

Mark 0.00 out of 1.00

Will the following JavaScript code work?

var js = (function(x) {return x*x;}(10));

◉ a. error

○ b. Yes, perfectly

○ c. Memory leak

○ d. Exception will be thrown

Question 5

Complete

Mark 1.00 out of 1.00

What output does the below pseudo code produces?

```
Tree_node function(Tree_node x)
{
    Tree_node y = x.left;
    x.left = y.right;
    y.right = x;
    return y;
}
```

- ⦿ a.   right rotation of subtree
- ○ b.   zig-zag operation
- ○ c.   zig-zig operation
- ○ d.   left rotation of subtree

Question 6

Complete

Mark 1.00 out of 1.00

What is printed besides the stack trace caused by the NullPointerException from line 16?

1: public class DoSomething {

2:   public void go() {

3:     System.out.print("A");

4:     try {

5:        stop();

6:     } catch (ArithmeticException e) {

7:        System.out.print("B");

8:     } finally {

9:        System.out.print("C");

10:    }

11:    System.out.print("D");

12: }

13: public void stop() {

14:    System.out.print("E");

15:    Object x = null;

16:    x.toString();

17:    System.out.print("F");

18: }

19: public static void main(String[] args) {

20:    new DoSomething().go();

21: }

22: }

- ○ a.   No output appears other than the stack trace
- ○ b.   AEBCD
- ○ c.   AE
- ◉ d.   AEC
- ○ e.   AECD

Question 7

Complete

Mark 1.00 out of 1.00

You are given the following Orders table:

CREATE TABLE Orders (

   order_id INT PRIMARY KEY,

   customer_id INT,

   order_date DATE,

   amount DECIMAL(10,2)

);

Which query returns all customers whose total order amount is greater than the average total order amount of all customers?

- ⦿ a. SELECT customer_id

    FROM Orders

    GROUP BY customer_id

    HAVING SUM(amount) > (

      SELECT AVG(total)

      FROM (SELECT customer_id, SUM(amount) AS total FROM Orders GROUP BY customer_id) AS sub

    );

- ◯ b. SELECT customer_id

    FROM Orders

    WHERE amount > (

      SELECT AVG(amount) FROM Orders

)

    GROUP BY customer_id;

- ◯ c. SELECT DISTINCT customer_id

    FROM Orders

    WHERE amount > ALL (

      SELECT SUM(amount) FROM Orders GROUP BY customer_id

    );

- ◯ d. SELECT customer_id

    FROM Orders

    GROUP BY customer_id

    HAVING SUM(amount) > (

      SELECT SUM(amount)/COUNT(DISTINCT customer_id) FROM Orders

    );

Question 8

Complete

Mark 0.00 out of 1.00

Which of the following statements can be inserted in the blank so that the code will

compile successfully? (Choose all that apply)

```
public class Snake {}
public class Cobra extends Snake {}
public class GardenSnake {}
public class SnakeHandler {
  private Snake snake;
  public void setSnake(Snake snake) { this.snake = snake; }
  public static void main(String[] args) {
    new SnakeHandler().setSnake(
);
  }
}
```

- ☐ a. null
- ☐ b. new String("Snake")
- ☑ c. new Snake()
- ☑ d. new Cobra()
- ☐ e. new Object()
- ☐ f. new GardenSnake()

Question 9

Complete
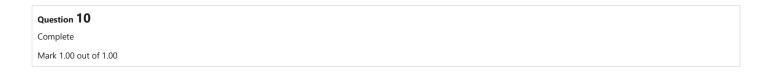
Mark 0.00 out of 1.00

Given the following

```
class Person{
    Person(String s, int i){
        ++pid;
        name = s;
        age = i;
    }
    static int pid;
    int age;
    String name;
}

class Test{
    public static void main(String args[]){
        Person p1 = new Person("John", 22);
        Test te = new Test();
        Person p2 = te.change(p1);
        System.out.println(p2.pid + " " + p2.name + " " + p2.age);
        System.out.print(p1.pid + " " + p1.name + " " + p1.age);
    }

    private Person change(Object o){
        Person p2 = (Person)o;
        p2.age = 25;
        return p2;
    }
}
```

What is the result?

- ○ a. 1 John 25 1 John 22
- ● b. Compilation fails
- ○ c. 1 John 25 1 John 25
- ○ d. 1 John 22 1 John 22
- ○ e. ClassCastException is thrown at runtime

Question 10

Complete

Mark 1.00 out of 1.00

What will be the output of the following Python code?

l=[1, 0, 2, 0, 'hello', '', []]

list(filter(bool, l))

- ○ a. [1, 0, 2, 0, 'hello', '', []]
- ○ b. error
- ○ c. [1, 0, 2, 'hello', '', []]
- ◉ d. [1, 2, 'hello']

Question 11

Complete

Mark 1.00 out of 1.00

What is the functionality of the following piece of code?

```
public void display()
{
    if(size == 0)
        System.out.println("underflow");
    else
    {
        Node current = first;
        while(current != null)
        {
            System.out.println(current.getEle());
            current = current.getNext();
        }
    }
}
```
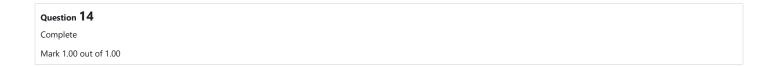
- a. reverse the list

    SELECT emp_name

    FROM Employees

    WHERE NOT EXISTS (

        SELECT 1 FROM Projects WHERE Projects.emp_id = Employees.emp_id

    );

- b. reverse the list excluding top-of-the-stack-element

    SELECT emp_name

    FROM Employees

    WHERE emp_id NOT IN (SELECT emp_id FROM Projects);

- c. display the list excluding top-of-the-stack-element

- ● d. display the list

Question 12

Complete

Mark 1.00 out of 1.00

Choose the correct statement about the following code:

1: interface HasExoskeleton {

2:   abstract int getNumberOfSections();

3: }

4: abstract class Insect implements HasExoskeleton {

5:   abstract int getNumberOfLegs();

6: }

7: public class Beetle extends Insect {

8:   int getNumberOfLegs() { return 6; }

9: }

- a.   The code will not compile because of line 4.
- b.   It compiles but throws an exception at runtime.
- c.   The code will not compile because of line 2.
- ● d.   The code will not compile because of line 7.
- e.   It compiles and runs without issue.

Question 13

Complete

Mark 1.00 out of 1.00

What will be the output of the following Python function?

min(max(False,-3,-4), 2,7)

- a.   -3
- b.   2
- ● c.   False
- d.   -4

Question 14

Complete

Mark 1.00 out of 1.00

What will be the output of the following Python code snippet?

```
for i in [1, 2, 3, 4][::-1]:
    print(i, end=' ')
```

- ○ a.   none of the mentioned
- ◉ b.   4 3 2 1
- ○ c.   error
- ○ d.   1 2 3 4

Question 15

Complete

Mark 1.00 out of 1.00

Consider the following tables:

CREATE TABLE Employees (

 emp_id INT PRIMARY KEY,

 emp_name VARCHAR(100),

 department_id INT

);

CREATE TABLE Projects (

 project_id INT PRIMARY KEY,

 emp_id INT,

 hours_worked INT

);

Which of the following queries correctly returns the names of employees who have not worked on any project?

  ○ a. SELECT emp_name

      FROM Employees E

      LEFT JOIN Projects P ON E.emp_id = P.emp_id

      WHERE P.emp_id IS NULL;

  ○ b.

      SELECT emp_name

      FROM Employees

      WHERE emp_id NOT IN (SELECT emp_id FROM Projects);

  ⦿ c. All the above

  ○ d.

      SELECT emp_name

      FROM Employees

      WHERE NOT EXISTS (

       SELECT 1 FROM Projects WHERE Projects.emp_id = Employees.emp_id

      );

Question 16

Complete

Mark 1.00 out of 1.00

What is the average running time of a treap?

- ⦿ a.   O(log N)
- ◯ b.   O(N)
- ◯ c.   O(M log N)
- ◯ d.   O(N log N)

Question 17

Complete

Mark 0.00 out of 1.00

What is the output of the following logic?

arr = [3, 1, 4, 2]

stack = []

res = [-1]*len(arr)

for i in range(len(arr)-1, -1, -1):

   while stack and stack[-1] <= arr[i]:

      stack.pop()

   if stack:

      res[i] = stack[-1]

   stack.append(arr[i])

print(res)

- ◯ a.   [4, -1, -1, -1]
- ◯ b.   [4, 4, -1, -1]
- ⦿ c.   [-1, 4, -1, 4]
- ◯ d.   [4, 4, 2, -1]

Question 18

Complete

Mark 0.00 out of 1.00

You have two tables:

Customers(customer_id, customer_name, city)

Orders(order_id, customer_id, order_date, amount)

Which query returns the total order amount per customer in 2024, only including customers with more than 3 orders in that year?

○ a.   SELECT c.customer_name, SUM(o.amount) AS total_spent

        FROM Customers c

        JOIN Orders o ON c.customer_id = o.customer_id

        WHERE YEAR(o.order_date) = 2024

        GROUP BY c.customer_name

        HAVING COUNT(*) > 3;

○ b.

        SELECT customer_name, COUNT(*) AS total_orders

        FROM Customers

        WHERE EXISTS (

           SELECT 1 FROM Orders o

           WHERE o.customer_id = Customers.customer_id AND YEAR(o.order_date) = 2024

)

        GROUP BY customer_name

        HAVING total_orders > 3;

◉ c.   SELECT c.customer_name, SUM(o.amount) AS total_spent

        FROM Customers c

        LEFT JOIN Orders o ON c.customer_id = o.customer_id

        WHERE o.order_date >= '2024-01-01'

        GROUP BY c.customer_name

        HAVING COUNT(*) > 3;

○ d.

        SELECT c.customer_name, COUNT(o.order_id) AS total_orders, SUM(o.amount) AS total_spent

        FROM Customers c

        JOIN Orders o ON c.customer_id = o.customer_id

        WHERE o.order_date LIKE '2024%'

        GROUP BY c.customer_name

        HAVING total_orders > 3;

Question 19

Complete

Mark 0.00 out of 1.00

How many values can be returned from a stored procedure?

- a. 3
- b. 2
- ● c. 1
- d. 0

Question 20

Complete

Mark 1.00 out of 1.00

Where is Client-side JavaScript code is embedded within HTML documents?

- a. A URL that uses the special javascript:encoding
- b. A URL that uses the special javascript:code
- ● c. A URL that uses the special javascript:protocol
- d. A URL that uses the special javascript:stack