Started on	Wednesday, 28 May 2025, 2:20 PM
State	Finished
Completed on	Wednesday, 28 May 2025, 2:47 PM
Time taken	27 mins 35 secs
Marks	14.00/20.00
Grade	**70.00** out of 100.00

Question 1

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. error

b. 4 3 2 1

c. none of the mentioned

d. 1 2 3 4

Question 2

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. False

b. -3

c. -4

d. 2

Question 3

Complete

Mark 0.00 out of 1.00

Which of the following are true?

- [x] a. this.variableName can be called from any instance method in the class.
- [x] b. You can access a private constructor with the main() method.
- [x] c. this.variableName can be called from any static method in the class.
- [ ] d. You must include a default constructor in the code if the compiler does not include one.
- [x] e. this() can be called from any instance method in the class.
- [ ] f. this() can be called from anywhere in a constructor.
- [ ] g. You can call the default constructor written by the compiler using this().

Question 4

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. AE

b. AECD

c. AEBCD

d. No output appears other than the stack trace

e. AEC

Question 5

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
GROUP BY customer_id
HAVING SUM(amount) > (
    SELECT SUM(amount)/COUNT(DISTINCT customer_id) FROM Orders
);
```

c.
```
SELECT customer_id
FROM Orders
WHERE amount > (
    SELECT AVG(amount) FROM Orders
)
GROUP BY customer_id;
```

d.
```
SELECT DISTINCT customer_id
FROM Orders
WHERE amount > ALL (
    SELECT SUM(amount) FROM Orders GROUP BY customer_id
);
```

Question 6

Complete

Mark 1.00 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 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;
```

c.
```
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;
```

d.
```
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;
```

Question 7

Complete

Mark 0.00 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 2.

b. It compiles and runs without issue.

c. The code will not compile because of line 7.

d. It compiles but throws an exception at runtime.

e. The code will not compile because of line 4.

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. new Object()
- [ ] b. new String("Snake")
- [x] c. new GardenSnake()
- [ ] d. new Snake()
- [ ] e. new Cobra()
- [ ] f. null

Question 9

Complete

Mark 1.00 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

Will the following JavaScript code work?

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

a. Yes, perfectly

b. Memory leak

c. error

d. Exception will be thrown

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 excluding top-of-the-stack-element

```
SELECT emp_name
FROM Employees
WHERE emp_id NOT IN (SELECT emp_id FROM Projects);
```

b. display the list

c. reverse the list

```
SELECT emp_name
FROM Employees
WHERE NOT EXISTS (
   SELECT 1 FROM Projects WHERE Projects.emp_id = Employees.emp_id
);
```

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

Question 12

Complete

Mark 1.00 out of 1.00

What is the average running time of a treap?

a. O(N)

b. O(M log N)

c. O(N log N)

d. O(log N)

Question 13

Complete

Mark 1.00 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, 4, -1, -1]
- b. [4, 4, 2, -1]
- c. [4, -1, -1, -1]
- d. [-1, 4, -1, 4]

Question 14

Complete

Mark 1.00 out of 1.00

How many values can be returned from a stored procedure?

- a. 2
- b. 0
- c. 3
- d. 1

Question 15

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. zig-zig operation

b. right rotation of subtree

c. zig-zag operation

d. left rotation of subtree

Question 16

Complete

Mark 0.00 out of 1.00

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

a. It is an ordered list of functions

b. It is an ordered list of string

c. It is an ordered list of values

d. It is an ordered list of objects

Question 17

Complete

Mark 1.00 out of 1.00

Which statement is used to remove a trigger?

a. CLEAR

b. DELETE

c. REMOVE

d. DROP

Question 18

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 19

Complete

Mark 0.00 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. All the above

b.
```
SELECT emp_name
FROM Employees
WHERE NOT EXISTS (
    SELECT 1 FROM Projects WHERE Projects.emp_id = Employees.emp_id
);
```

c.
```
SELECT emp_name
FROM Employees
WHERE emp_id NOT IN (SELECT emp_id FROM Projects);
```

d.
```
SELECT emp_name
FROM Employees E
LEFT JOIN Projects P ON E.emp_id = P.emp_id
WHERE P.emp_id IS NULL;
```

Question 20

Complete

Mark 0.00 out of 1.00

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

a. A URL that uses the special javascript:code

b. A URL that uses the special javascript:stack

c. A URL that uses the special javascript:encoding

d. A URL that uses the special javascript:protocol