Started on	Thursday, 13 March 2025, 7:09 PM
State	Finished
Completed on	Thursday, 13 March 2025, 7:49 PM
Time taken	39 mins 52 secs
Marks	25.00/30.00
Grade	**83.33** out of 100.00

Question **1**

Complete

Mark 1.00 out of 1.00

What will be the output of the following code?

```
public class Test {
    public static void main(String[] args) {
        int x = 10;
        int y = 5;
        System.out.println(x > y ? "Greater" : x == y ? "Equal" : "Smaller");
    }
}
```

Select one:

- **a. Compilation Error**
- **b. Equal**
- **c. Smaller**
- **d. Greater**

Question 2

Complete

Mark 1.00 out of 1.00

What does the following pseudo-code do?

```
Function fun(Node head):
    prev = NULL
    curr = head
    while curr is not NULL:
        next = curr.next
        curr.next = prev
        prev = curr
        curr = next
    return prev
```

Select one:

- a. **Finds the middle element**
- b. **Sorts the linked list**
- c. **Reverses the linked list**
- d. **Deletes the linked list**

Question 3

Complete

Mark 1.00 out of 1.00

What is the output of this pseudo-code if executed on a binary tree?

```
Function func(Node root):
    if root is NULL:
        return 0
    return root.data + func(root.left) + func(root.right)
```

Select one:

- a. **Maximum node value**
- b. **Sum of all node values**
- c. **Number of nodes**
- d. **Height of the tree**

Question 4

Complete

Mark 1.00 out of 1.00

What is the output of the following pseudo-code?

```
Queue Q = new Queue()
enqueue(Q, 5)
enqueue(Q, 10)
enqueue(Q, 15)
dequeue(Q)
print(front(Q))
```

Select one:

- a. 5
- b. 10
- c. 15
- d. Error

Question 5

Complete

Mark 1.00 out of 1.00

What happens when the following function is executed on an empty queue?

```
Function func(Queue Q):
   if Q.front == Q.rear:
      return "Queue Underflow"
   Q.front = Q.front + 1
   return Q[Q.front]
```

Select one:

- a. The queue becomes full
- b. "Queue Underflow" is returned
- c. An element is removed from the queue
- d. The queue becomes empty

Question 6

Complete

Mark 1.00 out of 1.00

What does the following function return?

```
Function func(Node root):
    if root is NULL:
        return MIN_VALUE
    return max(root.data, func(root.left), func(root.right))
```

Select one:

- a. **Sum of all values**
- b. **Maximum value in the tree**
- c. **Number of nodes**
- d. **Minimum value in the tree**

Question 7

Complete

Mark 1.00 out of 1.00

What does this function implement?

```
Function func(Queue Q, int val):
    if Q.rear == MAX_SIZE:
        return "Queue Overflow"
    Q.rear = Q.rear + 1
    Q[Q.rear] = val
```

Select one:

- a. **Dequeue operation**
- b. **Enqueue operation in a queue**
- c. **Insert at the beginning of a linked list**
- d. **Push operation in a stack**

Question 8

Complete

Mark 1.00 out of 1.00

What will be the output of the following program?

```
class Test {
    public static void main(String[] args) {
        System.out.println(10 + 20 + "Java" + 10 + 20);
    }
}
```

Select one:

- **a. 30Java1020**
- **b. Compilation Error**
- **c. 30Java30**
- **d. Java30**

Question 9

Complete

Mark 0.00 out of 1.00

What will be the output of the following pseudo-code?

```
struct Node {
    int data;
    Node next;
}

Function fun(Node head):
    count = 0
    while head is not NULL:
        count = count + 1
        head = head.next
    return count
```

Select one:

- **a. 4**
- **b. 5**
- **c. NULL**
- **d. 6**

Question **10**

Complete

Mark 1.00 out of 1.00

What is the base case for the recursive height calculation of a binary tree?

```
Function func(Node root):
    if root is NULL:
        return 0
    return 1 + max(func(root.left), func(root.right))
```

Select one:

- **a. When root has two children**
- **b. When root is not NULL**
- **c. When root is NULL**
- **d. When root has one child**

Question **11**

Complete

Mark 1.00 out of 1.00

What will be the output of the following program?

```
public class Test {
    public static void main(String[] args) {
        int a = 5;
        int b = 10;
        System.out.println(a++ * --b);
    }
}
```

Select one:

- **a. 45**
- **b. 40**
- **c. 55**
- **d. 50**

Question **12**

Complete

Mark 1.00 out of 1.00

What will be printed?

```
class Test {
    public static void main(String[] args) {
        String s1 = "OCA";
        String s2 = "O" + "C" + "A";
        System.out.println(s1 == s2);
    }
}
```

Select one:

- **a. Compilation Error**
- **b. true**
- **c. false**
- **d. Runtime Exception**

Question **13**

Complete

Mark 1.00 out of 1.00

What does the following function implement?

```
Function func(Deque D, int val):
    if D.front == 0:
        return "Overflow"
    D.front = D.front - 1
    D[D.front] = val
```

Select one:

- **a. Insert at the front in a deque**
- **b. Insert at the rear in a queue**
- **c. Insert in a stack**
- **d. Insert in a priority queue**

Question **14**

Complete

Mark 0.00 out of 1.00

What does this function do?

```
Function func(Node head):
    if head is NULL:
        return NULL
    return head.next
```

Select one:

- **a. Deletes the first node of the linked list**
- **b. Deletes all nodes**
- **c. Does nothing**
- **d. Deletes the last node**

Question **15**

Complete

Mark 1.00 out of 1.00

What happens when the following code is executed?

```
public class Test {
    public static void main(String[] args) {
        String s1 = "hello";
        String s2 = new String("hello");
        System.out.println(s1 == s2);
        System.out.println(s1.equals(s2));
    }
}
```

Select one:

- **a. true false**
- **b. false true**
- **c. true true**
- **d. false false**

Question **16**

Complete

Mark 0.00 out of 1.00

What happens when this code is executed?

```
class Parent {
    static void show() {
        System.out.println("Parent");
    }
}

class Child extends Parent {
    static void show() {
        System.out.println("Child");
    }

    public static void main(String[] args) {
        Parent obj = new Child();
        obj.show();
    }
}
```

Select one:

- **a. Runtime Exception**
- **b. Compilation Error**
- **c. Parent**
- **d. Child**

Question 17

Complete

Mark 1.00 out of 1.00

What will be the output of the following program?

```
class Test {
    public static void main(String[] args) {
        Integer a = 10;
        Integer b = 10;
        Integer c = 200;
        Integer d = 200;
        System.out.println(a == b);
        System.out.println(c == d);
    }
}
```

Select one:

- **a. false false**
- **b. true true**
- **c. false true**
- **d. true false**

Question 18

Complete

Mark 1.00 out of 1.00

What happens when this code is executed?

```
class Test {
    public static void main(String[] args) {
        int num = 10;
        System.out.println((num > 5) ? (num < 20 ? "Within Range" : "Out of Range")
: "Too Low");
    }
}
```

Select one:

- **a. Compilation Error**
- **b. Within Range**
- **c. Out of Range**
- **d. Too Low**

Question **19**

Complete

Mark 1.00 out of 1.00

What will be printed when the following pseudo-code runs?

```
Function func(Node head):
    if head is NULL:
        return
    print(head.data)
    func(head.next)
```

For a linked list 1 → 2 → 3 → NULL, what will be the output?

Select one:

- **a. NULL**
- **b. 1 2 3**
- **c. 3 2 1**
- **d. Infinite loop**

Question **20**

Complete

Mark 1.00 out of 1.00

What does this function do?

```
Function func(Node root):
    if root is NULL:
        return 0
    return 1 + func(root.left) + func(root.right)
```

Select one:

- **a. Counts the number of leaves**
- **b. Finds the diameter of the tree**
- **c. Counts the number of nodes in the tree**
- **d. Finds the height of the tree**

Question **21**

Complete

Mark 0.00 out of 1.00

What happens when the following code is executed?

```
public class Test {
    public static void main(String[] args) {
        for (int i = 0; i < 5; i++) {
            System.out.print(i + " ");
        }
        System.out.println("\n" + i);
    }
}
```

Select one:

- **a. Compilation Error**
- **b. Runtime Error**
- **c. 0 1 2 3 4 5**
- **d. None of the above**

Question **22**

Complete

Mark 1.00 out of 1.00

What does this function return?

```
Function func(Node head):
    slow = head
    fast = head
    while fast is not NULL and fast.next is not NULL:
        slow = slow.next
        fast = fast.next.next
    return slow.data
```

Select one:

- **a. The head node**
- **b. The middle node**
- **c. The last node**
- **d. The first node**

Question **23**

Complete

Mark 1.00 out of 1.00

What happens when this code is executed?

```
class Test {
        public static void main(String[] args) {
                int x = 5;
                int y = ++x + x++ + --x;
                System.out.println(y);
        }
}
```

Select one:

- **a. 16**
- **b. 15**
- **c. 18**
- **d. 17**

Question **24**

Complete

Mark 1.00 out of 1.00

What will be the output of the following program?

```
class Test {
   public static void main(String[] args) {
      int x = 5;
      x += x++ + ++x;
      System.out.println(x);
   }
}
```

Select one:

- **a. 19**
- **b. 16**
- **c. 18**
- **d. 17**

Question **25**

Complete

Mark 1.00 out of 1.00

Which data structure is implemented by this function?

```
Function func(Node S, int val):
    if S.top == MAX_SIZE:
        return "Overflow"
    S.top = S.top + 1
    S[S.top] = val
```

Select one:

- **a. Heap**
- **b. Stack**
- **c. Deque**
- **d. Queue**

Question **26**

Complete

Mark 0.00 out of 1.00

What is the output of the following program?

```
class A {
    static void display() {
        System.out.println("Static A");
    }
}

class B extends A {
    static void display() {
        System.out.println("Static B");
    }
}

public class Test {
    public static void main(String[] args) {
        A obj = new B();
        obj.display();
    }
}
```

Select one:

- **a. Runtime Exception**
- **b. Static A**
- **c. Compilation Error**
- **d. Static B**

Question **27**

Complete

Mark 1.00 out of 1.00

What will happen when the following code runs?

```
public class Test {
    public static void main(String[] args) {
        int[] arr = new int[5];
        System.out.println(arr[5]);
    }
}
```

Select one:

- **a. 0**
- **b. Compilation Error**
- **c. NullPointerException**
- **d. ArrayIndexOutOfBoundsException**

Question **28**

Complete

Mark 1.00 out of 1.00

What will be the output of the following program?

```
public class Test {
    public static void main(String[] args) {
        String str1 = "Java";
        String str2 = "Java";
        String str3 = new String("Java");
        System.out.println(str1 == str2);
        System.out.println(str1 == str3);
    }
}
```

Select one:

- **a. true true**
- **b. false false**
- **c. true false**
- **d. false true**

Question **29**

Complete

Mark 1.00 out of 1.00

What traversal does this function perform?

```
Function traverse(Node root):
    if root is NULL:
        return
    traverse(root.left)
    print(root.data)
    traverse(root.right)
```

Select one:

- **a. Inorder**
- **b. Postorder**
- **c. Preorder**
- **d. Level-order**

Question **30**

Complete

Mark 1.00 out of 1.00

What is the output of the following program?

```
class Test {
    public static void main(String[] args) {
        int x = 5;
        System.out.println(x > 2 || x++ < 10);
        System.out.println(x);
    }
}
```

Select one:

- **a. false 6**
- **b. true 6**
- **c. true 5**
- **d. false 5**