Quiz 2 – Spring 2025 Time: 50 minutes Full marks: 15
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Name:	ID	• •	Section:	

(There are 2 questions only. You must answer both.)

Q1. Carefully observe the following driver code and expected output to design the Customer class. Here, each customer's cart can contain 4 items at max.

[8 Marks]

	[8 Marks]
Driver Code	Expected Output
<pre>public class MockMidTest {</pre>	Welcome, Rashid!
<pre>public static void main(String[] args) {</pre>	Rashid added Backpack to cart.
Customer rashid = new Customer("Rashid");	1========1
rashid.addToCart("Backpack", 560);	Shopping details for Rashid
System.out.println("1=========1");	Items: Backpack
)	Delivery location: not set
System out println(nashid details()):	> Cost: 560.0
System.out.println(rashid.details());	Welcome, Chaya!
<pre>Customer chaya = new Customer("Chaya", "Azimpur");</pre>	2=======2
System.out.println("2=========2");	Chaya added Notebook to cart.
3y3ccm.ouc.princin( 22 );	Error: Items and Cost Mismatched.
chave addTeCout ("Not about" 70)	3======3
chaya.addToCart("Notebook", 70);	Shopping details for Chaya
String[] a = { "Pens", "Steel Ruler", "Eraser" };	Items: Notebook
int[] b = { 50, 50, 20 };	Delivery location: Azimpur
	> Cost: 70.0
int[] cost = { 50, 30 };	Rashid added Pens to cart.
chaya.addToCart(a, cost);	Rashid added Steel Ruler to cart.
<pre>System.out.println("3========3");</pre>	Rashid added Eraser to cart.
	4=======4
<pre>System.out.println(chaya.details());</pre>	Rashid cannot add Books to cart before
rashid.addToCart(a, b);	payment.
System.out.println("4==========4");	Shopping details for Rashid
	Items: Backpack, Pens, Steel Ruler, Eraser
rashid.addToCart("Books", 300);	Delivery location: Rampura
rashid.address = "Rampura";	> Cost: 680.0
<pre>System.out.println(rashid.details());</pre>	5=======5
System.out.println("5=========5");	Chaya added Pencils to cart.
	Chaya added Stapler to cart.
<pre>chaya.addToCart("Pencils", 30);</pre>	6======6
chaya.addToCart("Stapler", 120);	Chaya added Pens to cart.
System.out.println("6====================================	Chaya cannot add Steel Ruler to cart before payment.
3ystem.out.printin( 0 ),	Chaya cannot add Eraser to cart before
above addTaCont/o bl	payment.
chaya.addToCart(a, b);	7=======7
System.out.println("7=========7");	Shopping details for Chaya
	Items: Notebook, Pencils, Stapler, Pens
<pre>System.out.println(chaya.details());</pre>	Delivery location: Azimpur
System.out.println("8==========8");	> Cost: 270.0
}	8=======8
}	

Q2. Carefully Trace the following main method of tracing1 class and find the outputs: (you must show the complete tracing table on your paper)

[7 Marks]

1	public class <b>tracing1</b> {	OUTPUTS		
2	<pre>public static void main(String[] args) {</pre>	18	-3	5
3	<pre>MidTest p = new MidTest();</pre>	1	9	10
4	int[] r = { 3, 0, 7 };	30	3	27
5	p.method(9, 1);			
6	p.r = r;			
7	r[0] = p.method(p.a + p.b);			
8	}			
9	}			
10	class <b>MidTest</b> {			
11	public int a = 7, b = 3;			
12	<pre>public int[] r = { 5, 2 };</pre>			
13	<pre>public int method(int n) {</pre>			
14	this.b = (r[(n + (b)) % 2]) - r[1];			
15	a = r[0] + r[1] + n;			
16	System.out.println(a + " " + b + " " + n);			
17	return a + this.b;			
18	}			
19	<pre>public void method(int n, int a) {</pre>			
20	r[1] = a + b + 4;			
21	r[0] += this.r[a] + this.method(r[0]);			
22	b = this.a - (n++);			
23	System.out.println(a + " " + b + " " + n);			
24	}			
25	}			

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Q1. Carefully observe the following driver code and expected output to design the Customer class. Here, each customer's cart can contain 4 items at max.

[8 Marks]

	[8 Marks]
Driver Code	Expected Output
<pre>public class MockMidTest {</pre>	Welcome, Rashid!
<pre>public static void main(String[] args) {</pre>	Rashid added Backpack to cart.
<pre>Customer rashid = new Customer("Rashid");</pre>	1========1
rashid.addToCart("Backpack", 560);	Shopping details for Rashid
<pre>System.out.println("1========1");</pre>	Items: Backpack
	Delivery location: not set
<pre>System.out.println(rashid.details());</pre>	> Cost: 560.0
Customer chaya = new Customer("Chaya",	Welcome, Chaya!
"Azimpur");	2=======2
System.out.println("2========2");	Chaya added Notebook to cart.
	Error: Items and Cost Mismatched.
chaya.addToCart("Notebook", 70);	3=======3
String[] a = { "Pens", "Steel Ruler",	Shopping details for Chaya
"Eraser" };	Items: Notebook
int[] b = { 50, 50, 20 };	Delivery location: Azimpur
int[] cost = { 50, 30 };	> Cost: 70.0
chaya.addToCart(a, cost);	Rashid added Pens to cart.
System.out.println("3========3");	Rashid added Steel Ruler to cart.
	Rashid added Eraser to cart.
<pre>System.out.println(chaya.details());</pre>	4=======4
rashid.addToCart(a, b);	Rashid cannot add Books to cart before payment.
System.out.println("4=========4");	Shopping details for Rashid
3y3tem.out.printin( 44 ),	Items: Backpack, Pens, Steel Ruler, Eraser
nachid addTaCant/"Paaks" 200).	Delivery location: Rampura
rashid.addToCart("Books", 300);	> Cost: 680.0
rashid.address = "Rampura";	5========5
System.out.println(rashid.details());	Chaya added Pencils to cart.
System.out.println("5========5");	Chaya added Stapler to cart.
	6=======6
<pre>chaya.addToCart("Pencils", 30);</pre>	Chaya added Pens to cart.
<pre>chaya.addToCart("Stapler", 120);</pre>	Chaya cannot add Steel Ruler to cart before
System.out.println("6=========6");	payment.
	Chaya cannot add Eraser to cart before payment.
<pre>chaya.addToCart(a, b);</pre>	7=======7
System.out.println("7=========7");	Shopping details for Chaya
	Items: Notebook, Pencils, Stapler, Pens
<pre>System.out.println(chaya.details());</pre>	Delivery location: Azimpur
System.out.println("8========8");	> Cost: 270.0
}	8=======8
}	
-	

Q2. Carefully Trace the following main method of tracing1 class and find the outputs: (you must show the complete tracing table on your paper)

[7 Marks]

1	public class <b>tracing1</b> {		OUTPUTS	
2	<pre>public static void main(String[] args) {</pre>	22	-1	7
3	<pre>MidTest p = new MidTest();</pre>	1	13	10
4	int[] r = { 5, 2, -1 };	42	3	35
5	p.method(9, 1);			
6	p.r = r;			
7	r[0] = p.method(p.a + p.b);			
8	}			
9	}			
10	class <b>MidTest</b> {			
11	<pre>public int a = 2, b = 3;</pre>			
12	<pre>public int[] r = { 7, 2 };</pre>			
13	<pre>public int method(int n) {</pre>			
14	this.b = (r[(n + (b)) % 2]) - r[1];			
15	a = r[0] + r[1] + n;			
16	System.out.println(a + " " + b + " " + n);			
17	return a + this.b;			
18	}			
19	<pre>public void method(int n, int a) {</pre>			
20	r[1] = a + b + 4;			
21	r[0] += this.r[a] + this.method(r[0]);			
22	b = this.a - (n++);			
23	System.out.println(a + " " + b + " " + n);			
24	}			
25	}			

```
// SOLUTION:
class Customer {
 String name;
String address;
String[] cart;
 int count;
 double cost;
 Customer(String name) {
   System.out.println("Welcome, " + name + "!");
   this.name = name;
   address = "not set";
   this.cart = new String[4];
 }
 Customer(String name, String address) {
   System.out.println("Welcome, " + name + "!");
   this.name = name;
   this.address = address;
   this.cart = new String[4];
 }
 String details() {
   String out = "Shopping details for " + name;
   out += "\nItems: ";
   if (count == 0) {
     out += "None";
   } else {
     for (int i = 0; i < count; i++) {</pre>
       out += cart[i];
       if (i != count - 1) {
         out += ", ";
     }
   out += "\nDelivery location: " + address;
   out += "\n--> Cost: " + cost;
   return out;
 }
 void addToCart(String item, int cost) {
   if (count < cart.length) {</pre>
     cart[count++] = item;
     this.cost += cost;
     System.out.println(name + " added " + item + " to cart.");
   } else {
     System.out.println(name + " cannot add " + item + " to cart before
payment.");
   }
```

```
}
 void addToCart(String[] items, int[] costs) {
   if (costs.length != items.length) {
    System.out.println("Error: Items and Cost Mismatched.");
   } else {
    for (int i = 0; i < items.length; i++) {</pre>
       this.addToCart(items[i], costs[i]);
    }
  }
public class MockMidTest {
public static void main(String[] args) {
   Customer rashid = new Customer("Rashid");
   rashid.addToCart("Backpack", 560);
  System.out.println("1========1");
  System.out.println(rashid.details());
   Customer chaya = new Customer("Chaya", "Azimpur");
  System.out.println("2=======2");
   chaya.addToCart("Notebook", 70);
  String[] a = { "Pens", "Steel Ruler", "Eraser" };
   int[] b = { 50, 50, 20 };
   int[] cost = { 50, 30 };
   chaya.addToCart(a, cost);
  System.out.println("3=======3");
  System.out.println(chaya.details());
   rashid.addToCart(a, b);
   System.out.println("4========4");
   rashid.addToCart("Books", 300);
   rashid.address = "Rampura";
   System.out.println(rashid.details());
  System.out.println("5=======5");
   chaya.addToCart("Pencils", 30);
   chaya.addToCart("Stapler", 120);
   System.out.println("6========6");
   chaya.addToCart(a, b);
  System.out.println("7=======7");
   System.out.println(chaya.details());
   System.out.println("8========8");
```