CS2312 Problem Solving and Programming

Semester A 2019/20

This answer paper has <u>10</u> pages (including this cover page).

1. <u>Do NOT remove the staple</u> or try to separate this answer paper.

2. Write down your answers <u>inside the spaces for the questions in this answer paper</u>. Any writing outside the spaces **may NOT be marked**.

Venue and Seat Number:	
Student ID:	

Question	1	2	3	4	5	Total
Marks						
Max	<u>**20**</u>	<u>**15**</u>	<u>**20**</u>	<u>**20**</u>	<u>**25**</u>	**100**

THIS PAPER IS
NOT TO BE
TAKEN AWAY

Question 1 (20 marks)

(a)

Output from the program: Drawing:
(6 marks)   (4 marks)

(b)

(4 marks)

(c)

(6 marks)

```
Up-casting:



Down-casting:



Example(s) of _____ in the main method:





Example of explicit casting:
```

Question 2 (15 marks)

(a) Your answer: (11 marks)

(b) Your answer: (4 marks)

Question 3 (20 marks)

```java
public class Cook {

    private String name;
    private ArrayList<Integer> scoreList;












































}
```

```java
public class Recipe {
    private String name;
    private Cook bestCook;
    private int bestScore;



}
```

```java
public class Dish {
    private Cook cook;
    private Recipe recipe;



}
```

Question 4 (20 marks)

(a) Complete the following classes.   (17 marks)

```
public class Barber {

    private Customer[] cList = new Customer[6]; //Java: each slot is null by default
```

cList[0] will refer to the customer at 1100 (or null if no customer at 1100)
cList[1] will refer to the customer at 1200 (or null if no customer at 1200)
etc..

```



}
```

```
public class CustomerEarly extends Customer
{



}
```

(b)   (3 marks)

```
Answer:
```

Question 5 (25 marks)

(a) Complete the Shop class (8 marks)

```java
public class Shop
{
  private String name;
  private Tradable[] tradables;


}
```

(b) Complete the IConsumable Interface (2 marks)

```java
interface IConsumable
{


}
```

(c) Write the Tradable class. (8 marks)
     Note: All Tradables have ID and price. For simplicity, use int as the type of price.

(d) Write the Product class. (7 marks)
     (You do **not** need to write the Service class because it is similar to the Product class.)

The space below is intentionally left blank. You may use it to provide additional information / answer for marking. Please state the question number clearly.

Question: _____

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