CSC207 – Questions

Thursday 14 June 2018

45 minutes

Student Number: _____

Please write your name on the back of the last page

Please indicate your answers in the table below

1. (A) (B) (C) (D) (E)	11. (A) (B) (C)
2. (A) (B) (C) (D) (E)	12. (A) (B) (C)
3. (A) (B) (C) (D)	13. (A) (B) (C)
4. (A) (B) (C) (D)	14. (A) (B) (C)
5. (A) (B) (C) (D)	15. (A) (B) (C)
6. (A) (B) (C) (D) (E)	16. (A) (B) (C) (D) (E)
7. (A) (B) (C) (D)	17. (A) (B) (C)
8. (A) (B) (C) (D) (E)	18. (A) (B) (C)
9. (A) (B) (C) (D)	19. (A) (B) (C)
10. (A) (B) (C) (D) (E)	20. (A) (B) (C)
	21. (A) (B) (C)

Consider a main method in a class that is included in the same package as class `Fruit` and class `Apple` from the Supplementary Code. Assume that the main method contains the following code:

```
Fruit v1 = new Fruit("first fruit");
Fruit v2 = new Apple(1, "Macintosh");
Apple v3 = new Apple(2, "Fuji");
Apple v4 = (Apple)v2;
Fruit v5 = v3;

int a = 5;
int b = 5;
Integer x = new Integer(5);
Integer y = new Integer(5);
```

<u>Part I.</u>   [21 marks]

1. What does `System.out.println(v2.name);` print?

   (a) apple

   (b) null

   (c) first fruit

   (d) macintosh

   (e) Fuji

2. What does `System.out.println(v3.name);` print?

   (a) apple

   (b) null

   (c) first fruit

   (d) macintosh

   (e) Fuji

3. What does `System.out.println(v2.numFruit);` print?

   (a) 0

   (b) 1

   (c) 2

   (d) null

4. What does `System.out.println(v3.numFruit);` print?

   (a) 0

   (b) 1

   (c) 2

   (d) null

5. What does `System.out.println(v1.getNumFruit());` print?

   (a) 0

   (b) 1

   (c) 2

   (d) null

6. What does `System.out.println(v1.getName());` print?

   (a) apple

   (b) null

   (c) first fruit

   (d) macintosh

   (e) Fuji

7. What does `System.out.println(v2.getNumFruit());` print?

    (a) 0

    (b) 1

    (c) 2

    (d) null

8. What does `System.out.println(v2.getName());` print?

    (a) apple

    (b) null

    (c) first fruit

    (d) macintosh

    (e) Fuji

9. What does `System.out.println(v3.getNumFruit());` print?

    (a) 0

    (b) 1

    (c) 2

    (d) null

10. What does `System.out.println(v3.getName());` print?

    (a) apple

    (b) null

    (c) first fruit

    (d) macintosh

    (e) Fuji

Don't forget to record your answers on the front page, except for question #22.

11. What does `System.out.println(Apple.pickFruit(v3));` print?

    (a) This is an apple

    (b) This is a fruit.

    (c) nothing because it does not compile

12. What does `System.out.println(Fruit.pick(v1));` print?

    (a) This is an apple

    (b) This is a fruit.

    (c) nothing because it does not compile

13. What does `((System.out.println(Fruit.pick(v4));` print?

    (a) This is an apple

    (b) This is a fruit.

    (c) nothing because it does not compile

14. What does `System.out.println(v3.getCanGrow());` print?

    (a) true

    (b) false

    (c) nothing because it does not compile

15. What does `System.out.println(v2.equals(v4));` print?

    (a) true

    (b) false

    (c) nothing because it does not compile

16. Consider the program that contains the Supplementary Code and main method described above. If the following code is also included in the same package, will the program compile?

```
public class CrabApple extends Apple{
  private float radius;

  public String toString(){
    return "This is a CrabApple.";
  }
}
```

    (a) yes

    (b) no because `CrabApple` does not have a constructor

    (c) no because `CrabApple` is missing necessary methods

    (d) no because `CrabApple` does not call the constructor from `Apple` properly

    (e) no because `CrabApple` inherits conflicting methods from `Apple` and `Fruit`

For questions 17, 18, 19, 20 and 21, consider the following code. It is contained in a separate program that contains no other classes:

```
int a = 5;
int b = 5;
Integer x = new Integer(5);
Integer y = new Integer(5);
```

17. What does `System.out.println(a == b);` print?
    (a) true

    (b) false

    (c) nothing because it does not compile

18. What does `System.out.println(x == y);` print?
    (a) true

    (b) false

    (c) nothing because it does not compile

Don't forget to record your answers on the front page, except for question #22.

19. What does `System.out.println(a.equals(x));` print?
    (a) true

    (b) false

    (c) nothing because it does not compile

20. What does `System.out.println(x.equals(a));` print?
    (a) true

    (b) false

    (c) nothing because it does not compile

21. What does `System.out.println(x.equals(y));` print?
    (a) true

    (b) false

    (c) nothing because it does not compile

See back of page for question #22.

22. Write a generic class called `FruitBasket` that will contain an `ArrayList` of any single subtype of class `Object`, an `int` that stores maximum capacity (called `maxCap`), a `String` called `shape`, and a `boolean` variable called `hasFlies`. All variables should be private. The `ArrayList` should be called `contents`.

There will be `emptyBasket` and `replaceFruit` methods that replaces `contents` with an empty `ArrayList` and an argument (that is also an `ArrayList`) respectively.

The toString method should print the number of fruits, the type of fruit, and whether or not it is empty. For example: "This fruit basket contains 20 pieces of fruit and is not empty" or "This fruit basked contains 0 pieces of fruit and is empty".

Extra page. Please write your name on the back of this page.