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Term 2 – Unit 5 – Week 4

Name _____

Exam 1 – Online Version

1. Set the following for loop header so that it prints the numbers, 0 2 4 6 8.

```
for (int i = ___; i ____; i _____)
```

   a. 2, < 10, += 2
   b. 0, < 10, += 2
   c. 2, <= 10, ++
   d. 2, <= 10, += 2
   e. 0, <= 10, += 2

2. The following if statement tests the rainfall in New York's Central Park during the months of June, July and August:

```
if (low <= rain  && rain <= high)
      System.out.println("Rainfall amount is normal.");
else
      System.out.println("Rainfall amount is abnormal.");
```

   Which of the following code segments would produce the exact same output?

I.
```
if (rain >= low)  {
      if (rain <= high)
            System.out.println("Rainfall amount is normal.");
} else
      System.out.println("Rainfall amount is abnormal.");
```

II.
```
 if (rain >= low)  {
      if (rain <= high)
            System.out.println("Rainfall amount is normal.");
      else
            System.out.println("Rainfall amount is abnormal.");
} else
      System.out.println("Rainfall amount is abnormal.");
```

III.
```
if (rain >= low)
      System.out.println("Rainfall amount is normal.");
else if (rain <= high)
      System.out.println("Rainfall amount is normal.");
else
      System.out.println("Rainfall amount is abnormal.");
```

   a. I only
   b. II only
   c. III only
   d. II or III
   e. I, II or III

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3. What does the following code do?

```
if (month == 4)
      if (day <= 21)
            System.out.println("Aries");
```

   a. Prints a message if month is 4 or day is less than or equal to 21.
   b. Prints a message if month is 4 or day is greater than or equal to 21.
   c. Prints a message if month is 4 and day is less than or equal to 21.
   d. Prints a message if month is 4 and day is greater than or equal to 21.
   e. Doesn't work – you cannot have two if statements together.

4. What is output by the following code segment?

```
int x = 11;
int y = 11;

if (x != y )
      System.out.print("one");
else if (x > y )
      System.out.print("two");
else if (y < x)
      System.out.print("three");
else if (y >= x)
      System.out.print("four");
else
      System.out.print("five");
```

   a. one
   b. two
   c. three
   d. four
   e. five

5. Which option completes the truth table for A && !B?

A	B	A && !B
1	1	(_1_)
1	0	(_2_)
0	1	(_3_)
0	0	(_4_)

   a. (_1_) 1; (_2_) 1; (_3_) 1; (_4_) 1;
   b. (_1_) 1; (_2_) 1; (_3_) 0; (_4_) 1;
   c. (_1_) 1; (_2_) 0; (_3_) 0; (_4_) 0;
   d. (_1_) 1; (_2_) 0; (_3_) 1; (_4_) 1;
   e. (_1_) 0; (_2_) 1; (_3_) 0; (_4_) 0;

6. In a class, _____ should be declared as public or private.
   a. data
   b. constructors
   c. accessors
   d. mutators
   e. methods

7. Consider the class below:

```
public class A {

	public A() {
		System.out.print("one");
	}

	public A(int x) {
		System.out.print("two");
	}
}
```

What is output by the following?

```
A a = new A();
```

a. one
b. two
c. onetwo
d. twoone
e. nothing

8. Consider the complete class definition below:

```
public class Die {

	//Variables and constructor methods not shown

	public static void rollIt() {
		/* Missing Code */
	}
}
```

Which of the following is the *proper way* to call the function rollIt() from another class?

a. Die d = new Die();
   d.rollIt();
b. Die d = new Die();
   rollIt(d);
c. Die.rollIt();
d. rollIt();
e. None of the above

9. Classes use _____ to define their behavior.
   a. constructors
   b. methods
   c. variables
   d. parameters
   e. references

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Questions 10 – 12 refer to the following class definitions:

```
public class Battery {
	private boolean fullyCharged;
	private int charge;
	private String type;

	public Battery (int ch, String ty) {
		charge = ch;
		if (charge == 100)
			fullyCharged = true;
		type = ty;
	}

	public boolean isFullyCharged() {
		//returns true if the Battery is fully charged, false otherwise
		//implementation not shown
	}

	//Other methods not shown.
}//Battery

public class Inventory {
	ArrayList<Battery> inventory;

	public Inventory (ArrayList<Battery> inv)  {
		inventory = inv;
	}

	//other methods not shown

}//Inventory
```

10. To add a method that can count how many Battery objects in the ArrayList inventory are charged at less than 50%, which of the following is true?
    a. The method should be implemented in Battery.
    b. The method should be implemented in Battery and Inventory.
    c. The method could be implemented in Battery or Inventory.
    d. The method should be implemented in Inventory.
    e. The method cannot be written because the ArrayList is declared private.

11. Which accessor method could **not** be implemented in Battery?
    a. isFullyCharged() //returns true if a Battery is fully charged
    b. getType() //returns the type of a Battery
    c. getInventory() //returns the ArrayList of all of the Batteries in the Inventory
    d. getCharge() //returns the charge of a Battery
    e. equals() //returns true if the type and charge of two Batteries are the same

12. The following method in Inventory is intended to count how many batteries are fully charged:

```
public int countFullyCharged() {
      int c = 0;

      /* Missing Code */

      return c;
}
```

What should replace /* Missing Code */ so that the method works as intended?

a.
```
for (Battery b: inventory)
      c++;
```

b.
```
for (Battery b: inventory)
      if (b.isFullyCharged())
            c++;
```

c.
```
for (Battery b: inventory)
      if (b.charge == 100)
            c++;
```

d.
```
if (inventory.isFullyCharged())
      c++;
```

e. None of the above

13. Methods used to change variables are called _____.
    a. accessors
    b. equals
    c. toString
    d. void
    e. mutators

14. Write the header for the default constructor for a class called Ship.
    a. private void Ship()
    b. public int Ship()
    c. private Ship()
    d. public Ship()
    e. public void Ship()

15. Which of the following is the correct way to declare a static variable called x?
    a. `int x;`
    b. `private int x;`
    c. `x;`
    d. `private constant int x;`
    e. `private static int x;`

16. What is printed as a result of executing the following code segment?

```
ArrayList<String> list = new ArrayList<String>();

list.add ("cookies");
list.add ("nachos");
list.add ("chips");
list.add ("trail mix");
list.add ("celery");


for (String s: list)
      if (s.length() > 4 && s.length() < 6)
            System.out.print(s.toUpperCase() +" ");
```

    a. NACHOS CHIPS
    b. CHIPS
    c. chips
    d. nachos chips
    e. NACHOS CHIPS CELERY

17. Consider the following declaration for an ArrayList:

```
ArrayList<String> list = new ArrayList<String>();
```

    After values have been added to the array, the following segment processes the ArrayList:

```
list.add(list.get(0));
list.remove(0);
```

    Which of the following best describes what this segment does?
    a. Adds the last letter in the String onto the beginning.
    b. Moves the first String in the ArrayList to the end of the ArrayList.
    c. Removes the first letter in each String in the ArrayList.
    d. Adds the first letter in the String onto the end.
    e. Does not change the Strings in the ArrayList.

18. You have written a program to create a grocery list. As each item is placed into your basket you call a method called removeItem and it should remove the item from your list. Which of the statements about the code below is true?

```
public static void removeItem(ArrayList<String> li, String remove)
{
      for (String s: li)
            if (s.equals(remove))
                  li.remove(s);
}
```

a. No changes are made to the ArrayList because the if (s.equals(remove)) is never true.
b. An exception will be thrown.
c. The list will have all of the instances of the word passed in as a parameter removed .
d. Nothing, changes made to object data types are not preserved after method calls.
e. All elements in the ArrayList are removed.

19. Consider the following code segment:

```
ArrayList<Light> bulbs = new ArrayList<Light>();
bulbs.add(new Light());
bulbs.remove(0);
bulbs.add(new Light());
Light b = new Light();
bulbs.add(1, b);
bulbs.add(new Light());
bulbs.remove(0);
bulbs.add(new Light());
bulbs.remove(2);
bulbs.remove(1);
bulbs.add(new Light());
```

What is the size of bulbs after running the code?

a. 2 b. 3 c. 4 d. 5 e. 6

20. What goes in between the < > when instantiating a new ArrayList?

a. A primitive variable
b. A class data type
c. A primitive data type
d. Any data type
e. A class variable

