EECS1022 Test 1 A

Q1: Find three literals in the fragment below and write them comma-separated in the space provided.

```
int x = 15;
double y = Math.pow(x, 0.33);
boolean z = x > y;
String s = String.format("%.f", y);
```

(Write XXX in case of errors.)

Q2: The best-practice style for naming a final (i.e. a constant) that represents the "number of students" in a class is:

- `NoOfStudents`
- `noOfStudents`
- `NO_OF_STUDENTS`
- `no_of_students`
- none of the above

Q3: Which of the following claims about the API of a class is false?

- the API can be used by a client to find out how to use it
- the API can be used by an implementer to check that her implementation respects it
- the API specifies how the class's methods are implemented
- the API specifiies what the class's methods do
- all of the above are true

Q4: Dividing an `int` by zero:

- is a syntax error
- throws an exception
- returns `NaN`
- returns `+Infinity`
- is none of the above

Q5: The return of the `random` method of the `Math` class in the Java Library is:

- `void`

- `double`
- `Math`
- `int`
- none of the above

Q6: Which of the following claims about a class that allows the creation of (new) instances is false?

- it (normally) provides one or more constructors
- it has attributes that store the state of the instance
- it provides non-static methods to operate on an instance
- the state of an instance persists until it is changed by calling a non-static method
- none of the above

Q7: Which of the following claims about the Model-View-Controller design pattern is false?

- the model represents the app's data and manipulates it
- the view is responsible for displaying information and interacting with the user
- the controller manages the app's response to the user's actions
- the controller connects the view with the model
- none of the above

Q8: What is the output of the following fragment:

```
int a = 7;
int b = 11;
int m = 19 % b + a;
System.out.println(m);
```

(Write XXX in case of errors.)

Q9: What is the output of this Java fragment:

```
int x = 5;
{
    int y = 7;
    int x = 9 + y;
}
System.out.println(x);
```

(Write XXX in case of errors.)

Q10: What is the output of this Java fragment:

```
int n = 2;
double y = 3.0 / n + n;
System.out.println(y);
```

(Write XXX in case of errors.)

Q11: What is the output of the following fragment:

```
boolean c = true;
boolean d = c || (4 > 7);
boolean e = c && !d;
System.out.println(e);
```

(Write XXX in case of errors.)

Q12: Assume that the declaration:

`float x;`

reserves a memory block beginning at address 500. If we later assign a value to `x` then the value:

- will not be stored in memory
- will be stored at addresses 500 through 503
- will be stored at addresses 500 through 507
- will be stored at address 4000
- none of the above

Q13: In the following Java arithmentic expression

`a + b % (c - d / e) * f`

which operation is performed first?

- +
- %
- -
- /
- *

Q14: Suppose that we have an `int` value *val* and that we want to assign it to a variable `var`. The assignment cannot be performed without doing a type cast if the type of `var` is?

- `long`
- `float`
- `double`
- `int`
- none of the above

Q15: Which of the following does not increment `k` by 1?

- `k = k + 1;`
- `k +=1;`
- k++;
- `++k;`
- none of the above

Q16: Implement the method below which receives two integers x and y and returns the sum of their squares minus their product, i.e. $x^2 + y^2$ - xy. For example, if x=2 and y=3 then the returned value should be 7. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static int compute(int x, int y)
{

}
```

Q17: Implement the method below which receives a temperature in degrees Farenheight, and returns the equivalent temperature in degrees Celsius, rounded to two decimals. A temperature *t* in degrees Farenheight can be converted to one in degrees Celsius using the formula 5/9 (*t* - 32). For example, 50.0 degrees Farenheit is 10.0 degrees Celcius. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static String farenheit2Celsius(double degrees)
{

}
```

Q18: Implement the method below which receives an integer `n` and

returns the string "The base 10 logarithm of X is Y", where X is to be replaced with the value of `n` and Y is to be replaced with the base 10 logarithm of `n` rounded to three decimals. For example, if `n` is 100, then the return should be: "The base 10 logarithm of 100 is 2.0". Use the `log10` method of the `Math` class. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static String compute(int x)
{

}
```

Q19: Implement the following method, which receives a weight in kilograms and a height in metres and returns a string of the form "Your weight is xxx lb, your height is F'I", and your BMI is xxx.x." Given a weight in kilograms w and a height in metres h, the BMI is w / h^2. It should be rounded to one decimal in the returned string. To get the weight in pounds and the height in feet and inches, use the `m2FtInch` method of the `Utility` class of the `i2c` library. Make sure the method compiles without errors and returns the correct result when invoked.

```
public String getBMI(double weight, double height)
{

}
```

Q20: Implement the following method, which receives the number of months an employee has worked and his/her performace rating, and returns whether the employee gets a raise. An employee gets a raise if they have worked at least 6 months and have a performance rating of more than 7 or if they have worked at least 12 months and they have a performance rating of more than 5. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static boolean getsRaise(int monthsWorked, double rating)
{
```

```
}
```

Logout

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