

## EECS1022 Test 1 B

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

```
int x = 15;  
double y = Math.pow(x, 0.33);
```

*(Write XXX in case of errors.)*

Q2: The best-practice style for naming a variable 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 "separation of concerns" is false?

- ☐ it is a way of managing the complexity of systems
- ☐ it involves decomposing the problem into smaller pieces
- ☐ it involves abstracting over the details of how a piece of the system is implemented
- ☐ it involves separating what needs to be done from how it is done
- ☐ all of the above are true

Q4: Dividing a positive double by zero:

- ☐ is a syntax error
- ☐ throws an exception
- ☐ returns +Infinity
- ☐ is a runtime error
- ☐ none of the above

Q5: The return of the gcd method of the Utility class in the i2c library is:

- ☐ void
- ☐ double

- ☐ Utility
- ☐ int
- ☐ none of the above

Q6: Which of the following claims about a class that does *not* allow the creation of (new) instances is false?

- ☐ it does not provide constructors
- ☐ it may define static attributes
- ☐ it may have both static and non-static methods
- ☐ its methods must be invoked on the class itself
- ☐ none of the above

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

- ☐ the model is represented by a plain Java object
- ☐ the view is represented by an XML document
- ☐ the controller is a Java class that extends the Android platform
- ☐ the view is known as an activity
- ☐ none of the above

Q8: Suppose that a `double` variable `x` contains the largest `double` that can be represented. What happens if we increment `x` by 1?

- ☐ an exception is thrown
- ☐ a compiler error
- ☐ `x` will be set to a negative double value
- ☐ `x` will be set to `+Infinity`
- ☐ none of the above

Q9: What is the output of this Java fragment:

```
int x = 7;
int z = 2;
{
    int y = x + 3;
    z += y;
}
System.out.println(z);
```

*(Write XXX in case of errors.)*

Q10: What is the output of this Java fragment:

```
int n = 2;  
int y = 3 / 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:

`int x;`

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

- ☐ will be stored at addresses 500 through 501
- ☐ will be stored at addresses 500 through 503
- ☐ will be stored at addresses 500 through 507
- ☐ will be stored at address 500
- ☐ none of the above

Q13: In the following Java arithmetic expression

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

which operation is performed first?

- ☐ +
- ☐ %
- ☐ -
- ☐ /
- ☐ \*

Q14: Suppose that we have a `long` 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 2?

- ☐ `k = 2 + k;`
- ☐ `k *=2;`
- ☐ `k++; k++;`
- ☐ `++k; ++k;`
- ☐ none of the above

Q16: Implement the method below which receives three integers x, y, and z and returns the sum of their cubes, i.e.  $x^3 + y^3 + z^3$ . For example, if x=1, y=2, and z = 3 then the returned value should be 36. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static int sumCubes(int x, int y, int z)
{
}
}
```

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

```
public static String celcius2Farenheit(double degrees)
{
}
}
```

Q18: Implement the method below which receives an integer n and returns the string "The natural logarithm of X is Y", where X is to be replaced with the value of n and Y is to be replaced with the natural

logarithm of  $n$  rounded to four decimals. For example, if  $n$  is 100, then the return should be: "The natural logarithm of 100 is 4.6052".

Use the `log` 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. A weight  $w$  in kilograms can be converted to one in pounds using the formula  $w / 0.454$ . 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 years of service an employee has and his/her annual sales amount, and returns whether the employee gets a bonus. An employee gets a bonus if their years of service is a multiple of 5 or if they have at least 25 years of service or if their sales amount is over 50000. Make sure the method compiles without errors and returns the correct result when invoked.

```
public static boolean getsBonus(int yearsOfService, double sales)
{
}
}
```

Logout

---

York University  
Department of Electrical Engineering and Computer Science  
Lassonde School of Engineering