CST8284 – Object-Oriented Programming (Java)
Sample Quiz

Last Name: _____ First Name: _____

Student #: _____

Instructions:

1. Turn off all electronic devices, including cell phones, pagers and laptops, and remove them from your proximity.

2. No calculators are allowed on this quiz.

3. Fill in all the information above, and then sign, and date, below.

4. This sample quiz is 50 minutes in duration and consists of ___4___ printed pages in total, including this one (i.e. 2 pieces of paper, printed double sided). Please check to make sure you have all the pages.

5. Answer the multiple choice questions on the SCANTRON form in pencil. DO NOT erase answers on the SCANTRON form. Ask for another form if you have made a mistake. Write all other questions in the quiz itself.

6. This test book must be handed in complete, with no detached pages. While the last page is for scrap paper, it cannot be removed during the quiz; it must remain attached to the quiz at all times.

7. All quizzes must be returned to your professor – you may NOT keep this test paper.

8. If you have a question, raise your hand and the professor will come to you.

I have read, understood, and will comply with the above instructions:

_____ _____

Sign your full name here Date

Part A: Multiple Choice Questions – worth 1 mark each

Choose the single best answer for each question.

ANSWER ON THE SCANTRON

1. **True** (a) or **False** (b): In Java, there can be, at most, only one `main()` method in each project.

2. The default data type of a numeric value (to the right of the '=' sign) in a definition like:

```
short mol = 42;
```

is:

(a) `byte` (b) `short` (c) `integer` (d) `long` (e) none of the above

3. `.jar` files shown in the Package Explorer contain _____, which in turn contain _____

(a) packages, bytecode (b) libraries, packages (c) packages, classes
(d) `src`, sourcode (e) none of the above

4. **True** (a) or **False** (b): `static` methods can only change `static` variables of the same class, along with instantiated variables within a class

5. Which one of the following keywords is not capable of limiting the accessibility of an instantiated class's methods to access from other objects?

(a) `private` (b) `protected` (c) `package` (d) `public` (e) none of the above

6. Which symbol is used to indicate that a method is `private` in UML?

(a) - (b) + (c) # (d) @ (e) none of the above

7. Which one of the following keywords is used to signal that one class inherits its non-private members from another?

(a) `extends` (b) `inherits` (c) `super` (d) `subclass` (e) none of the above

8. If A is a class derived from B via an *is a* relationship (A *is a* B, using the keyword from question 7 above) which one of the following terms does not describe the relationship of A to B?

(a) subclass (b) derived class (c) base class (d) child class (e) none of the above

9. The first thing loaded when a class is *instantiated* is:

(a) The `Object` class's members (b) The default no-arg constructor (c) the class's static members
(d) the constructor for the object itself (e) none of the above

10. **True** (a) or **False** (b): The second (or middle) compartment of a UML class diagram may be omitted if the fields of that class are `private`

11. Which one of the following will **NOT** correctly declare an array of 3 integers? (i.e. it will flag a compile-time error):

(a) `int[] myInts = new int[3]{1, 2, 3};`
(b) `int[] myInts = new int[]{1, 2, 3};`
(c) `int[] myInts = new int[3];`
(d) `int[] myInts = {1, 2, 3};`
(e) none of the above

Part B: Terminology – worth 1 mark each

FILL IN THE SINGLE BEST ANSWER—ONE WORD OR SYMBOL IN THE EACH SPACE PROVIDED BELOW.

USE ONE WORD ONLY IN EACH SPACE; DO NOT USE ACRONYMS

12. Fields and methods are collectively referred to as the _____ of an object.

13. One of the fundamental features of OOP is _____, in which fields and methods are bound together.

14. If a .java program is located in the folder C:\Users*username*\workspace\Asmt1\package2\src, then its compiled bytecode should appear in C:\Users*username*\workspace\Asmt1_____ \ _____.

15. Static members are often times referred to as _____ members.

16. Objects cannot be instantiated from _____ classes; they can only be instantiated from _____ classes

17. In an array definition like: *datatype[] identifier = new datatype[arraysize];*

arraysize indicates the total number of _____ in the array

Part C: Written Answers

18. The code on the next page contains a number of mistakes, which could be manifested as either compile-time warnings or run-time exceptions. The latter may be due to logical errors on the part of the programmer. Place a number from 2 to 9 next to each of these errors, circle each of these numbers, and explain why the code is in error in the box to the right of the code, next to the number you circled in the code. (A sample is provided of one such error)

Note: Read the following *before* you proceed

(1) You may assume that the overall construction of the code shown is essentially correct even if its implementation is unnecessarily bloated and flawed in many critical areas. Your job is not to critique the construction of the program, but simply to find *specific* compile- and run-time/logic errors. Remember: ONLY INDICATE ERRORS THAT ACTUALLY EXIST; DO NOT FLAG AS ERRORS *THINGS THAT YOU DISAGREE WITH*.

(2) If you find an error that seems to occur more than once, chances are that that code is in fact correct, and the real error lies elsewhere at another location, and only once.

(3) Even if an error *does* occur more than once, you only get credit for the first occurrence of that error, not for repeat errors of the same kind.

(4) CIRCLE each number and give a brief description of the error itself. Do ***NOT*** draw lines across the code to connect each error to its description in the box on the right side of the page.

MARKS
Section A: _____ /11
Section B: _____ /8
Section C18: _____ /8
C19:_____ /8
TOTAL: _____ /35

In file DemoSpeed.java:

```
import Scanner;
public Class DemoSpeedPerHour{

  public void main(String[] args){
     Scanner in = new Scanner(system.in);
     System.out.println("Enter distance");
     long distance = in.nextLong;
     GetSpeed gs = new GetSpeed(distance);
     int speed = gs.calcVelocity();
     System.out.printf("%s", speed);
  }
}
```

(1)

In file GetSpeed.java:

```
private class GetSpeed{
   private long distance;
   private int hours;

   void GetSpeed(int d){distance = d}

   void GetSpeed(int d, int seconds){
      distance = d;
      hours = seconds/3600;
   }

   public float calcVelocity(){
     return( (float)(distance/hours));
   }
}
```

1. ____Missing static___
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

19. In the three boxes below, show the UML class diagram for the `GetSpeed` class from the previous question, being clear to indicate all properties and methods (including private ones), using the correct symbols and the format for UML.