

COSC 201 Review Questions
Midterm #1
Fall 2008

- 1.) Write the code to create an enhanced for loop that will go through every member of an ArrayList <String> myArray and print it out to the console.
- 2.) Give the code to create an array of strings of size 10 called myStrings.
- 3.) What is the difference between Object and Class?
- 4.) What are 4 of the 6 main parts of a class definition?
- 5.) Define static.
- 6.) Give the code to create a class called Student that IS-A Person. The class Student should have one field a double called gpa. Be sure to create the constructor, toString, accessors and mutators for Student. The constructor will take in 5 parameters: String n, int ag, String ad, String p, double g and assume that the constructor for Person is formatted: Person(String n, int ag, String ad, String p).
- 7.) What is an IS-A relationship?
- 8.) Give the code to create an interface called myInterface. The interface should have two methods, add and remove. Add has two parameters, int a and int b. Remove has one parameter, int idx.
- 9.) Give the code to implement an interface called Whee. Whee's interface definition:

```
public interface Whee{  
    public int add2ints(int a, int b);  
}
```

Your implementation of this interface should include simply the methods needed.

- 10.) Define algorithm analysis.
- 11.) What is the time complexity of this snippet of code:

```
for (i = 0; i < n; i++)  
    for (j = 0; j < n; j++)  
        for (k = 0; k < n; k++)  
            System.out.println(k*i*j);
```

- 12.) Give the code to create an Iterator for the ArrayList myArray. Use that Iterator to print out the elements in myArray.

- 13.) What is the interface for Iterator?
- 14.) Name 5 of the 8 methods in the Collection interface.
- 15.) Name the three implementations of List in the Java API.
- 16.) Give the code to add a ListNode element called k between ListNode i and ListNode j in a LinkedList. You can assume that the node has already been created for the element.
- 17.) Is the LinkedList implemented by the Java API a singly-linked list or a doubly-linked list?
- 18.) Give the code to declare and instantiate a Stack of strings called myStack. Then add the elements "This" "is" "COSC" "201", and then print out those elements.
- 19.) How do you implement a Queue using only Java API implemented features (i.e. you do not create any original code)?
- 20.) What is recursion?
- 21.) Give the recursive method for the summation of integers from 1 to N.
- 22.) What is wrong with this code:

```
public class Car{
    private int vin;
    private String name;

    public Car (int v, String n){
        vin = v;
        name = n;
    }
    public getVin(){return vin;}
    public getName(){return name;}
    public void setVin(int v){vin = v}
    public void setName(String name){name = n}

    public boolean equals(Car c){
        return ((c.vin == vin) && (name == c.getName()));
    }
}
```

- 23.) Give the recursive method to find the Fibonacci sequence number at a given index i (i.e. the i th number in the sequence).
- 24.) Given the following set of number $\{1, -4, 3, 2, 12, -8, -9, 18\}$, what is the maximum contiguous subsequence sum for said set?