

Name: _____ UNM Username: _____

Answer all questions in the space provided. Write clearly and legibly, you will not get credit for illegible or incomprehensible answers. Print your name at the top of every page.

This is a closed book exam. However, each student is allowed to bring one page of notes to the exam. Also, you are permitted the use of a “dumb” calculator to perform basic arithmetic.

Question:	1	2	3	4	5	6	Total
Points:	20	18	10	12	10	10	80
Score:							

1. Select the *single best* answer for each of the following questions.

- (a) If you wanted to store a student’s grade point average (GPA) in a variable, which of type would be best? (2)
 A. `boolean` B. `char` C. `float` D. `int` E. `long` F. `String`
- (b) If you wanted to store the number of students currently enrolled in CS152 in a variable, which type would be best? (2)
 A. `boolean` B. `char` C. `double` D. `float` E. `long` F. `String`
- (c) If you wanted to store a student’s first name in a variable, which type would be best? (2)
 A. `boolean` B. `char` C. `float` D. `int` E. `long` F. `String`
- (d) If you want to use an existing class from the Java standard libraries (for example, `Scanner`), what keyword will you use near the top of your file? (2)
 A. `export` B. `import` C. `include` D. `require` E. `use` F. `using`
- (e) What is the keyword used to indicate that a method does not return a value? (2)
 A. `class` B. `invalid` C. `main` D. `null` E. `public` F. `static` G. `void`
- (f) Which of the following is *not* a keyword in Java? (2)
 A. `boolean` B. `case` C. `class` D. `do` E. `else` F. `if` G. `until` H. `while`
- (g) What is the name of the first method that is run when you start a Java program? (2)
 A. `begin` B. `main` C. `public` D. `run` E. `start` F. `static` G. `void`
- (h) Which of the following expressions would evaluate to 2.5? (2)
 A. `5/2` B. `(double)(5/2)` C. `(int)5.0/2.0` D. `(int)(5.0/2.0)` E. `2 + 1/2`
- (i) What is the value of the following expression? (2)
`1 + 2 + "3" + 4 * 5 + 6`
 A. 26 E. "12326" I. Some other value.
 B. 32 F. "123456" J. The value of this expression is undefined.
 C. 56 G. "33206" K. This expression would result in a compilation error.
 D. "123206" H. "3326"
- (j) Which statement could you use to create an array that could hold 10 floating point numbers? (2)
 A. `double[10] values;` E. `double[] values = new double[10];`
 B. `long[10] values;` F. `double[] values = double[10];`
 C. `double values = new double[10];` G. `long[] values = new long(10);`
 D. `long[] values = new long[10];` H. None of these.

2. Do the following code snippets compile and run without error? Answer yes or no. If you answered no, explain what is wrong.

(a) _____ (3)
| `long number = 3.5;`

(b) _____ (3)
| `String message = "Hello!";`

(c) _____ (3)
| `int single = 1;`
| `int double = 2;`

(d) _____ (3)
| `int [] values = int[10];`

(e) _____ (3)
| `public static double min(double x, double y) {`
| `if(x < y) {`
| `return x;`
| `} else {`
| `return y;`
| `}`
| `}`

(f) _____ (3)
| `String s = "abcde";`
| `char c = s.charAt(5);`

3. The following Java program compiles and runs. What is its output?

(10)

```
public class BranchTest {

    public static void main(String[] args) {
        int apple = 6;
        int orange = 4;
        int banana = 12;

        if(apple < banana) {
            System.out.println("one");
            if(orange % 4 == 0) {
                System.out.println("two");
            } else {
                System.out.println("buckle");
            }
            System.out.println("my");
        } else if (orange <= apple) {
            System.out.println("shoe");
            if(banana - orange < apple) {
                System.out.println("three");
            }
        } else {
            System.out.println("four");
        }

        switch(orange + apple) {
            case 4:
            case 6:
            case 12:
                System.out.println("shut " + apple);
                break;
            case 15:
            case 10:
                System.out.println("the " + orange);
            default:
                System.out.println("door " + banana);
        }
    }
}
```

4. The following Java program compiles and runs. What is its output?

(12)

```
public class LoopAndMethod {

    public static int foo(int a) {
        int i = a % 10;
        int n = a / 4;
        if(n < i) {
            n += n;
        }
        System.out.println("foo: i = " + i + ", n = " + n);
        return i + n;
    }

    public static void main(String[] args) {

        int n = 6;

        System.out.println("A: n = " + n);

        for(int i = 2*n; i < 20 ; i += 5) {
            n = foo(i);
            System.out.println("B: i = " + i + ", n = " + n);
        }

        System.out.println("C: n = " + n);
    }
}
```

5. Write a method that takes a `String` and returns a new `String` with all occurrences of the letter 'x' removed. To do this, copy exactly one line of code from each of the pairs below, place them in the correct order, and add indentation and closing curly braces as needed to make a correct Java method with the desired behavior. (10)

- (a) `return result;`
`return word;`
- (b) `String result;`
`String result = "";`
- (c) `if (word.charAt(i) == 'x') {`
`if (word.charAt(i) != 'x') {`
- (d) `for (int i = 0; i < word.length(); i++) {`
`for (int i = 0; i < word.length; i++) {`
- (e) `result = word.charAt(i);`
`result += word.charAt(i);`
- (f) `public static String removeX(String word) {`
`public static String removeX(word) {`

6. Write a method that takes an array of integers and returns the largest value in the array. (Note: The constants `Integer.MIN_VALUE` and `Integer.MAX_VALUE` contain the smallest and largest possible int values.) (10)

To do this, copy exactly one line of code from each of the pairs below, place them in the correct order, and add indentation and closing curly braces as needed to make a correct Java method with the desired behavior.

- (a) `for (int i = 0; i < nums.length; i++) {`
 `for (int i = 0; i <= nums.length; i++) {`
- (b) `return largest;`
 `return nums;`
- (c) `if (largest < nums[i]) {`
 `if (largest > nums[i]) {`
- (d) `public static int findLargest(int[] nums) {`
 `public static int[] findLargest(int nums) {`
- (e) `largest = i;`
 `largest = nums[i];`
- (f) `int largest = Integer.MIN_VALUE;`
 `int largest = Integer.MAX_VALUE;`