Name: _____

CS 141: Introduction to (Java) Programming: Exam 1

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1.	(max 18)	5.	(max 6)	9.	(max 4)
2.	(max 8)	6.	(max 10)	10.	(max 12)
3.	(max 18)	7.	(max 9)	11.	(max 6)
4.	(max 3)	8.	(max 6)		
Total:			(max 100)		

1. (3 pts each, 18 pts total) What is the value of `result` after each of the following statements assuming that:

```
int result = 1;
int a = 2;
int b = 7;
int c = 3;
```

a. `result++;` _____

b. `result = a / b;` _____

c. `result = b % c;` _____

d. `result = a % b;` _____

e. `result = a + b * c;` _____

f. `result = Math.min( b+c , c*c );` _____

2. (2 pts each, 8 pts total) What is the value (true or false) of each of the following assuming

```
char letter = 'D';
```

Circle correct answer

a. `(letter != 'C' || letter != 'D')` True or False

b. `! (letter == 'C' || letter == 'D')` True or False

c. `! (letter == 'C' && letter == 'D')` True or False

d. `(letter != 'C' || letter == 'D')` True or False

3. (3 pts each, 18 pts total) What is the value of each of the following expressions? (`true`, `false` or *undefined*)

```
boolean fast  = true;
boolean loud  = false;
boolean big   = true;
boolean red   = false;
double  speed = 100;
```

Circle correct answer

a.	`fast && !red`	`true`	`false`	*undefined*
b.	`loud  && red || fast`	`true`	`false`	*undefined*
c.	`speed >= 70`	`true`	`false`	*undefined*
d.	`50 < speed < 100`	`true`	`false`	*undefined*
e.	`speed >= 1 && <= 10`	`true`	`false`	*undefined*
f.	`red || speed  != 100`	`true`	`false`	*undefined*

4. (3 pts) What is the output of the following code:

```
int x = 10;
int y = 20;
int z = 30;

z = x;
x = y;
y = z;
System.out.println(x + " " + y + " " + z);
```

a. `10 20 30`
b. `30 10 10`
c. `20 10 10`
d. `20 30 10`

Answer (a, b, c, or d): _____

5. (6 pts) What is the output of the following code:

```
String dessert = "chocolate cream pie";
char myChar = dessert.charAt(6);
String myString = dessert.substring(2,5);
System.out.print("myChar = " + myChar);
System.out.println("   myString = " + myString);
```

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6. (10 pts) The following program fragment counts up occurrences of the letters `'W'` and `'U'` and of all other letters (as a "miscellaneous" category) in a line of user input. Re-write it to use if-else statements instead of a switch statement (assume that a `char` variable called `letter` has been defined already.)

```
int wcount = 0;
int ucount = 0;
int mcount = 0;
switch(letter)
{
     case 'W':  wcount++; break;
     case 'U':  ucount++; break;
     default:   mcount++;
}
```

Answer (code):

7. (3 pts each, 9 pts total) Given the following code:

```
int score = in.nextInt(); // user enters score
if (score < 80)
{
      if (score > 90)
      {
            System.out.println("great");
      }
      else if (score < 70)
      {
            System.out.println("not great");
      }
}
else
{
      if (score < 90)
      {
            System.out.println("I'm happy");
      }
      else if (score < 70)
      {
            System.out.println("how depressing");
      }
}
```

What is the output if (answer for each of the following, separately):

a. score = 85 output: _____

b. score = 100 output: _____

c. score = 65 output: _____

8. (6 pts) What is the output of the following loop?

```
for  (int  i = 3; i < 6; i++)
{
      System.out.println("i = " + i);
}
```

Answer:

9. (4 pts) Consider the following `for` loop template—we've used letters for the three parts of the header and the body so that we can refer to them more easily:

```
...
for (   A  ;  B  ;  C   ) {

      D

}
...
```

The first time we enter this loop (from the code directly above it), in what order will the four lettered parts of the loop be evaluated?

1. A B C D
2. A C B D
3. B C A D
4. A B D C

Answer (1, 2, 3, or 4): _____

10. (12 pts) Write a for-loop that prints 7 down to 1 (i.e. 7 6 5 4 3 2 1).

Code:

11. (6 pts) What is the value of **`sum`** after the following while-loop? A variable trace may be helpful.

```
int x = 2;
int sum = 0;
while (x < 8)
{
      sum = sum + x;
      x = x + 2;
}
```

Answer: sum = _____