## CSE 100: Principles of Programming with C++ Department of Computer Science Arizona State University, Fall B 2013 Midterm II, 100 Points

Your Name: \_\_\_ Solutions
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- \_F\_ a) In C++, <u>case</u> is a reserved word, but <u>break</u> is not a reserved word.
- \_F\_ b) In a switch statement, every case must have a break.
- \_T\_ c) [3 points] Assume all variables are properly declared. The output of the following C++ code is 0 1 2 3 4.

```
n = 0;
while (n < 5)
{
   cout << n << " ";
   n++;
}</pre>
```

\_F\_ d) Assume all variables are properly declared. The output of the following C++ code is 1 2 3 4 5 6 7 8 9 10.

```
for (i = 1; i <= 10; i++);
cout << i << " ";
```

_F_	e) Consider the following for loop.	
	int i;	
	<pre>for (i = 1; i &lt; 20; i++) {     cout &lt;&lt; "Hello World"; } cout &lt;&lt; endl;</pre>	
	in this for loop, the world "Hello World" will be printed 20 times.	
_T_	f) If a <b>continue</b> statement is placed in a while structure, the loop-continue test is evaluated immediately after the continue statement.	
_F_	g) global variables can be accessed by the main method only.	
T	h) do-while loop is guaranteed to be execute at least once.	
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a)	What does <= mean? a. less than b. greater than	d. greater than or equal to
b)	A loop that continues to execute endles a. end b. unlimited	c. infinite d. definite
c) Suppose x is 7 and y is 7. Choose the value of the following expression: $(x == 7) \&\& !(x <= y)$		
	a. false b. true	c. 1 d. null

\_\_\_ d) What is the output of the following code?

```
char lastInitial = 'A';
switch (lastInitial)
case 'A':
  cout << "section 1";
case 'B':
  cout << "section 2" <<endl;</pre>
  break:
case 'C':
  cout << "section 3" <<endl;</pre>
  break;
case 'D':
  cout << "section 4" <<endl;</pre>
  break;
default:
  cout << "section 5" <<endl;
a. section 1 section 2
```

b. section 5

- c. section 2
- d. None of the above
- e) What will be printed after the following code is executed?

```
for (int number = 5; number <= 15; number +=3)
System.out.print(number + ", ");

A) 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
C) 5, 8, 11, 14, 17
B) 5, 8, 11, 14
D) This is an invalid for statement
```

f) In the following code, what values could be read into number to terminate the while loop?

```
cout<<"Enter a number: ";
int number;
cin>>number;
while (number < 100 || number > 500)
{
  cout>>"Enter another number: ";
  cin>>number;
}
```

- A) Numbers in the range 99 through 501
- C) Numbers greater than 500

B) Numbers less than 100

D) Numbers in the range 100 through

500

g) How many times will the following do-while loop be executed?

```
int x = 11;
do
{
 x += 20;
} while (x > 100);
```

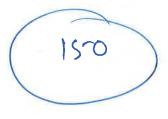
- D) 4
- h) What will be the value of x after the following code is executed?

- A) 25
- B) 40
- C) 30 D) Invalid for statement

- 3.[
- [5 points] What is the output of the C++ code (Assume all variables are properly (a) declared.)

```
num = 100;
while (num \leq 148)
cout << num << endl;</pre>
```

when num = 145 while condition is true. so it executs one more time. num will be 150



(b) **[5 points]** Assume all variables are properly declared and the input is 12 6 5 –1 8. What is the output of the following code?

```
sum = 0;

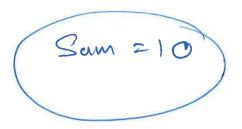
cin >> num;

while (num!=-1)

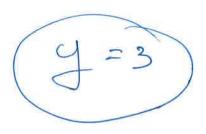
{

cin >> num;

sum = sum + num;
```



(c) [5 Points] Suppose x and y are int variables. Consider the following statements.



What is the value of y if x = 4?

(d) [5 points] What is the output of the following program segment?

int 
$$y = 22$$
;  
while  $((y \% 3)!=0)$   $22 \frac{1}{3} = \frac{1}{3}$   
{
 $cout << y << ""; y = y - 2; } y = 18$   $(8 \frac{1}{3}) = 0$ 

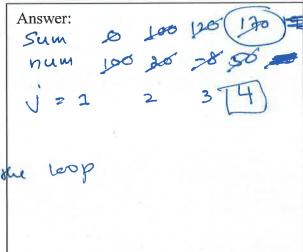
e) [5 Points] Suppose that the input is 100 20 -8 50 20. What is the output of the following C++ code?

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```
int sum = 0;
int num;
int j;

for (j = 1; j <= 4; j++)
{
    cin >> num;
    if (num < 0)
        continue;
    sum = sum + num;
}

cout << sum << endl;</pre>
```





4. [25 Points] The following code segment reads a string (consists of letters and digits) from the keyboard and count how many '0' s in the string

```
string str;
int zeroCount=0;
getline(cin,str);

for(int i = 0 ; i <= str.length() - 1 ; 'i++)
{
      if(str[i] == '0')
      zeroCount++;
}</pre>
```

i.) [5 Points] Rewrite the above code using a while loop

ii) [5 Points] Modify the above code (code given or your answer to part i above) so that it count total number of digits in the string str. ASCII values for digits are values are between 48-57.

a) [10 Points] Write a C++ code segment that reads integers from the keyboard until user enter 0 and determine the largest integer entered.

int data; int larget; Cin >> data; //-Reads the first

number that the

largest = data; // - assume first number is the

largest while (data !=0) if (det largest (data)

data lar

largest = data; cin Mata;