Florida VirtualSchool

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In Course: Adv Pl Computer Science A V14 (4102)
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Your score on this exam is **36** out of **52** .

Answer Key

Question 1 (Worth 2 points)

What does the octal number 150 represent in the decimal system?

- 136
- (•) 104
- 85
- 204
- 43

Points earned on this question: 2

Question 2 (Worth 2 points)

What is output by the following program?

```
int i = 6;
while (i >= 2) {
System.out.print (i + " ");
if ((i % 2) == 0) {
i = i / 2;
} else {
i = i + 1;
}
}
```

- 6 7 4 2

- [x] 6 3 4 2
- [ ] 6 2 4 1
- [ ] 6 5 4 3 2
- [ ] 6 3 5 2

Points earned on this question: 2

Question 3 (Worth 2 points)

The Integer.MIN_VALUE constant has the value of ____.

- [x] -2^{31}
- [ ] $-2^{31 - 1}$
- [ ] $-2^{31} - 1$
- [ ] $-2^{31} + 1$

Points earned on this question: 2

Question 4 (Worth 2 points)

Suppose the following array is declared:

int[ ] grades = {88, 92, 95, 83};

What are the values in grades after the following code executes?

int temp = grades[0];

grades[0] = grades[1];

grades[1] = temp;

- [ ] An ArrayIndexOutOfBoundsException occurs
- [x] {92, 88, 95, 83}
- [ ] {88, 88, 95, 83}
- [ ] {92, 92, 95, 83}
- [ ] {88, 92, 95, 83}

Points earned on this question: 2

Question 5 (Worth 2 points)

The following code is designed to set index to the location of the first occurrence
of target in the array a, and to set index to -1 if target is not found in a.

```
index = 0;
while (a[index] != target) {
index++;
}
if (a[index] != target){
index = -1;
}
```

Which of the following describes the condition under which this program segment will
fail to perform the task described?

- ○ Whenever target is the first element of the array
- ○ Whenever target is the last element of the array
- ○ Whenever target is not present in the array
- ◉ Whenever target is -1
- ○ Whenever target = a[target]

Points earned on this question: 0

Question 6 (Worth 2 points)

Suppose the following array is declared:

```
int[ ] grades = {88, 92, 95, 83};
```

What is the value of grades[grades.length-1]?

- ○ An ArrayIndexOutOfBoundsException occurs
- ○ 88
- ○ 92
- ○ 82
- ◉ 83

Points earned on this question: 2

Question 7 (Worth 2 points)

When is the following expression true?
!(!a || b) || (!a && b)

- If and only if a and b have different values
- If and only if a and b have the same value
- If and only if both a and b are true
- If and only if both a and b are false
- The expression is never true

Points earned on this question: 0

Question 8 (Worth 2 points)

Under which of the following conditions will evaluating this boolean expression
cause an ArrayIndexOutOfBoundsException n represents the length of a?

((i <= n) && (a[i] == 0)) || (((i >= n) && (a[i-1] == 0)))

I. i > n
II. i = n
III. i < n

- I only
- II only
- I and II only
- II and III only
- None of the above cause ArrayIndexOutOfBoundsException

Points earned on this question: 0

Question 9 (Worth 2 points)

Suppose the following array is declared:

int[ ] grades = {88, 92, 95, 83};
What is the value ofgrades[3]?

- ○ An ArrayIndexOutOfBoundsException occurs
- ○ 88
- ○ 92
- ○ 95
- ◉ 83

Points earned on this question: 2

Question 10 (Worth 2 points)

!((x > y) || (y <= 0)) is equivalent to which of the following expressions?

I.!(x > y) || !(y <= 0)
II.!(x > y) &&! (y <= 0)
III. (x <= y) && (y > 0)

- ◉ I only
- ○ II only
- ○ III only
- ○ I and III only
- ○ II and III only

Points earned on this question: 0

Question 11 (Worth 2 points)

Suppose the following array is declared:

int[ ] grades = {88, 92, 95, 83};
and the following integer is declared:
int index = 1 + 6 % 3;
What is the value of grades[index]?

- ○ An ArrayIndexOutOfBoundsException occurs
- ○ 88
- ◉ 92
- ○ 95

○ 83

Points earned on this question: 2

Question 12 (Worth 2 points)

Assume that you have an array named items containing 100 integers, and an integer named numItems that represents the number of valid integers currently used in the array. All elements from items[numItems] to items[items.length-1] have values of 0.

The following code is designed to calculate and print the average of the valid array elements.

```
int sum=0, count;

for (count = 0; count < items.length; count++)
{
< statement 1 >
}
< statement 2 >
```

Which of the following substitutions for < statement 1 > and < statement 2 > will cause this code to correctly print the average of the valid array elements in items?

○

Statement 1:
sum += items[count];
Statement 2:
System.out.println((double)sum / count);

◉

Statement 1:
sum += items[count];
Statement 2:
System.out.println((double)sum / items.length);

○

Statement 1:
sum += items[count];
Statement 2:
System.out.println((double)sum / numItems);

○

Statement 1:
sum += items[items.length-1];
Statement 2:
System.out.println(sum / 100);

Statement 1:
sum += items[items.length-1];
Statement 2: System.out.println((double)sum / numItems);

Points earned on this question: 0

Question 13 (Worth 2 points)

What is printed by this code segment?

```
String s = "Howdy";
int i = s.length() - 1;
String total = "";
String letter;

while (i >= 0)
{

letter = s.substring (i, i + 1);
System.out.print (i + " " + letter + " ");
total = total + letter;
i--;
}
```

- 4 H 3 o 2 w 1 d 0 y
- 0 H 1 o 2 W 3 d 4 y
- 4 y 3 d 2 w 1 o 0 H
- 0 y 1 d 2 w 3 o 4 H
- 0 1 2 3 4 H o w d y

Points earned on this question: 2

Question 14 (Worth 2 points)

What does the decimal number 143 equal in the hexadecimal system?

- 8F

- C4
- 7A
- 131
- 3D

Points earned on this question: 2

Question 15 (Worth 2 points)

Given the following code:

```
int i = 100;
int j = 10;
while (i > 0)
{
i = i / j;
j = 1 + j % 5;
}
```

What is the value of i after this code executes?

- 0
- 1
- 2
- 5
- 10

Points earned on this question: 2

Question 16 (Worth 2 points)

Given the following code:

```
if (n == 2)
{

k -= 2;
}
else if (n == 3)
{
k -= 3;
}
```

can be rewritten as:

```
if (< condition >) {
< assignment statement >;
}
```

Assume that evaluating < condition > does not change the values stored in n and k. Which
of the following could be used as < assignment statement >?

- (●) k -= n;
- ( ) k -= 1;
- ( ) k -= 2;
- ( ) k += n;
- ( ) k = n – k;

Points earned on this question: 2

Question 17 (Worth 2 points)

Consider the following code:

```
int i, stars;

for(i = 5; i > 0; i -= 2)
{
for(stars = 0; stars < i; stars++)
{
System.out.print("*");
}
System.out.println();
}
```

What will be printed when this code segment is executed?

( )
```
*
**
***
****
*****
```

( )
```
*
***
```

*****

*****
****
***
**
*

*****
***
*

****
**

Points earned on this question: 2

Question 18 (Worth 2 points)

Consider the following code examples, where all variables are of type int.

Example 1
```
x = n;
y = x;
while (x > 0) {
y += 1;
x /= 2;
}
```
Example 2
```
x = n;
y = x;
if (x > 0) {
while (x > 1) {
y += 1;
x /= 2;
}
}
```
Assume that the two examples start with the same value for variable n. For which
value(s) of n do the two code examples compute the same value for variable y ?
I.Any value less than zero
II.The value zero
III.Any value greater than zero

I only

- ○ II only
- ○ III only
- ◉ I and II only
- ○ I, II, and III

Points earned on this question: 2

Question 19 (Worth 2 points)

Assume that these String variables have been declared:

String str1 = new String("hello");
String str2 = new String("hello");
What is the value of the following expression?
str1.equals(str2)

- ◉ true
- ○ false
- ○ hello
- ○ hellohello
- ○ equal

Points earned on this question: 2

Question 20 (Worth 2 points)

What is output by the following code fragment?

```
String[ ] veggies = { "zucchini", "carrot", "spinach", "asparagus" };

int i = 0;

for (String item : veggies) {

i += item.length();

}

System.out.println(i);
```

- ○ 26

- ○ 27
- ○ 28
- ○ 29
- ◉ 30

Points earned on this question: 2

Question 21 (Worth 2 points)

Consider the following two code segments. In both, assume that n is an integer
variable that has been declared and initialized.

Segment 1

```
int prod = 1;

int i;

for (i = 2; i <= n; i++) {

prod *= i;

}

System.out.println(prod);
```

Segment 2

```
int prod = 1;

int i = 2;

while (i <= n) {

prod = prod * i;

i++;

}

System.out.println(prod);
```

For which integer values of n do these code segments print the same result?

- ○ Only n > 1

- ○ Only n < 1
- ◉ Only n == 1
- ○ Only n >= 1
- ○ Any integer n produces the same result

Points earned on this question: 0

Question 22 (Worth 2 points)

In the following algorithm, which constant should be assigned to minimum to ensure that the algorithm finds the smallest integer?

```
minimum = <<constant>>;

for(int current = 0;  current < numbers.length;  current ++)

    {

       if (minimum > numbers[current])

          minimum = numbers[current];

    }
```

- ○ Integer.MIN_VALUE
- ◉ Integer.MAX_VALUE
- ○ Int.MAX_VALUE
- ○ Int.MIN_VALUE

Points earned on this question: 2

Question 23 (Worth 2 points)

Consider the following code, What are the values in array after the following code executes?

```
int[ ] array = new int[3];
int index = 1;
array[index] = index - 1;
index++;
array[index] = array[index - 1] - 1;
array[index - 2] = index % 3;
```

- {0, 0, 0}
- {0, 0, 2}
- {2, 0, 0}
- {2, 0, -1}
- {3, 0, 2}

Points earned on this question: 2

Question 24 (Worth 2 points)

The following code is intended to calculate the sum of the first five positive odd
integers.

```
int sum = 0, k;

for (k = 1; k <= 10; k += 2) {
sum += k;

}
```

What is wrong with this code segment?

- The segment calculates the sum of the first four positive odd integers.
- The segment calculates the sum of the first six positive odd integers.
- The segment calculates the sum of the first seven positive odd integers.
- The variable sum is incorrectly initialized. The segment would work correctly if sum
was initialized to 1.
- The segment works as intended.

Points earned on this question: 0

Question 25 (Worth 2 points)

Assume that age has been declared as an int variable. Which expression is true

whenever age indicates that the person is a teenager?

- (●) ((age < 20) && (age >= 13))
- ( ) ((age < 20) || (age >= 13))
- ( ) ((age <= 19) && (age < 13))
- ( ) ((age <= 19) || (age >= 13))
- ( ) ((age <= 19) && (age >= 12))

Points earned on this question: 2

Question 26 (Worth 2 points)

Which of the following statements is false?

- ( ) For-each loops (or enhanced for loops) can be used to iterate over arrays.
- ( ) For-each loops can only be used to iterate over all array elements.
- (●) For loops can be used to iterate over all or some array elements.
- ( ) For-each loops can be used to iterate over all array elements in reverse order.
- ( ) For-each loops can be replaced with either for loops or while loops.

Points earned on this question: 0

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