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Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 1.00 out of 1.00

What are two parts to recursion?

Select one:

- a. (1) If the problem is easy, solve it immediately, and (2) If the problem can't be solved immediately, divide it into smaller problems. ✔
- b. (1) Divide the problem into smaller problems, and (2) give immediate solutions for the hard problems.
- c. (1) Discard the hard cases , and (2) solve the easy easy cases.
- d. (1) Solve the problem by asking it to solve itself, (2) Solve the easy cases in one step.

The correct answer is: (1) If the problem is easy, solve it immediately, and (2) If the problem can't be solved immediately, divide it into smaller problems.

Question **2**

Correct

Mark 1.00 out of 1.00

How can you drink an entire keg of root beer?

Select one:

- a. (1) take one swallow, then (2) take another swallow.
- b. (1) If the keg is empty do nothing, otherwise (2) take one swallow, then drink the rest of the keg. ✔
- c. (1) take one enormous gulp, and (2) wish you hadn't.
- d. (1) drink one keg, and (2) drink another keg.

The correct answer is: (1) If the keg is empty do nothing, otherwise (2) take one swallow, then drink the rest of the keg.

Question **3**

Correct

Mark 1.00 out of 1.00

How do you study a text book?

Select one:

- a. (1) Read the book on day 1, and (2) read it again each day of the semester.
- b. (1) If you have reached the end of the book you are done, else (2) study one page, then study the rest of the book. ✔
- c. (1) Divide the book in two, and (2) study each half.
- d. (1) Cram all the pages in one horrible session, and (2) forget everything the next night.

The correct answer is: (1) If you have reached the end of the book you are done, else (2) study one page, then study the rest of the book.

Question **4**

Correct

Mark 1.00 out of 1.00

Which answer is a correct skeleton for a recursive Java method?

A.

```
int solution( int N )
{
  if ( base case )
  {
    return something easily computed
  }
  else
  {
    divide problem into pieces
    return something calculated from the solution to each piece
  }
}
```

B.

```
int solution( int N )
{
  if ( base case )
  {
    return something easily computed
  }
  else
  {
    return solution(N)
  }
}
```

C.

```
int solution( int N )
{
  divide problem into pieces
  return something calculated from the solution to each piece
}
```

D.

```
int solution( int N )
{
  divide problem into pieces
  if ( base case )
  {
    return something easily computed
  }
  else
  {
    return something calculated from the solution to each piece
  }
}
```

Select one:

- a. ✔
- b.
- c.
- d.

The correct answer is: a.

Question **5**

Correct

Mark 1.00 out of 1.00

Which of the following statements are true?

Select one:

- a. The Fibonacci series begins with 0 and 1, and each subsequent number is the sum of the preceding two numbers in the series. ✔
- b. The Fibonacci series begins with 1 and 1, and each subsequent number is the sum of the preceding two numbers in the series.
- c. The Fibonacci series begins with 1 and 2, and each subsequent number is the sum of the preceding two numbers in the series.
- d. The Fibonacci series begins with 2 and 3, and each subsequent number is the sum of the preceding two numbers in the series.

The correct answer is: The Fibonacci series begins with 0 and 1, and each subsequent number is the sum of the preceding two numbers in the series.

Question **6**

Correct

Mark 1.00 out of 1.00

In the following method, what is the base case?

```
static int xMethod(int n) {
   if (n == 1)
     return 1;
   else
     return n + xMethod(n - 1);
}
```

Select one:

- a. n is 1 ✔
- b. n is greater than 1.
- c. n is less than 1.
- d. no base case.

The correct answer is: n is 1

Question **7**

Correct

Mark 1.00 out of 1.00

Consider the following two programs:

A.

```
public class Test {
    public static void main(String[] args) {
        xMethod(5);
    }

    public static void xMethod(int length) {
        if (length > 1) {
            System.out.print((length - 1) + " ");
            xMethod(length - 1);
        }
    }
}
```

B.

```
public class Test {
    public static void main(String[] args) {
        xMethod(5);
    }

    public static void xMethod(int length) {
        while (length > 1) {
            System.out.print((length - 1) + " ");
            xMethod(length - 1);
        }
    }
}
```

Select one:

- a. The two programs produce the same output 5 4 3 2 1.
- b. The two programs produce the same output 1 2 3 4 5.
- c. The two programs produce the same output 4 3 2 1.
- d. The two programs produce the same output 1 2 3 4.
- e. Program A produces the output 4 3 2 1 and Program B prints 4 3 2 1 1 1 .... 1 infinitely ✔

The correct answer is: Program A produces the output 4 3 2 1 and Program B prints 4 3 2 1 1 1 .... 1 infinitely

Question **8**

Correct

◄ Learning Journal Unit 2

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Lab 3 Unit 2 ►

What code is missing to complete the following method for sorting a list?

```
public static void sort(double[] list) {
_____;
}

public static void sort(double[] list, int high) {
  if (high > 1) {
    // Find the largest number and its index
    int indexOfMax = 0;
    double max = list[0];
    for (int i = 1; i <= high; i++) {
      if (list[i] > max) {
        max = list[i];
        indexOfMax = i;
      }
    }

// Swap the largest with the last number in the list
list[indexOfMax] = list[high];
list[high] = max;

// Sort the remaining list
sort(list, high - 1);
}
}
```

Select one:

- a. sort(list)
- b. sort(list, list.length)
- c. sort(list, list.length - 1) ✔
- d. sort(list, list.length - 2)

The correct answer is: sort(list, list.length - 1)

Question **9**

Correct

Mark 1.00 out of 1.00

For a linked list to be used in a program, that program needs:

i. A variable that refers to the first node in the list.
ii. A pointer to the first node.
iii. A null pointer in the last node.

Select one:

- a. i and ii
- b. i
- c. ii and iii
- d. i, ii and iii ✔

The correct answer is: i, ii and iii

Question **10**

Correct

Mark 1.00 out of 1.00

Suppose cursor refers to a node in a linked list (using the IntNode class with instance variables called data and link). What statement changes cursor so that it refers to the next node?

Select one:

- a. cursor++;
- b. cursor = link;
- c. cursor += link;
- d. cursor = cursor.link; ✔

The correct answer is: cursor = cursor.link;