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**NORTH AMERICAN  
UNIVERSITY**  
INSPIRATION INNOVATION GLOBAL COMPETENCE



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**Started on** Sunday, 3 February 2019, 9:53 PM

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**State** Finished

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**Completed on** Sunday, 3 February 2019, 10:22 PM

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**Time taken** 29 mins 2 secs

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**Grade** **6.00** out of 10.00 (**60%**)

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**Question 1**

Correct

Mark 1.00 out of 1.00

Which one of the following is not naturally recursive?

Select one:

- ☐ a. Tower of Hanoi
- ☒ b. Sum of N numbers ✓
- ☐ c. Factorial
- ☐ d. Fibonacci

Your answer is correct.

The correct answer is: Sum of N numbers

**Question 2**

Correct

Mark 1.00 out of 1.00

What is the complexity of the following algorithm?

```
for ( int i=0; i<n; i++){  
    Printsum(i);  
}
```

Select one:

- ☐ a.  $O(1)$
- ☒ b. Depends on Printsum() function ✓
- ☐ c.  $O(N)$
- ☐ d.  $O(N^2)$

Your answer is correct.

The correct answer is: Depends on Printsum() function

**Question 3**

Correct

Mark 1.00 out of 1.00

Two main measures for the efficiency of an algorithm are:

Select one:

- ☒ a. Time and space ✓
- ☐ b. Processor and memory
- ☐ c. Data and space
- ☐ d. Complexity and capacity

Your answer is correct.

The correct answer is: Time and space

**Question 4**

Correct

Mark 1.00 out of 1.00

Recursion is not always the best solution.

Select one:

- ☒ True ✓
- ☐ False

The correct answer is 'True'.

**Question 5**

Correct

Mark 1.00 out of 1.00

When you compare the complexities of the following algorithms, which one would be the slowest running?

Select one:

- ☐ a.  $O(1)$
- ☒ b.  $O(2^N)$  ✓
- ☐ c.  $O(N \log N)$
- ☐ d.  $O(2)$

Your answer is correct.

The correct answer is:  $O(2^N)$

**Question 6**

Correct

Mark 1.00 out of 1.00

When we investigate algorithms what should we look for?

Select one:

- ☐ a. Its speed
- ☐ b. Its behavior
- ☒ c. All of them ✓
- ☐ d. Its memory requirements

Your answer is correct.

The correct answer is: All of them

**Question 7**

Incorrect

Mark 0.00 out of 2.00

Which of the following statements is NOT true about the order of growth of functions?

Select one:

- ☐ a. All polynomials of the same degree belong to the same class
- ☐ b. All logarithmic functions belong to the same class irrespective of the logarithm's base
- ☐ c. All the options
- ☐ d. None of the options
- ☐ e. Order  $\log n < a^n < n! < n^n$
- ☒ f. Exponential functions  $a^n$  have different orders of growth for different a's



Your answer is incorrect.

The correct answer is: None of the options

**Question 8**

Incorrect

Mark 0.00 out of 2.00

What is the running time of the following code fragment?

```
for(int i = 0; i < 10; i++)  
    for(int j = 0; j < N; j++)  
        for(int k = N-2; k < N+2; k++)  
            print(i + ' ' + j)
```

Select one:

- ☐ a.  $O(N)$
- ☒ b.  $O(N^2)$  ✖
- ☐ c.  $O(N \log N)$
- ☐ d.  $O(\log N)$
- ☐ e.  $O(N^3)$

Your answer is incorrect.

The correct answer is:  $O(N)$

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