CLAD Homework 3 Solutions

1. **C**
   For Loops are more efficient at creating arrays than While Loops because For Loops execute for a predetermined number of iterations. Thus, LabVIEW can allocate the memory to be used by the array before the For Loop runs.

2. **C**

   The While Loop has a FALSE Boolean wired to its conditional terminal, which is set to Stop if TRUE. Thus, there is no condition that causes this While Loop to stop. So, the While Loop could run infinitely and the VI must be aborted.

3. **C**

   An empty array is wired to the For Loop using an auto-indexing tunnel. This causes the For Loop to iterate once for every element in the array, which, in this case, is zero. However, the value 5 is written to the shift register before loop execution, and since the loop iterates zero times, the same value of 5 is present at the output shift register.

4. **D**

   Auto-indexing is a feature for loops interacting with arrays. Array functions themselves do not have iterative auto-indexing features.

5. **C**

   The For Loop executes 5 times. Starting with the value of 1, the result of the previous iteration is multiplied by 2. Thus, the value in the indicator after 5 iterations is equivalent to 1x2x2x2x2x2 (2^5), or 32.

6. **D**

   For Loops refer to the input to the Count terminal to determine how many iterations to execute.

7. **A**

   Arrays are not accepted by the case selector terminal because the case selector terminal requires a scalar value.

8. **D**

   The Default case executes because the input to the case selector does not fit any of the other cases. Thus, the answer is 6^2, or 36.

9. **A**

   When given a multidimensional array, the Array Size function will output a 1D array containing the size of each dimension. The order of arrays is always row first, column second. Thus, the correct answer is A since there are 2 rows and 3 columns.

10. **B**

    When doing array arithmetic, LabVIEW will force the output to be the size of the smaller input. In this case, the output will be a 1D array with two elements. The elements are 75-100 and 50-25, or {-25, 25}.