Task 3.2P Answer Sheet

Name:
Student ID:

1. In 2.2P, how many Counter objects were created?

2 because myCounters[2] = myCounters[0]

2. Variables declared without the "new" keyword are different to the objects created when we call "new". Referring to the main method in task 2.2P, what is the relationship between the variables initialised with and without the "new" keyword?

When you declare a variable without the "new" keyword, you are creating a value type variable and it is store in the stack. When you use the "new" keyword to create an object, you are creating a reference type variable with the object stored in heap and the address of the object store in stack

3. In 2.2P, explain why resetting the counter in myCounters[2] also changed the value of the counter in myCounters[0].

The code for it is myCounters[2] = myCounters[0] which make it refferencing the same object

4. The key difference between memory on the heap and memory on the stack is that the heap holds "dynamically allocated memory". What does this mean? In your answer, focus on the size and lifetime of the allocations.

Memory on the stack has a fixed size and when a function or block of code finishes, the memory for those variables is automatically freed

Memory on the heap can allocate memory of different sizes at runtime and stays allocated until you deallocate it or the program/system has scripts to release it

5. Are objects allocated on the heap or the stack? What about local variables?

the object stored in heap and the address of the object store in stack.
Local variables are store in stack

6. What does the new() method do when called for a particular class, and what does it return?

new() is used to create a new instance of a class and It call the constructor of that class and that constructor return the instance of the class

7. Assuming the class Counter exists in my project, if I wrote the code "Counter myCounter;" (note there is no "="), what value would myCounter have? Why?

Not sure since my intelliSense tell me it Is an error. So null ? or something like that I guess

8. Based on the code you wrote in task 2.2P, draw a diagram showing the locations of the variables and objects in main and their relationships to one another.

Stack	Heap
Main myCounter	myCounter: myCounter[0], myCounter[1], myCounter[2] → Counter 1, Counter 2