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**ST10445286**

**PROG6121**

**Practice Test**

Question 1

1. D
2. A
3. A
4. B
5. C
6. A
7. C
8. A
9. D
10. The code will not run
11. The code will not run
12. The code will run
13. The code will run
14. A) The program code is correct and all the codes will be incremented by 1

B) The program code is incorrect because of the incorrect use of inverted commas

C) The program code is correct and will multiply all values by 2

Question 3

1. Bubble sort algorithm is a simple sorting algorithm that repeatedly steps through the list, it compares adjacent elements and swaps them if they are in the incorrect order from smallest to biggest
2. The time complexity of standard bubble sorting is O(n^2)
3. The time complexity of bubble sort would be O(n) and the space complexity would be O(1)
4. Bubble sort is a comparison based sorting algorithm
5. The best time complexity of bubble sort would be O(n)
6. The average time complexity of bubble sort is O(n^2)
7. The worst time complexity of bubble sort is O(n^2)

Question 4

1. Insertion sort is a simple sorting algorithm that works by dividing the input into a sorted and an unsorted region
2. Insertion sort works by starting with the first element and take the next element and then compare the shift, insert the element and repeat the process
3. The time complexity of insertion sort is O(n) and the space complexity of insertion sort is O(1)
4. You use insertion sort when you want to group numbers and display them differently
5. The advantages of insertion sort is it works good with small groups and the disadvantage of it is that it works poorly with large groups