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Class Test – 1 (Set 2)

Course Code: SE 214; Course Title: Algorithm Design and Analysis

Time: 30 Minutes Marks: 15

1.		```
		for (int i = 0; i < n; i++) {
		    for (int j = 0; j < n; j++) {
		        for (int k = 0; k < n; k++) {
		            sum += (i + j + k); // Som
		        }
		    }
		}
		``
		Analyze time complexity of the above code segment.
			5

2.		A teacher is sorting students' roll numbers that are already almost sorted. One version of Bubble Sort always completes all passes, while another version uses a flag variable to stop early if no swapping occurs. Explain which version is more effective in this scenario and why, in terms of number of passes and time complexity.	5
3.		A set of pages in a book are out of order due to a printing error. The current page numbers are: **42, 18, 60, 29, 11**. Using **bubble sort**, sort these page numbers in ascending order. Explain each pass of the algorithm, showing how adjacent elements are compared and swapped where necessary. Derive time complexity of bubble sort.	5