Design and Analysis of Algorithms

Here's a recurrence.

$$C(N) = \frac{2}{N}\left(\sum_{i=0}^{N-1} C(i)\right) + N$$

$$C(0) = 1$$

For example,

N	0	1	2	3	4
C(N)	1	3	6	9.67	13.8

Write the following three solutions for this recurrence. This is a programming assignment. Submit code.

1) Brute force recursive solution [3 Marks]
2) Top Down recursive (Dynamic Programming) Solution [5 Marks]
3) Bottom Up (Iterative Dynamic Programming) Solution [5 Marks]