3) (5 pts) ANL (Recurrence Relations)

Using the iteration technique, just solve for the **next two** iterations of the following recurrence relation:

$$T(n) = 3T(n-1) + n^2, for\ integers\ n > 0$$
$$T(0) = 1$$

Your answers should be of the form

$T(n) = aT(n-2) + bn^2 - cn + d$ and
$T(n) = eT(n-3) + fn^2 - gn + h$, where *a*, *b*, *c*, *d*, *e*, *f*, *g*, and *h* are positive integers.

Computer Science Foundation Exam

August 27, 2022

Section D

ALGORITHMS

NO books, notes, or calculators may be used,
and you must work entirely on your own.

Name: _____

UCFID: _____

Question #	Max Pts	Category	Score
1	10	DSN	
2	5	ALG	
3	10	DSN	
TOTAL	25		

You must do all 3 problems in this section of the exam.

Problems will be graded based on the completeness of the solution steps and <u>not</u> graded based on the answer alone. Credit cannot be given unless all work is shown and is readable. Be complete, yet concise, and above all <u>be neat</u>. For each coding question, assume that all of the necessary includes (stdlib, stdio, math, string) for that particular question have been made.