CAP 6515 HOMEWORK ASSIGNMENT 4  
DUE ON 11-22-2022  
Note: Any solution to an algorithm design question MUST contain the following  
four sections:  
(1) Problem statement. A clear unambiguous statement of the problem to  
be solved, which includes the input, the output, and the object function  
with the constraints.  
(2) Algorithm description. A clear, unambiguous description of the algo-  
rithm.  
(3) Correctness proof. A convincing mathematical argument that the algo-  
rithm described solves the computational problem described.  
(4) Time analysis. A time analysis of the algorithm, up to order, in terms of  
all relevant parameters.  
You may use any algorithms and data structures from class.

1. Hamiltonian Path and Eulerian Path (100 pts)  
Use both the Hamiltonian path approach and the Eulerian path approach  
to solve the sequence assembly problem for the following spectrum: S={ATG,  
GGG, GGT, GTA, GTG, TAT, TGG}.  
Please label the edges and vertices of both graphs, and give all possible sequences  
that can be explained by the spectrum.