

# Hamiltonian Path Exercise

CMSC423 Fall 2015

October 13, 2015

Name(s):

UID(s):

**Question 1.** Solve the string reconstruction problem for this set of eight 3-mers:

$\{\text{AGT, AAA, ACT, AAC, CTT, GTA, TTT, TAA}\}$

- (a) Construct the graph with 8 vertices corresponding to these 3-mers (string overlap, Hamiltonian path approach)
- (b) Find a Hamiltonian path (7 edges) which visits each vertex exactly once. Does this path visit every edge of the graph?
- (c) Write the reconstructed string corresponding to this Hamiltonian path.

**Question 2.** When using the string overlap approach, why would a pair of reads corresponding to non-overlapping positions in the genome have an edge connecting them?