

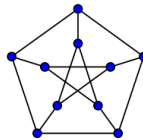
Quiz 3
Discrete Mathematics - MTech CS 2019

30th October 2019

Time: 1 hour 00 minutes

Maximum Marks 100

1. (30 marks) Prove or disprove: The following graph is planar



2. (70 marks) Consider the following definition:

Definition 1. *The girth of a graph is the size of the smallest cycle in the graph. If the graph is acyclic then the girth of the graph is defined to be infinity.*

Prove the following statement:

If G is a planar graph with girth greater than or equal to 6 then prove that the graph is 3 vertex-colorable.