

Quiz 1

Name:

Question 1:

Give and prove a condition on the minimum degree of a graph G that is sufficient for G to contain a path of length k .

For this question you are not allowed to use any results from the lecture.

Solution:

Question 2:

Let F be a forest with k connected components and let e be an edge of F . Show that $F - e$ has $k + 1$ connected components.

Solution:

Question 3:

Given $n \geq 3$. The edges of the complete graph K_n are coloured in black and white. Prove that there is a Hamiltonian path that is the union of at most two monochromatic paths. Is there a Hamiltonian cycle with such a property?

Hint: Use an extremal argument.

Solution: