GRAPH THEORY

Tutorial – 2

1) Prove that a graph is connected iff for every partition of its vertices into two non-empty sets, there is an edge with endpoints in both sets.

2) Let W be a closed walk of length at least 1 that does not contain a cycle. Prove that some edge of W repeats immediately (once in each direction).

3) Let G be a connected simple graph not having P_4 or C_3 as an induced sub-graph. Prove that, G is a complete bipartite graph.

4) Suppose that, every vertex of a loop-less graph G has degree at least 3. Prove that, G has a cycle of even length.