Network Analysis Assignment - LLLL76

QUESTION ONE

A Group Graph is defined by four parameters m, k, p and q and is constructed as follows:
- Create mk vertices. The vertices are partitioned into m groups each of size k.
- For each pair of vertices that belong to the same group, add an edge between them with probability p.
- For each pair of vertices that belong to different groups, add an edge between them with probability q.

Investigate the degree distribution of Group Graphs for $p + q = 0.5$, $p > q$. Decide which values of m, k, p and q to investigate. You should report on how the structure changes as p and q vary and whether the same effects are found for different values of m and k. Use plots to illustrate your observations. Investigate the relationship between the diameter of Group Graphs and p (for fixed q).

QUESTION TWO

QUESTION THREE