# Math 154 Exam 1

Spring 2020

Question 0 (Timing). *If you have permission to take the exam at a non-standard time or have OSD accommodations for extended time, please list the time that you started the exam and the time that the exam should be due. Please list both in pacific time.*

Question 1 (Bipartite Graph, 25 points). *For the graph G below either give a partition of the vertices to make G a bipartite graph or show that no such partition exists.*
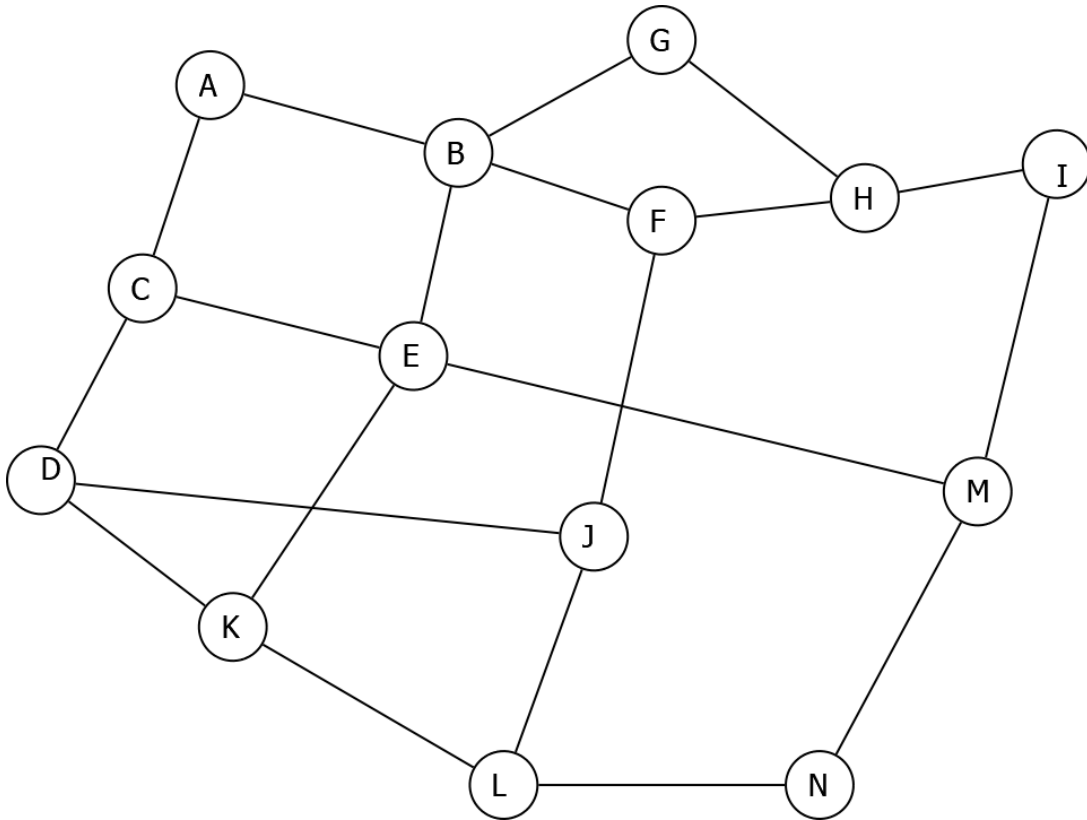
Question 2 ((Semi-)Eulerian Graph, 25 points). *For the graph G below either provide an example of an Eulerian trail in G or show that none exists.*
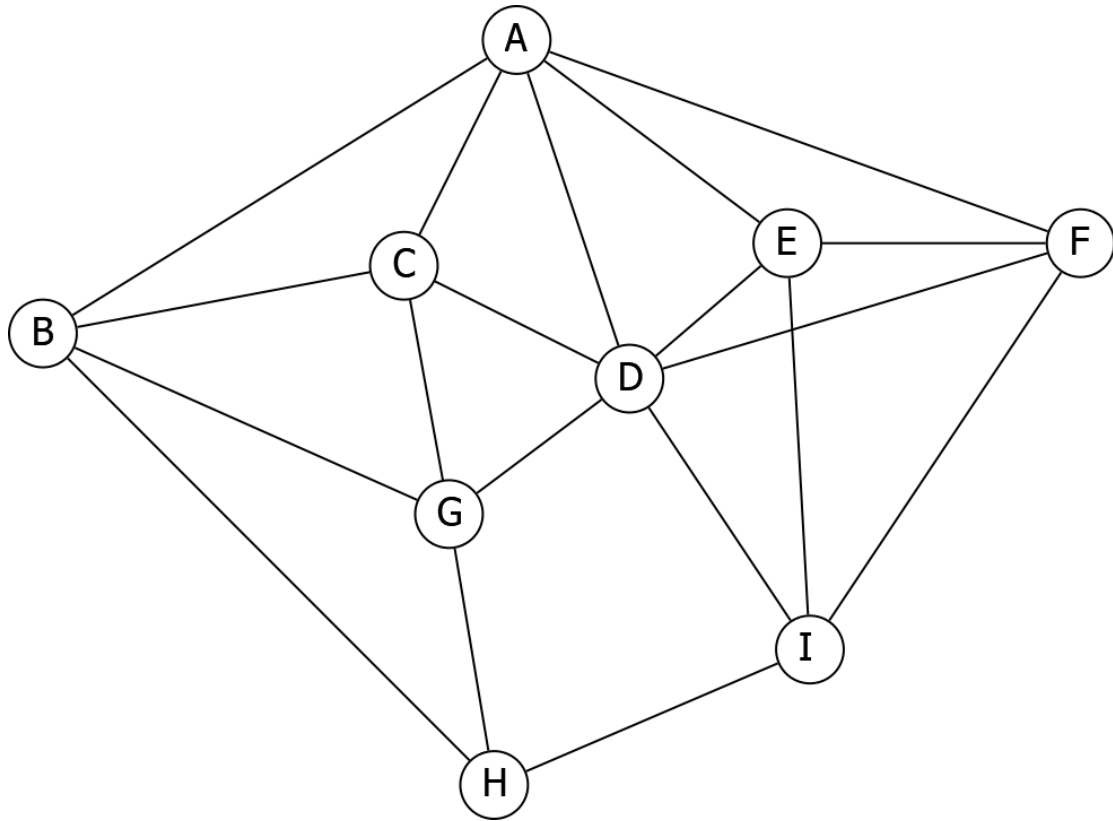
Question 3 (Trees and High Degree Vertices, 25 points). *Show that for any tree T on $n \geq 2$ vertices that the number of leaves of T is more than the number of vertices of degree at least 3.*

Question 4 (Blocks in Semi-Hamiltonian Graphs, 25 points). *For a finite connected graph G show that if G has a Hamiltonian Path that its Block graph must be a path.*