Problem 5. Let G be a connected graph, and for $v \in V(G)$ let $b(v)$ denote the number of blocks of G that contain v. Prove that the number of blocks of G is $1 + \sum_{v \in V(G)} (b(v) - 1)$.

Problem 6. Let G be a bipartite multigraph, and let Δ be its maximum degree. Prove that G has a matching saturating every vertex of degree Δ.

Instructions: You are only allowed to use your own notes, class handouts and the designated textbook. Clarity of exposition, ease of expression, mathematical elegance and overall physical appearance will all be factors in grading. This assignment is due before 3:05PM, Thursday, October 6, 2016.

Please type your solution on one-sided letter size paper in 10pt font or larger. Figures and mathematical formulae may be drawn by hand in black ink. Please submit your work as a single pdf file using the "Assignments" functionality on T-square. At the beginning of the file please include the following honor pledge (or an appropriate modification if you consulted other persons or used other sources):

"I pledge on my honor that this paper represents my own work. I have not consulted with anyone else during the work on this assignment, and I have not used any sources other than my own notes, class handouts and the designated textbook. I understand that making a false statement is a violation of the Georgia Tech honor code."