

## Comprehensive Exam: Graph Theory

There are six problems each worth 10 points.

1. Suppose  $r \geq 2$  is even. Show that no  $r$ -regular graph contains a bridge.
2. Given integers  $m$  and  $k$  where  $2 \leq m \leq k$ , show that there exists a graph  $G$  where  $m$