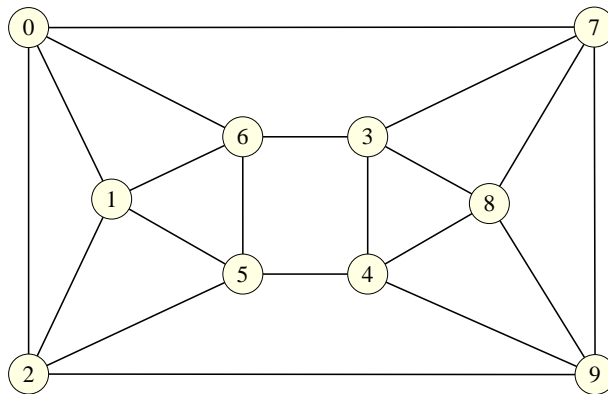# Exercise Sheet 6

Issue date: 19 December 2002   **Hand in by** 14 January 2003

Exercise class: 16 January 2003

Exercise 6.1: In the graph drawn below, exhibit a k-factor for each $k \in \{0, 1, 2, 3, 4\}$.

Exercise 6.2 Determine 1-factorisations of $K_{4,4}$ and K_8.

Exercise 6.3: For each $k > 1$, construct a k-regular simple graph having no 1-factor.

Exercise 6.4: Draw a connected 3-regular simple graph that has a 1-factor and has a cut-vertex. Prove that if the edges of G can be partitioned into 1-factors, then G has no cut-vertex.