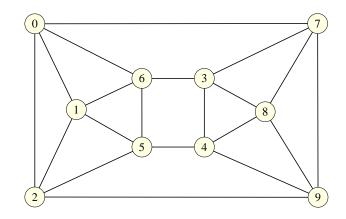
UNIVERSITY OF KONSTANZ Department of Computer & Information Science Maria Flavia Mammana / Frank Schulz Algorithmic Graph Theory WS 02/03 www.inf.uni-konstanz.de/algo/lehre/ws02/gt

Exercise Sheet 6

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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.