

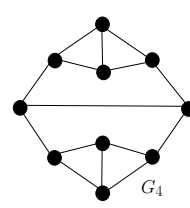
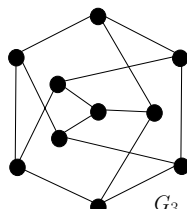
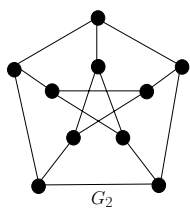
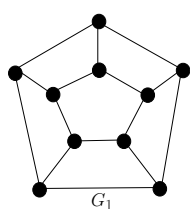
Prof. Dr. Sándor Fekete  
Nils Schweer

## Discrete Mathematics I Assignment 11 (January 25, 2006)

(This assignment is due to February 01, 2006, 1.00 p.m., by dropping it into the wooden box in front of F 310)

### Exercise 1 (Isomorphic graphs):

Which of the given graphs are isomorphic?



(30 Points)

### Exercise 2 (Handshaking lemma):

- Let  $G$  be a graph with  $V = \{v_1, v_2, \dots, v_p\}$  and size  $q$ . Prove that  $\sum_{i=1}^p d(v_i) = 2q$ , where  $d(v_i)$  denotes the degree of vertex  $v_i$ ,  $i \in \{1, 2, \dots, p\}$ .
- Prove that the number of vertices with odd degree is even in every graph.

(15+15 Points)