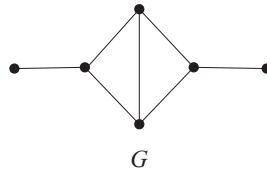**The Chinese University of Hong Kong**

Department of Mathematics

MMAT5380 Graph Theory and Networks

Assignment 3

Please hand in your assignment to the assignment box or the tutor before 6:40p.m. on Oct. 21, 2019 (Monday).
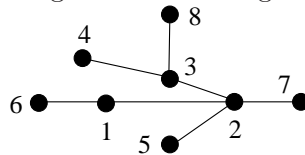
The assignment box is located at the 2nd floor of LSB and opposites to the Room 223.

3-1: Draw all non-isomorphic trees with at most 5 vertices.

3-2: Use Theorem 3.3.7 (in the notes) repeatedly to determine the number of spanning trees of the following graph G. Draw all spanning trees for G. Are any of them isomorphic?

G

3-3: Find the Prüfer sequence corresponding to the following labeled tree.

3-4: Find the labeled tree corresponding to the Prüfer sequence $(7, 3, 2, 4, 2, 5)$.

3-5: Let Γ_k be the set of all trees containing k leaves and zero vertices of degree 2 (and with any number of all vertices). Prove that Γ_k is finite for any k.