Exercise Sheet 1
COMP6741: Parameterized and Exact Computation

2016, Semester 2

1. Arrange the following functions in increasing order of growth: $n \log n; (\log n)^n; 2^n; 2^{2^n}; 2^{n^2}; n!; 1.01^n; 50^n; 2^{n/2}; 2^{\sqrt{n}}$.

2. Show that VERTEX COVER can be solved in polynomial time for graphs of maximum degree at most 2.

3. A vertex cover $C$ of a graph $G$ is minimal if no strict subset of $C$ is a vertex cover. Show that any graph has at most $2^k$ minimal vertex covers of size at most $k$. Furthermore, show that given $G$ and $k$, all minimal vertex covers of $G$ of size at most $k$ can be enumerated in time $2^k n^{O(1)}$.