Monte-Carlo Simulations of High-q Anti-ferromagnetic Potts Models SHAFIQUR RAHMAN, SUVARSHI BHADRA, JOSHUA MONK, Allegheny College — Using a highly efficient cluster-flip Monte-Carlo algorithm[1], we have investigated the ordering in the five- and the six-state anti-ferromagnetic Potts models on a simple cubic lattice. Using a method developed previously[2] to examine in detail the distribution of spins on sublattices, we show that the five-state case has a phase transition only at zero temperature, and that the six-state case is disordered at all temperatures. [1] R. H. Swendsen and J.-S. Wang, Phys. Rev. Lett. 58, 86 (1987). [2] S. Rahman, E. Rush and R.H. Swendsen, Phys. Rev. B58, 9125 (1998). * present address: Dept. of Materials Science and Engineering, Virginia Tech, VA, USA

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