

**PHYS598 AQG, Fall 2017**

**Homework Set #4, due by 4:30 pm on Friday 10/20**

Q1) [3 pts] **Foot Exercise 7.5 – *Saturation of absorption***

Q2) [3 pts] **Foot Exercise 7.6 – *The properties of some transitions in hydrogen***

Q3) [1 pts] **Foot Exercise 7.9 – *Doppler broadening***

Q4) [2.5 pts] **Foot Exercise 7.12 – *The d.c. Stark effect***

Q4-d) [0.5 pts] **Related to Foot #7.12**

For the same electric field strength as in Problem 7.12 (c), estimate (in first order perturbation theory) the percentage of excited state character mixed into the ground state.