

### 4109H: Homework 3, DUE THURSDAY, OCTOBER 19 IN CLASS

Instructor: Sasha Vostroknutov

1. (15 points) Gibbons 2.11
2. (15 points) Gibbons 2.13
3. (20 points) Gibbons 2.15
4. (30 points) Gibbons 2.17
5. (20 points) **Public Goods.** A group of ten economics students in a game theory class play the following game. Each student is given \$1 and is handed the following instructions: “You may anonymously deposit any portion of your \$1 in a “public account”. Whatever you do not deposit in the public account, you may keep for yourself. The money in the public account will be multiplied by five and shared equally among the ten of you”.
  - a) Find all pure strategy Nash Equilibria of this game.
  - b) Suppose the game is repeated finitely many times. Is there a SPNE in which non-Nash outcomes are played in some periods? If yes, give an example of such SPNE and show that it actually is SPNE. If no, show why.
  - c) Suppose now that the game is repeated infinitely many times. Find one SPNE in which non-Nash outcome is played in some periods and show that it is SPNE. Assume that the discount factor of every student is  $\delta = 0.99$ .