Complete the first question and one from the second set of questions.

1. Write out a game from your own day-to-day experience. Identify the players and their strategy set. Write the game in extensive or normal form and find any Nash equilibria that may be present.

2. Write one of the following two-player, simultaneous games in normal form and find any Nash equilibria.

   (a) Two hunters are preparing for a hunt. They’ve agreed to meet in the morning at the old barn on the outskirts of town. They have two options for game to hunt: rabbits or elk. Each requires a specific set of equipment; whatever equipment the hunters bring determines the type of game they go for. The catch is, they both need to bring elk equipment in order to hunt for elk, while either of them can go for a rabbit alone. Elk yields far more meat than rabbit, so each hunter would prefer elk. But can the other be trusted to bring elk equipment? If only one brings elk equipment, he’s out of luck and may as well go home. The hunters are notoriously ill-prepared and will not coordinate what type of equipment they both bring.

   (b) Two Enron executives are arrested and are in the process of being interrogated. Because of the creative accounting of their company, prosecutors do not have enough information for a complete conviction. They are counting on one of the executives to confess so that some serious sentences can be handed out. The prosecutors make an offer to both men (individually, since the men are separated): cooperate with us and we will reduce your sentence and stick your associate with the crime. Not cooperating will automatically yield a sentence that is less than the maximum but is certainly more than what is being offered. Of course, your associate may put the blame on you. If both associates indict the other, then the maximum sentence will be shared by the two.

   (c) Two cytoes come across some carrion in the forest. It’s the winter, so they’d both very much like to eat it. They can either share the carcass (two ways) or they can try to fight the other animal. If one decides to fight and the other decides that the food is not worth fighting over, the passive animal flees while the aggressor gets all the food. If both fight, one will win, but both will sustain injury.

   (d) Winter came all at once this year in Kingston. While leaving the Richardson Stadium lot on the way home, you notice that the exit is blocked by a massive snowdrift. There is another person, in another car, in the same predicament as you. You both want to go home, but it’s freezing out and neither of you want to shovel a path to the road. You have options. You can shovel at a personal cost or wait in your car for the other person to shovel. If both of you shovel, the cost is shared, since it takes half the time to clear a path.

   (e) As an avid cyclist-commuter, I despise other cyclists. Cars are OK, mostly, and so are pedestrians. But what’s with people biking on sidewalks?!? Bikes belong on the road! Even when a cyclist is on the road, they somehow think they are special and do not have to stop at stop signs. The way I see it, a cyclist has two options: stop at a stop sign, or don’t. What if two simultaneously approach a four-way stop, at adjacent stops, and decide not to stop? Are they aware of the harm they could cause?