

Economics 602 – Quiz #2 (November 30, 2000)

Closed book quiz. You have 60 minutes. All questions are worth 10 points.

Have fun: After all, if the quiz hurts your grade, it doesn't count.

Note: T/F means "True or False, and correctly justify."

1. Find all Nash and trembling hand perfect equilibria of the following two person normal-form game. [10]

	A	B	C
A	74,26	58,43	67,33
B	81,27	36,13	33,55
C	29,28	64,32	55,30

Hint: Be sure you use a *very simple and quick* method of attack that will ensure you have found *all* equilibria. Merely finding one or more is not the point here.

2. Katya is at a horserace; her vNM utility function is $\log(2 + \text{winnings} - \text{ticket cost})$. Nancy Brack — our departmental computer system administrator — has one of her two horses 'Mr. Ed' entered. The horse pays \$15 (gross winnings) if it wins, for a one dollar ticket. The *common prior chance* for Mr. Ed to win is $1/16$.

- (a) T/F: The racetrack expects to make money for bets on Mr. Ed. [3]

Nancy says that due her clever exploitation of a Lorch Hall time warp, her computer server Speculator can sometimes catch radio news from the future; it is correct with $5/6$ chance. She tells Katya that she heard on the (future) news that Mr. Ed won.

- (b) T/F: Katya is then indifferent about betting on Mr. Ed. [12]

3. Consider an slightly stylized model of voting in the recent Presidential election in Florida. There are three potential voters. Each votes *not knowing* of who else is voting, or whom they are voting for.

- Voter 1 is Flip Wilson: He always flips a fair coin before voting for Bush or Gore, and *always votes*. Thus, he is not a real player in this game.
- Voters 2 & 3 have types drawn *independently*, and with equal chance. Each knows his own type. Type *R* is a rich family member of Bush, with payoff 8 if Bush wins, and 0 if Gore does. Type *D* is a poor retired senior citizen living on social security, with payoff 8 if Gore wins, and 0 if Bush does. In case of a *tie*, each has payoff 3, since the courts then decide the election randomly.
- Voting *costs* each voter 2, subtracted from payoffs.
- A voter's action set is *VB*, *VG*, or *DV* (vote Bush, vote Gore, or don't vote).

- (a) What equilibrium concept is needed here? Why? [1]

- (b) Carefully specify what a strategy is for voter 1 (or 2)? [2]

- (c) Eliminate dominated strategies for each type. [2]

- (d) T/F: In equilibrium, each of voters 2 and 3 vote with chance $\alpha = 1/2$. [10]