14.12
Spring 1995 **Professor Daron Acemoglu**

Midterm I

1. Consider the following game tree:

[Put any extensive-form game here. m.yildiz.]

(i) write the corresponding normal form
(ii) find all the Nash Equilibria
(iii) are all of these reasonable? why or why not?
(iv) find the Subgame Perfect Equilibrium

2. Two firms compete for a number of workers. The firms simultaneously set wages. There is a proportion λ of informed workers that will go only to the highest wage firm. The remaining $(1-\lambda)$ are uninformed and go with equal probability to either firm. All workers are of equal value to the firms y.

(i) write down profits as a function of wages
(ii) find the equilibrium wages (w_1, w_2) when $\lambda = 0$
(iii) find the equilibrium wages (w_1, w_2) when $\lambda = 1$
(iv) show that there is no pure strategy equilibrium when $0 < \lambda < 1$

3. Consider the following game: Each player says an integer between 0 and 100. Let n_1 denote the number said by player 1 and n_2 that by player 2. The player with n_i closer to $\frac{n_1+n_2}{3}$ gets 10, the other gets 0. If they say the same number they share the prize.

(i) which, if any, are strictly dominated strategies, for each player?
(ii) what outcomes survive after iterated elimination of strictly dominated strategies?
(iii) what are the rationalizable outcomes of this game?
(iv) say a NE of this game
(v) can you find a NE for a similar n-player game?