Economics 326: Midterm 1

31 January, 2004

This test is open book. It is marked out of 60. You have 70 minutes. Good luck.

1. [20] Provide a real–world example of a signalling equilibrium (other than education choice). Explain how the single–crossing property is satisfied. (Points are to be awarded for originality and uniqueness).

2. [20] Consider Akerlof's car model with competitive buyers (as in the second half of lecture 1). Suppose the buyer's value θ is distributed uniformly on $[0, 1]$ and the seller's reservation value is $r(\theta) = 1 - \theta$. (Note: $r(\theta)$ is decreasing in θ).
(a) If θ is known by both seller and buyer for what values of θ will trade occur?
(b) Suppose θ is only known by the seller. Given price p, which sellers will trade? What is the competitive equilibrium price? Which sellers trade in equilibrium?
(c) Compare the level of trade in (a) and (b). How does this outcome differ from the standard Akerlof model analysed in class, where $r(\theta)$ is increasing in θ?

3. [20] Consider Spence's educational signalling model (as in lecture 3). Let λ be the ex–ante probability the worker is of high quality θ_H, and $1 - \lambda$ be the probability she is of low quality θ_L.
(a) If $1 > \lambda > 0$ describe the lowest–cost pooling equilibrium.
(b) If $1 > \lambda > 0$ describe the lowest–cost separating equilibrium.
(c) If $\lambda = 1$ describe the equilibrium.
(d) In the lowest–cost pooling equilibrium, argue that θ_H's utility is continuous as $\lambda \to 1$.
(e) In the lowest–cost separating equilibrium, argue that θ_H's utility is discontinuous as $\lambda \to 1$.