Print your name: _____

Final Examination   Spring 2007
Microeconomics II   Page Total = 2

DIRECTIONS: Obey page limits. If a question has multiple parts, indicate exactly where you answer each part. This exam has three (3) sections; be sure to follow the directions for each section.

1.   SHORT ANSWERS (20 points each)

DO ANY **THREE (3)** OF THE FOLLOWING QUESTIONS. ALL QUESTIONS ARE EQUALLY WEIGHTED.
   A page limit of four (4) pages per question will be strictly enforced.

SA1. Define $xIy \iff \neg xPy \wedge \neg yPx$. Here the binary relation P is asymmetric and negatively transitive. First show that the binary relation I is reflexive, symmetric, and transitive. Then show that I partitions the consumption space X.

SA2. Suppose you have $X = \{x_1, x_2, x_3, x_4\}$ and each element is "preferred" to the next as follows: $x_1 \, R^d \, x_2$, $x_2 \, R^d \, x_3$, and $x_3 \, R^d \, x_4$. What would the Boolean representation (B) look like in this case? (Interpret the True entries.) What about B^2? (Interpret the True entries.) What about B^3? (Interpret the True entries.) What about B^n, for $n \geq 4$? (Explain.)

   Now consider the reflexive closure of the same binary relation, and repeat the exercise with the resulting Boolean matrix. Explain any changes in results.

   Comment: your explanations should be very detailed.

SA3. What is a dominant strategy? What is a Nash equilibrium? Compare the games you learned as the "Prisoner's Dilemma" and "Choosing Information Technologies". Give a brief description of each game. How are these games different? Can either game be applied to modeling "Keynesian Equilibrium as a Nash Equilibrium"? Explain.

SA4. Describe the "evolutionary prisoner's dilemma" and briefly discuss its implementations. What can simulations of the "evolutionary prisoner's dilemma" teach economists? Be very careful and specific.

SA5. What is the Generalized Axiom of Revealed Preference? What is GARP's significance for consumer theory? How might you go about testing GARP with consumer data? (Outlining an algorithm might be helpful here.)

2. LONGER ANSWERS (30 points each)

ALL STUDENTS MUST ANSWER **BOTH (2)** OF THE FOLLOWING QUESTIONS:

LA1. Prove Walker's theorem Provide a *detailed* explanation of each step of your proof. Explain the important of Walker's theorem to neoclassical microeconomics.

LA2. Hall (1978, JPE) considered a simple problem:

$$\max_{\{c_t\}} E_0 \sum_{t=0}^{\infty} \beta^t U(c_t) \qquad \text{s.t. } A_{t+1} = R(A_t + y_t - c_t)$$

with $U(c_t) = -(\bar{c} - c_t)^2/2$.

(a) Interpret this as a consumer problem and explain why we might adopt such a setup.
Comment: An "interpretation" gives the economic reasoning behind these conditions; do not just restate the math in words.

(b) Set up the associated Bellman equation and carefully interpret.

(c) Derive the first order and envelope conditions and carefully interpret.

(d) Derive Hall's result that consumption follows a martingale with drift. Be sure to provide economic interpretations at each step of your derivation.

(e) What are the implications of Hall's result for empirical consumption research? How well are these borne out?

END OF EXAM