Take-Home Final Exam ODD-EVEN-ODD

This exam is take-home, open-book, open-notes. You may consult any published source (cite your references). Other people are closed. The exam you turn in should be your own personal work. Do not discuss with classmates, friends, professors (except with Prof. Starr or Ms. Fried — who promise to be clueless), until the examination is collected.

Please use a blue book. There are four questions. Answer all questions fully. State clearly any additional assumptions you need.

1

Consider a two-person pure exchange economy (Edgeworth Box) made up of the following two households. The notation "$\min[xy, 16]$" means the minimum of xy and 16. Superscripts denote the household name — nothing in this problem is raised to a power.

	Household 1	Household 2
Endowment	$r^1 = (1, 9)$	$r^2 = (9, 1)$
Utility Function	$u^1(x, y) = xy$	$u^2(x, y) = \min[xy, 16]$

1. Household 2 does not fulfill C.IV. Household 2 has a maximum utility of 16; whenever household 2's holdings of x and y fulfill $xy > 16$, household 2 gets no additional satisfaction from additional consumption. Adopt the notation: (x^1, y^1) is household 1's consumption plan of x and y; (x^2, y^2) is household 2's consumption plan of x and y. Set $p = (.5, .5)$. This is a competitive equilibrium price vector with the consumption plan $(x^1, y^1) = (5, 5)$, $(x^2, y^2) = (5, 5)$. Show that this plan is Pareto inefficient.

2. Is this a counterexample to the First Fundamental Theorem of Welfare Economics (Theorem 19.1)? Explain.

2

This question deals with the Arrow Possibility Theorem. The Hare system of proportional representation is described at http://sof.uchicago.edu/hare/overview.html . There is a hotlink to this URL on the Economics 113 webpage. The Hare system does not fulfill all of the four Arrow conditions. Which condition(s) does it fail? Explain fully.

3

Starr's *General Equilibrium Theory: An Introduction* draft second edition, Problem 19.14.

4

Starr's *General Equilibrium Theory: An Introduction* draft second edition, Problem 18.5. Feel free to assume the results of Problem 18.4.