Msc Micro I 2009 sample exam. Lecturer: Todd Kaplan.

Exam is closed notes and no cheat (equation) sheet.

Note that this is an example exam to demonstrate the format. Actual exam may vary on questions, topics and difficulty.

Please answer exactly 5 questions. Answer one question from each of sections: A, B, C, and D and answer one additional question from any of the sections A, B, C, or D. For instance, answering 1, 4, 6, 7, 8 is valid. Answering 1, 3, 4, 5, 7 is also valid. Answering 1,2,3,4, 5 is not valid.

Section A.

1. Give an example of the Allais Paradox. Why does it violate VNM expected utility? Show how putting different weights on the probability function can solve this problem.

2. Give an example of the Ellsberg Paradox. Why does it violate VNM expected utility? Show how putting different weights on the probability function **cannot** solve this problem.

Section B.

3. Draw the indifference curves for $u(3) = 2$, $u(2) = 2$, $u(1) = 1$, using an equilateral triangle to represent probabilities.

4. Show independence implies for all L, L', L'', L''' and x, if we have $L \sim L'$ and $L'' \sim L'''$, then we also have $xL+(1-x)L'' \sim xL'+(1-x)L'''$.

Section C.

5. A person has $u(w) = e^{2 \cdot w}$. His initial wealth is \$0. He also has a lottery ticket that is worth $\$\ln 7$ with prob. $\frac{1}{2}$ and 0 with prob. $\frac{1}{2}$. What is his expected utility? What is the lowest price p that he will part with the ticket?

6. We have utility of $\ln x$ for $t = 1, 2$. We receive income of m at time 1. Interest rate is 0% real (Japan/US). Discounting is hyperbolic

$(1/(1+t))$. At time zero we decide between consuming at time 1 and time 3. (Notice the change.) How much income would we save? Now say instead, at time 1 we make the same decision. How much would we save then?

Section D.

7. Does $x \not\succ y$ and $y \not\succ z$ imply $x \not\succ z$?

8. Show that weak transitivity implies strong transitivity. (Hint. First show that it implies $x \succsim z$. Next, show that if $z \sim x$, then there is a contradition in that $z \succsim y$.)