PLEASE READ INSTRUCTIONS CAREFULLY!

1. IMPORTANT: On your scantron sheet, fill in the bubble for your ‘form type’ exam with the letter A, B, C, or D found at the top of this cover sheet.

2. IMPORTANT: On your scantron sheet, print your name and perm number in the blocks provided and fill in the bubbles underneath them, starting from the left.

3. IMPORTANT: When you turn in your scantron, you must also turn in this front cover page of the exam. Hand them both to the test proctors. These sheets must be checked against your scantron as a part of the grading process. You may keep the remaining pages of your exam to study for the final and as a record of how you answered each question.

4. IMPORTANT: You will get 5 extra points on your score if you follow these instructions without fail.

5. IMPORTANT: You will get 3 points for each correct multiple choice answer, 2 points for each correct true false answer, 1 point for answers left blank, and no points for wrong answers.

6. Put your name, perm number, and section leader at the top of this page in the spaces provided.

7. To mark true/false answers on your scantron: mark “a” for true and “b” for false.

8. Use a number 2 pencil (do not use a ballpoint pen). Be sure to fill in the bubbles completely. The scanner does not reliably read partially filled bubbles.
May 20, 2004

Econ 100A
Third Midterm Exam

1. True If a consumer is a buyer of some goods and a seller of others, then a change in prices will generate an extra income effect in the Slutsky equation due to the revaluation of the consumer’s endowment.

2. True Suppose that the cost of cutting down a tree is zero and the tree grows on land that is useless for anything else. The interest rate is constant and the price of lumber does not change. True or false: The optimal time to cut the tree is when the difference between its growth rate and the interest rate is maximized.

3. True Wilma is not risk averse. She is offered a chance to pay $10 for a lottery ticket that will give her a prize of $100 with probability .06, a prize of $50 with probability .1, and no prize with probability .85. If she understands the odds and makes no mistakes in calculation, she will buy the lottery ticket.

4. True If leisure is a normal good, then an increase in non-labor income will reduce labor supply.

5. True It would be a mistake to choose the investment that maximizes the present value of your income stream unless you planned to spend your entire wealth in the current time period.

6. True Vincent Smudge’s paintings are unappreciated now. Nobody is willing to pay anything to have them on the walls. In 5 years Smudge’s work will gain enduring popularity. People will suddenly be willing to pay $1,000 a year to have an original Smudge on their walls and will continue to be willing to do so ever after. If investors realize that this is the case, and if the interest rate is and always will be r, a painting by Smudge will currently be worth about:

(a) $1000(1+r)^5.
(b) $(1000/r)\left[1/(1+r)^4\right].$
(c) $\frac{1000}{r}-5000/r.$
(d) $1000(1/r)^5.$
(e) $200/r.$
7. A farmer gets 20 eggs and 10 tomatoes every week from her chickens and her tomato plants. She has no other source of income. She has convex, downward-sloping indifference curves. The current market prices are $2 per egg and $3 per tomato. At these prices she chooses the same bundle that she is endowed with (20 eggs and 10 tomatoes).

(a) If relative prices change in any way whatsoever, she will certainly be no worse off and may be better off than she was before the price change.
(b) If both prices rise, she will be worse off, but if only one price rises she might be made better off or worse off, depending on her tastes.
(c) An increase in the price of tomatoes (with the price of eggs remaining constant) will make her worse off.
(d) An increase in the price of eggs (with the price of tomatoes remaining constant) will decrease her utility.
(e) Since she earns her income from tomatoes and eggs only, she treats eggs and tomatoes as perfect substitutes.

8. A Tom Cruiser’s car is worth $100,000. But Tom is careless and leaves the top down and the keys in the ignition. Consequently his car will be stolen with probability .5. If it is stolen he will never get it back. Tom has $100,000 in other wealth and his von Neumann-Morgenstern utility function for wealth is \( u(w) = \ln(w) \). Suppose that Tom can buy $K worth of insurance at a price of $.6K. How much insurance will Tom buy?

(a) more than $0 but less than $50,000.
(b) $100,000.
(c) more than $50,000 but less than $100,000.
(d) $0.
(e) exactly $50,000.

9. A The interest rate is 10%. A certain piece of land can be used either for a garbage heap, in which case there are no construction costs and it will yield a net return of $5,000 per year forever starting one year from now. Or it can have a tanning salon built on it. Building a tanning salon would cost $50,000 now. If a tanning salon is built on the lot, it will yield a stream of net income equal to $12,000 per year starting one year from now. No other uses are contemplated. The theory of asset markets predicts that the lot will:

(a) sell for $70,000 and a tanning salon will be built on it.
(b) sell for $50,000 and a garbage heap will be built on it.
(c) sell for $120,000 and a tanning salon will be built on it.
(d) not be sold and will contribute to urban decay and degradation.
(e) sell for $80,000 and a garbage heap will be built on it.
Portia has waited a long time for her ship to come in and she has concluded that it will arrive today with probability 1/4. If it does come, she will receive $16. If it doesn't come in today, it never will and she will have zero wealth. She has a von Neumann-Morgenstern utility function equal to the square root of her total income. What is the minimum price at which she would sell the rights to her ship?

(a) 2
(b) 4
(c) 2^{1/2}
(d) 1
(e) None of the above.

You buy a painting for $1280. Its market value will rise by $80 per year for the next 30 years. It is worth $80 a year to you to have it hanging on the wall. The interest rate is 10%. In how many years will you sell it?

(a) 30
(b) 4
(c) 8
(d) immediately
(e) 5

O. B. Kandle will live for only two periods. In the first period he will earn $100,000. In the second period he will retire and live on his savings. Mr. Kandle has a Cobb-Douglas utility function \( U(c_1, c_2) = c_1^{2/3} c_2 \) where \( c_1 \) is his period 1 consumption and \( c_2 \) is his period 2 consumption. The real interest rate is \( r \).

(a) If the interest rises, Mr. Kandle will save less.
(b) The change in the interest rate won't affect his saving.
(c) If the interest rate rises, Mr. Kandle will save more.
(d) The effect of the interest rate is ambiguous, but we can tell that he will arrange to consume the same amount in each period.
(e) None of the above.

Peregrine consumes \((700,880)\) and earns \((600,990)\). If the interest rate is 0.10, the present value of his endowment is:

(a) 1,500.
(b) 1,590.
(c) 1,580.
(d) 3,150.
(e) 3,750.
14. E  Socrates owns just one ship. The ship is worth $200 million dollars. If the ship sinks, Socrates loses $200 million. The probability that it will sink is .02. Socrates' total wealth, including the value of the ship is $225 million. He is an expected utility maximizer with von Neuman Morgenstern utility U(W) equal to the square root of W. What is the maximum amount that Socrates would be willing to pay in order to be fully insured against the risk of losing his ship?

(a) $3.84 million  
(b) $4.82 million  
(c) $2 million  
(d) $4 million  
(e) $5.96 million

15. B  If Abishag owns 16 quinces and 15 kumquats, and if the price of kumquats is 4 times the price of quinces, how many kumquats can she afford if she buys as many kumquats as she can?

(a) 38  
(b) 19  
(c) 15  
(d) 31  
(e) 16