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 4, 2004

Econ 100A
Second Midterm Exam

1. T
   Rudolf Rational obeys the weak axiom of revealed preferences. His preferences don't change over time. One year he could afford bundle x but bought bundle y. If another year he buys bundle x, then he can't afford bundle y.

2. T
   If consumers spend all of their income, it is impossible for all goods to be inferior goods.

3. F
   An increase in the price of an inferior good makes the people who consume that good better off.

4. T
   If two goods x and y are perfect complements, then if the price of x falls, the entire change in the demand for x is due to the income effect.

5. T
   If two goods are gross substitutes, then an increase in the price of one of them, holding income and the other price constant, will increase the demand for the other.

6. B
   Walt consumes strawberries and cream but only in the fixed ratio of three boxes of strawberries to two cartons of cream. At any other ratio, the excess goods are totally useless to him. The cost of a box of strawberries is 10 and the cost of a carton of cream is 10. Walt's income is 200. Which of the following is true?

(a) Walt considers strawberries and cartons of cream to be perfect substitutes.
(b) Walt demands 12 boxes of strawberries.
(c) Walt demands 10 cartons of cream.
(d) Walt demands 10 boxes of strawberries.
(e) None of the above.

7. A
   Walt considers x and y to be perfect substitutes, so \( U(x,y) = x + y \). They originally cost 10 and 9 respectively. His income is 720. One day the price of x drops to 8. Which of the following is true?

(a) The substitution effect increases the quantity of x by 90.
(b) The income effect increases the quantity of y by 90.
(c) The substitution effect increases the quantity of y by 80.
(d) The income effect increases the quantity of x by 80.
(e) None of the above.
8. A Carlos has at one time or another lived in Argentina, Bolivia, and Colombia. He buys only two goods, x and y. In Argentina the prices were (9, 3) and he consumed the bundle (6, 7). In Bolivia he consumed (9, 2). In Colombia he consumed the bundle (6, 5) at the prices (3, 3). Which of the following is true?

(a) The Argentine bundle is indirectly revealed preferred to the Bolivian bundle.
(b) The Colombian bundle is directly revealed preferred to the Argentine bundle.
(c) The Bolivian bundle is indirectly revealed preferred to the Argentine bundle.
(d) The Argentine bundle is directly revealed preferred to the Bolivian bundle.
(e) None of the above.

9. C Ambrose’s brother Patrick has a utility function \( U(x_1, x_2) = 16x_1^{1/2} + x_2 \). His income is 82, the price of good 1 (nuts) is 2 and the price of good 2 (berries) is 1. How many units of nuts will Patrick demand?

(a) 14
(b) 12
(c) 16
(d) 26
(e) 30

10. B At prices (4, 12), Harry chooses the bundle (9, 4). At the prices (8, 4), Harry chooses the bundle (2, 9). Is this behavior consistent with the weak axiom of revealed preference?

(a) No
(b) Yes
(c) We would have to observe a third choice to be able to say.
(d) It depends on his income.
(e) None of the above.

11. C Cindy consumes goods x and y. Her demand for x is given by \( x(p_x, m) = 0.05m - 5.15p_x \). Now her income is 419, the price of x is 3, and the price of y is 1. If the price of x rises to 4 and if we denote the income effect on her demand for x by DI and the substitution effect on her demand for x by DS, then:

(a) DI = -0.52 and DS = -0.52.
(b) DI = -0.28 and DS = -0.52.
(c) DI = -0.28 and DS = -4.88.
(d) DI = 0 and DS = -2.00.
(e) None of the above.
12. **D** Charlie’s utility function is $x^b y^a$. The price of apples used to be $1 per unit and the price of bananas was $2 per unit. His income was $40 per day. If the price of apples increased to $2.25 and the price of bananas fell to $1.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of:

(a) 28.75.
(b) 86.25.
(c) 116.
(d) 57.50.
(e) 230.

13. **B** Alfredo lives on apples and bananas only. His utility function is $U(a,b) = \min\{a+b, 2b\}$. He maximizes his utility subject to his budget constraint and consumes the bundle $(a, b) = (4, 4)$. Which of the following statements must be true?

(a) $p_a = 2p_b$.
(b) $p_a$ is less than or equal to $p_b$.
(c) $p_a = p_b$.
(d) $p_a > p_b$.
(e) None of the above.

14. **H** Twenty years ago, Dmitri consumed bread which cost him 10 kopeks a loaf and potatoes which cost him 14 kopeks a sack. With his income of 208, he bought 11 loaves of bread and 7 sacks of potatoes. Today he has an income of 393. Bread now costs him 21 kopeks a loaf and potatoes cost him 16 kopeks a sack. Assuming his preferences haven’t changed (and the sizes of loaves and sacks haven’t changed), when was he better off?

(a) From the information given here we are unable to tell.
(b) Today
(c) Twenty years ago
(d) He was equally well off in the two periods.
(e) None of the above.

15. **H** In 1989, Bruce spent his income on two goods $x$ and $y$. Between 1989 and 1990, the price of good $x$ rose by 8 per cent and the price of good $y$ rose by 8 per cent. In 1990, Bruce bought the same amount of $x$ as he bought in 1989, but he bought more of good $y$ than he had bought in 1989. (Can you deduce what happened to his income?) From these facts, we conclude that:

(a) $y$ is an inferior good.
(b) $y$ is a normal good.
(c) $x$ is an inferior good.
(d) nothing can be said about inferiority or superiority, since we don’t know what happened to income.
(e) Bruce is acting irrationally, since the relative prices of $x$ and $y$ did not change.