

Economics 100A

Final Exam

Fill in the bubbles on your scantron with your id number (starting from the left side of the box), your name, and the form type. Students who do this successfully will be awarded 5 free points. Students who fail to do so will not get the 5 points and are likely to be bitten by the Easter bunny.

True-False *Questions* – –*Answer* A for True, B for false. Each correct answer is worth 4 points. Each wrong answer is worth zero. Answers left blank are worth 2 points.

1. A decrease in income pivots the budget line around the bundle initially consumed.
2. If preferences are transitive, more is always preferred to less.
3. A consumer with convex preferences who is indifferent between the bundles (2, 2) and (6, 6) will like the bundle (4, 4) at least as well as either of the first two bundles.
4. With quasilinear preferences, the slope of indifference curves is constant along all rays through the origin.
5. Clara's utility function is $U(x, y) = (x + 2)(y + 1)$. If her consumption of both x and y are doubled, then her marginal rate of substitution between x and y remains constant.
6. In economic theory, the demand for a good must depend only on income and its own price and not on the prices of other goods.
7. The strong axiom of revealed preference requires that if a consumer chooses x when he can afford y , and chooses y when he can afford z , then he will not choose z when he can afford x .
8. If a good is an inferior good, then an increase in its price will increase the demand for it.

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9. The real interest rate is the interest rate that one receives net of brokerage costs or fees imposed by financial intermediaries.
10. If the interest rate is 10%, then an asset that returns \$1 a year forever is worth \$1/1.1.

Multiple-Choice Questions – Each correct answer is worth 4 points. Each blank answer is worth 1 point. Each wrong answer is worth 0 points.

11. In year 1, the price of good x was 2, the price of good y was 3, and income was 80. In year 2, the price of x was 9, the price of good y was 12, and income was 80. On a graph with x on the horizontal axis and y on the vertical, the new budget line is:
- (a) flatter than the old one and lies below it.
 - (b) flatter than the old one and lies above it.
 - (c) steeper than the old one and lies below it.
 - (d) steeper than the old one and lies above it.
 - (e) none of the above.
12. Suppose there are two goods, the prices of both goods are positive and a consumer's income is also positive. If the consumer's income doubles and the price of both goods triple,
- (a) the consumer's budget line gets steeper and shifts inward.
 - (b) the slope of the consumer's budget line does not change but the budget line shifts outward away from the origin.
 - (c) the consumer's budget line gets steeper and shifts outward.
 - (d) the slope of the consumer's budget line does not change but the budget line shifts inward toward the origin.
 - (e) the consumer's budget line gets flatter and shifts inward.

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13. If there are only two goods, if more of good 1 is always preferred to less, and if less of good 2 is always preferred to more, then:
- (a) indifference curves slope downwards.
 - (b) indifference curves slope upwards.
 - (c) indifference curves may cross.
 - (d) indifference curves could take the form of ellipses.
 - (e) None of the above.
14. Henry's utility function is $x^2 + 16xw + 64w^2$ where x is his consumption of x and w is his consumption of w .
- (a) Henry's preferences are nonconvex.
 - (b) Henry's indifference curves are straight lines.
 - (c) Henry has a bliss point.
 - (d) Henry's indifference curves are hyperbolas.
 - (e) None of the above.
15. Waldo's utility function is $U(x, y) = xy$. Waldo consumes 5 units of x and 25 units of y .
- (a) Waldo would be willing to make small exchanges of x for y in which he gives up 5 units of x for every unit of y he gets.
 - (b) Waldo would be willing to trade away all of his x for y so long he gets more than 5 units of y for every unit of x he gives up.
 - (c) Waldo likes x and y equally well so he is always willing to exchange 1 unit of either good for more than one unit of the other.
 - (d) Waldo will always be willing to make trades at any price if he does not have equal amounts of the two goods.
 - (e) None of the above.

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16. Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 40 apples and 80 bananas, if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is:
- (a) -40 .
 - (b) -2 .
 - (c) -4 .
 - (d) $-1/2$.
 - (e) $-1/4$.
17. Mort's utility function is $U(x_1, x_2) = x_1x_2$. His income is \$100; the price of good 2 is \$10. Good 1 is priced as follows. The first 6 units cost \$10 per unit and any additional units cost \$5 per unit. What consumption bundle does Mort choose?
- (a) (5, 5)
 - (b) (7, 3.5)
 - (c) (9, 3)
 - (d) (6, 4)
 - (e) None of the above.
18. Arthur's preferences are defined over two basic food groups, beer, x_1 , and ice cream, x_2 . His utility function is $u(x_1, x_2) = x_1^2 + x_2$. He has \$100 to spend, and each of these goods costs \$10 per quart. Which of the following statements is true?
- (a) Arthur will consume 5 quarts of ice cream and 5 quarts of beer.
 - (b) Arthur will find that 10 quarts of beer and no ice cream is the best bundle.
 - (c) Arthur will find that 10 quarts of ice cream and no beer is the best bundle.
 - (d) Arthur is indifferent between any two points on the line that connects (5, 5) and (10, 10).
 - (e) Arthur will spend 2/3 of his income on beer and 1/3 of his income on ice cream.

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19. Miss Muffet insists on consuming 2 units of whey per unit of curds. If the price of curds is 4 and the price of whey is 6, then if Miss Muffett's income is m , her demand for curds will be:
- (a) $m/4$
 - (b) $6m/4$
 - (c) $4C + 6W = m$
 - (d) $4m$
 - (e) $m/16$
20. Georgina consumes only grapefruits and pineapples. Her utility function is $U(x, y) = x^3y^9$, where x is the number of grapefruits consumed and y is the number of pineapples consumed. Georgina's income is 300, and the prices of grapefruits and pineapples are 5 and 3, respectively. How many grapefruits will she consume?
- (a) 7.50
 - (b) 25
 - (c) 45
 - (d) 15
 - (e) None of the above.
21. Howard Send is deciding whether to keep his car when he moves to New York City. To operate his car for a year, he would have to pay a flat fee of \$6,000 for auto insurance and parking, plus 20 cents for every mile that he drives for gasoline and repairs. Alternatively, he could give his car to his brother-in-law in Buffalo (the market value of the car is negligible) and take taxicabs in New York, which costs \$1 a mile. Howard knows that if he took the car to New York, he would drive 6500 miles per year. If he places no value, positive or negative, on his *brother-in-law* getting the car and if he is indifferent between riding a cab and driving, he should:
- (a) keep his car if he wouldn't want to travel as much as 6500 miles by cab.
 - (b) give his car away if he wouldn't travel more than 6000 miles by cab but keep it if he would travel more than 6000 miles by cab.
 - (c) keep his car if he would travel more than 6,000 but less than 6,500 miles by cab.
 - (d) give his car away.
 - (e) There is not enough information given here to allow one to give him reasonable advice about what to do.

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22. When the prices were $(5, 1)$, Vanessa chose the bundle $(x, y) = (6, 3)$. Now at the new prices, (p_x, p_y) , she chooses the bundle $(x, y) = (5, 7)$. For Vanessa's behavior to be consistent with the weak axiom of revealed preference, it must be that:
- (a) $4p_y < p_x$.
 - (b) $p_x < 4p_y$.
 - (c) $5p_y < p_x$.
 - (d) $p_y = 5p_x$.
 - (e) None of the above.
23. Walt considers x and y to be perfect substitutes. 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 income effect increases the quantity of y by 90.
 - (b) The substitution effect increases the quantity of y by 80.
 - (c) The substitution effect increases the quantity of x by 90.
 - (d) The income effect increases the quantity of x by 80.
 - (e) None of the above.
24. When the price of x rises, Marvin responds by changing his demand for x . The substitution effect is the part of this change that represents his change in demand:
- (a) holding the prices of substitutes constant.
 - (b) if he is allowed to substitute as much x for y as he wishes.
 - (c) if his money income is held constant when the price of x changes.
 - (d) if the prices of all other goods are held constant.
 - (e) none of the above.

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25. Mr. Cog has 18 hours per day to divide between labor and leisure. His utility function is $U(C, R) = CR$, where C is dollars per year spent on consumption and R is hours of leisure. If he has a nonlabor income of 40 dollars per day and a wage rate of 8 dollars per hour, he will choose a combination of labor and leisure that allows him to spend:
- (a) 184 dollars per day on consumption.
 - (b) 82 dollars per day on consumption.
 - (c) 112 dollars per day on consumption.
 - (d) 92 dollars per day on consumption.
 - (e) 138 dollars per day on consumption.
26. There are no taxes on the first \$500 that Debra earns per week, but on income above \$500 per week, she must pay a 60% tax. Debra's job pays \$10 per hour. Her utility function is $U(c, r) = rc^2$, where r is hours of leisure and c is dollars worth of consumption. She has 100 hours to divide between work and leisure. How many hours per week will she choose to work?
- (a) 66.66
 - (b) 50
 - (c) 40
 - (d) 33.33
 - (e) 20
27. If current and future consumption are both normal goods, an increase in the interest rate will necessarily:
- (a) cause savers to save more.
 - (b) cause borrowers to borrow less.
 - (c) reduce everyone's current consumption.
 - (d) make everyone worse off.
 - (e) none of the above.

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28. If a consumer views a unit of consumption in period 1 as a perfect substitute (one-for-one) for a unit of consumption in period 2 and if the real interest rate is positive, the consumer will:
- (a) consume only in period 1.
 - (b) consume only in period 2.
 - (c) consume equal amounts in each period.
 - (d) consume more in period 1 than in period 2 if income elasticity exceeds 1, else would consume more in period 2 than in period 1.
 - (e) equalize expenditures but not consumption in the two periods.
29. Minnie has income \$600 in period 1 and will have income \$220 in period 2. Her utility function is $U(c_1, c_2) = c_1^{0.20} c_2^{0.80}$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. The interest rate is 0.10. If she unexpectedly won a lottery which pays its prize in period 2 so that her income in period 2 would be \$440 and her income in period 1 would remain \$600, then her consumption in period 1 would:
- (a) double.
 - (b) increase by the amount 40.
 - (c) increase by the amount 300.
 - (d) stay constant.
 - (e) increase by the amount 60.
30. If the interest rate is 7%, and will remain 7% forever, how much would a rational investor be willing to pay for an asset that will pay him 5,350 dollars one year from now, 1,144 dollars two years from now, and nothing at any other time?
- (a) 6,000
 - (b) 5,000
 - (c) 85,714.29
 - (d) 48,000
 - (e) 7,000

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- 31.** Shivers' annual fuel bill for home heating is 1,100 dollars per year. He considers three alternative plans for insulating his house. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 1,100 dollars, Plan B would cost him 1,500 dollars and Plan C would cost him 12,100 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?
- (a) Plan A.
 - (b) Plan B.
 - (c) Plan C.
 - (d) Plans A and B are equally good.
 - (e) He is best off using none of the plans.
- 32.** Ashley, from your workbook, has discovered another wine, Wine D. Wine drinkers are willing to pay 200 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 25 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)
- (a) 206
 - (b) 200
 - (c) 250
 - (d) 2,200
 - (e) 236
- 33.** Billy Pigskin from your workbook has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 4 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is
- (a) 1,810
 - (b) between 3 million and 4 million.
 - (c) 100,000.
 - (d) 3,620
 - (e) 7,240

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34. Joe's wealth is \$100 and he is an expected utility maximizer with a von Neumann-Morgenstern utility function $U(W) = W^{1/2}$. Joe is afraid of oversleeping his econ exam. He figures there is only a 1 in 10 chance that he will, but if he does, it will cost him \$100 in fees to the university for taking an exam late. Joe's neighbor, Mary, never oversleeps. She offers to wake him 1 hour before the test, but he must pay her for this service. What is the most that Joe would be willing to pay for this wake-up service?
- (a) \$10
 - (b) \$15
 - (c) \$19
 - (d) \$100
 - (e) \$50
35. In a two-person, two-good, exchange economy, both consumers have quasilinear utility functions, linear in Good 2. If quantities of Good 1 are measured horizontally and quantities of Good 2 are measured vertically in the Edgeworth box, the set of Pareto optimal allocations includes
- (a) a horizontal line through the interior of the box.
 - (b) a vertical line.
 - (c) a straight line from the lower left to the upper right corner of the box.
 - (d) a curved line from the lower left to the upper right corner of the box.
 - (e) all four edges of the box.
36. Arturo and Belen consume only two goods, X and Y . They have strictly convex preferences and no kinks in their indifference curves. At the initial allocation, the ratio of Arturo's marginal utility of X to his marginal utility of Y is A and the ratio of Belen's marginal utility of X to his marginal utility of Y is B , where $A < B$. The competitive equilibrium price ratio is $p_x/p_y = C$. Then:
- (a) $C > B$.
 - (b) $C < A$.
 - (c) $C = A$.
 - (d) $C = B$.
 - (e) $A < C < B$.

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- 37.** Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose is initially consuming 64 units of nuts and 10 units of berries, then what is the largest number of berries that he would be willing to give up in return for an additional 17 units of nuts.
- (a) 9
 - (b) 19
 - (c) 4
 - (d) 2
 - (e) 1
- 38.** Charlie's utility function is $U(X_A, X_B) = X_A X_B$. If Charlie's income is 40, the price of apples is 2 and the price of bananas is 6, how many apples are there in the best bundle that Charlie can afford?
- (a) 20
 - (b) 6
 - (c) 4
 - (d) 5
 - (e) 10
- 39.** Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost \$5 per unit and hollyhocks cost \$6 per unit, and if the price of delphiniums rises to \$10 per unit:
- (a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.
 - (b) there will be no change in the demand for hollyhocks.
 - (c) the entire change in demand for delphiniums will be due to the substitution effect.
 - (d) 1/5 of the change will be due to the income effect.
 - (e) 4/5 of the change will be due to the income effect.

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40. Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.80 c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 5 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?
- (a) 1.25
 - (b) 0.13
 - (c) 0.25
 - (d) 0
 - (e) 0.38

**ANSWER KEY
VERSION NUMBER 1
Economics 100A**

Final Exam

Exam Question Number	Answer
1	F
2	F
3	T
4	F
5	F
6	F
7	T
8	F
9	F
10	F
11	C
12	D
13	B
14	B
15	E
16	B
17	A
18	B
19	E
20	D
21	D
22	A
23	C
24	E
25	D
26	B
27	B
28	B
29	B
30	A
31	B
32	A
33	A
34	C
35	B
36	E
37	C
38	E
39	C
40	C