NAME: _____ STUDENT NO.: _____

ECONOMICS 2150A-003
Department of Economics
Western University

N. Bedard   October 2022

PRACTICE MIDTERM 1- Version XXX

INSTRUCTIONS:

1.   The exam will last 90 minutes.

2.   The exam consists of XXX multiple choice questions worth 1 mark each.

3.   Record your name, student number and section number on the exam paper, Scantron sheet and the work booklet. **The code XXX should be pre-printed on your scantron sheet. Make sure it matches the code on your exam. Any attempt to change the code will be viewed as an attempt to cheat and you will receive zero on this exam.** Answers to the multiple choice should go on the Scantron sheet provided **IN PENCIL ONLY.** The work booklet is for your reference only – it will *not* be marked.

5.   If there is a discrepancy between the lecture notes and the textbook, the lecture notes will over-ride the textbook.

6.   Calculators are allowed. Programmable calculators, graphing calculators and cell phone calculators are NOT allowed. English dictionaries are NOT allowed. Calculators must be out of their cases and pencil cases are not allowed.

7.   Watches are NOT allowed, and your cell phone MUST be turned OFF and put in your bag at the front of the room. If your cell phone is turned on, it may be viewed as an attempt to cheat, and you will receive zero on the exam.

8.   Please hand in **all** materials to the proctors. Exam papers will **not** be returned. You may set up a meeting with view your exam paper and Scantron sheet in my office.

9.   GOOD LUCK!

1. Which of the following statements regarding exogenous and endogenous variables is correct?
    A. The set of exogenous variables in any economic model should take into account the rich detail of the world and so should be limitless.
    B. Endogenous variables will always be determined within the model.
    C. Exogenous variables change as a result of changes in endogenous variables.
    D. The only variables that are relevant to the market equilibrium are the endogenous variables, as they are determined within the model.

2. A manager cares about the number of workers under her command. She can choose between two projects: Project A allows her to hire workers who must be paid WA each, Project B allows her to hire workers who must be paid WB each. She is allocated a budget of $100 that she can allocate to either project. Which of the following accurately represents the manager's problem?
    A. The objective function is Max (N_A+N_B), where N_i is the number of workers on project i (i = A, B); the constraint is $W_A N_A + W_B N_B \leq \$100$, where W_i is the wage on project i (i = A, B).
    B. The objective function is Max (N), where N is the number of workers under the manager's control; the constraint is $W_A + W_B \leq \$100$, where W_i is the wage on project i (i = A, B).
    C. The objective function is Max $(W_A N + W_B N)$, where N is the number of workers and W_i is the wage of the worker on project i (i = A, B); the constraint is $W_A + W_B \leq \$100$.
    D. Max (B/N), where B is the manager's budget and N is the number of workers under the manager's command; the constraint is $W_A N + W_B N \leq \$100$.

3. A good example of marginal reasoning would be:
    A. the addition to total sales from spending an additional dollar on advertising.
    B. the sales resulting from total spending on advertising.
    C. the decision to shut down production.
    D. the decision to maximize profits rather than sales.

4. The law of demand states:
    A. that price and quantity demanded are inversely related.
    B. that price and quantity demanded are inversely related, holding all other factors that influence demand fixed.
    C. that demand for a good comes from the desire of buyers to directly consume the good itself.
    D. an increase in demand results in an increase in price.

5. What is the quantity of televisions demanded per year when the average price of a television is $100 per unit and the demand curve for televisions is represented by $Q^d = 3.5$million $- 5000P$?

*3,500,000 - 5,000 × 100.*

- A. 2.5 million televisions
- B. 3.0 million televisions
- C. 3.2 million televisions
- D. 4.0 million televisions

6. Suppose in a market with $Q^d = 100 - 5P$ and $Q^s = 5P$, the government imposes a price floor of $15. If the government is required to purchase any excess supply at the price floor, how much will the government have to pay to purchase the excess in this market?

- A. Nothing; there is no surplus
- B. $1,000   *Qsurplus = 5×15 - (100-5×15)*
- C. $1,500   *= 50*
- D. $750   *50 × 15 = 750*

25 × (20 + 15)/2.

75 × 4 × ½.
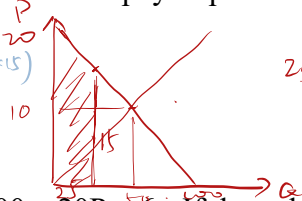
7. Consider the demand curve $Q^d = 1000 - 20P - 6r$. If the value of r falls, the demand curve will

r↓ intercept ↑ Δ = shift onewards.

- A. shift to the left
- B. shift to the right
- C. remain unchanged
- D. rotate along the quantity axis
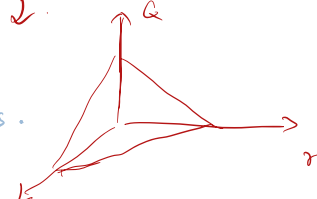
8. A simultaneous shift to the right of both supply and demand will:

- A. increase the equilibrium price
- B. decrease the equilibrium price
- C. increase the equilibrium quantity
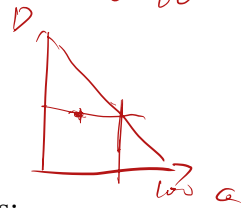- D. decrease the equilibrium quantity
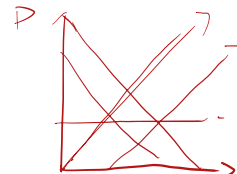
← since like this graph.

9. Suppose that demand is linear, $Q^d = 100 - 12P$. At $P = 5$ and $Q = 40$, the price elasticity of demand is:

Q = 60.

- A. $-2/3$
- B. -2
- C. -12
- D. $-3/2$

$$\varepsilon = \frac{dQ}{dP} \times \frac{P}{Q}$$

$$= -12 \times \frac{5}{40}$$

10. Along a linear demand curve, as price falls:

- A. the price elasticity of demand is constant, but the slope of demand falls.
- B. the price elasticity of demand approaches zero, but the slope is constant.
- C. the price elasticity of demand moves away from zero.
- D. the price elasticity is the same as the slope of the demand curve.

$$\varepsilon = \frac{dQ}{dP} \times \frac{P}{Q}$$

this is a constant in this case

approaching to 0 as P falls. Finally to zero.

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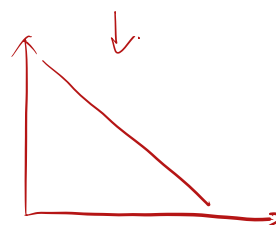
11. Let the price elasticity of demand for a soft drink be – 2. In the year 2005, the per capita consumption of soft drinks was about 500 cans per person, and the average price was $1.00 per can. If we suppose that demand for the soft drink is linear, $Q^d = a - bP$, where a and b are constants, Q^d is quantity demanded and P is price, an estimate of the demand equation could be:

A. $Q^d = 100 - 2P$
B. $Q^d = 1500 - 2P$
C. $Q^d = 1500 - 1000P$
D. $Q^d = 1000 - 1500P$

Handwritten notes:
definition of elasticity: P=1 Q=500 $\frac{dQ}{dP} \cdot \frac{P}{Q} = -2$
500 = a - 1000×1 $-b \cdot \frac{P}{Q} = -2$
a = 1500 $-b = -1000$
=> Q = 1500 - 1000P.

12. If a consumer would rather eat three bars of chocolate than four bars of chocolate, this consumer's preferences violate which of the following key assumptions?

A. Completeness
B. Transitivity
C. More is better
D. Both completeness and transitivity

13. Consider the following three market baskets.

Basket	Good x	Good y
A	2	8
B	10	2
C	6	5

Handwritten notes:
A: 8 = 2a + b. *y = -0.75x + 9.5*
B: 2 = 10a + b. *y = -0.25×6 + 9.5*
a = -0.75 *= 5.*
b = 9.5 *This is NOT a linear case*

If Basket A and Basket B are on the same indifference curve, preferences satisfy the usual assumptions, and the indifference curves have a diminishing marginal rate of substitution, which of the following is correct? *MRS↓. ◇2*

A. Basket C is preferred to Basket A
B. Basket A is preferred to Basket C
C. The consumer is indifferent between Basket A and Basket C
D. There is not enough information to determine how the consumer would rank Basket A relative to Basket C.
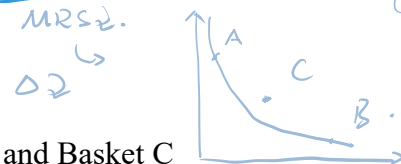
14. Suppose that $MRS_{x,y} = 10$. *◇ = 10*

A. The consumer is willing to substitute 10 units of for 1 unit of to leave utility unchanged.
B. The consumer is willing to substitute 10 units of for 1 unit of to leave utility unchanged.
C. Regardless of prices, the consumer will consume only y.
D. Regardless of prices, the consumer will consume only x.

Handwritten: A/B are same; in this case it is a typo. what's the difference?

15. Suppose the marginal rate of substitution of for is given by $MRS_{x,y} = 5x/7y$, which of the following is correct?
    MRS ↑
    A. The indifference curves will be bowed away from the origin.
    B. The indifference curves will be bowed in towards the origin.
    C. The indifference curves will be straight lines.
    D. It is not possible to tell the shape of the indifference curves with only this information.

16. Suppose that a consumer has utility function $U(x, y)$ with $MU_x = 5y^2x$ and $MU_y = 2x^2y$. What is the marginal rate of substitution?
   A. $10y^3x^3$ $MRS = \dfrac{MU_x}{MU_y} =$ → $5yx / 2x^2 y$.
    B. $2x/5y$
    C. $5y/2x$
    D. $5y^2x^2$

17. Which of the following utility functions is an example of preferences for perfect substitutes?
    A. $U(x,y) = y\sqrt{x}$
    B. $U(x,y) = \min\{2x, y\}$
    C. $U(x,y) = 3x + 5y$ ← this is the only linear one.
    D. $U(x,y) = 2x^2 + 4y$

18. Suppose a consumer has an income equal to I which he/she spends on either food or clothing. The price of food is given by P_f and the price of clothing is given by P_c. Assume the consumer spends all of their income on clothing. If food is on the x-axis and clothing is on the y-axis, the consumer is at the:
    Clothing
    A. point of maximum indifference.
    B. y-intercept.
    C. interior of the budget constraint.
    D. origin.
    Food
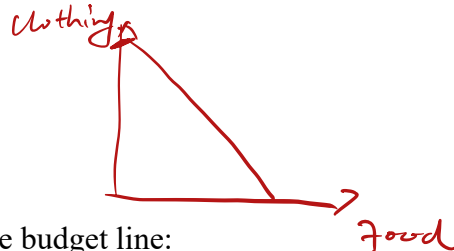
19. Suppose all prices double and income triples. The budget line:
    A. will become steeper.
    B. will become flatter.
    C. will shift in toward the origin. $\left(\dfrac{I}{P_x}\right)' =$
    D. will shift out from the origin.
    $y = 500 - x$
    $y' = 1000 - x$
    $y' =$

20. The tangency condition for the optimal choice for a consumer is given by:
    A. $MRS_{x,y} = P_y/P_x$
    B. $MU_x/MU_y = 1$
    C. $MRS_{x,y} = P_x/P_y$
    D. $MU_x/MU_y = P_y/P_x$

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21. Suppose that $MU_x = 10$ and $MU_y = 20$. Further suppose that the consumer's budget constraint can be expressed as $20x + 10y = 400$. For this consumer, the optimal amount of good x to buy would be:
    - A. 5.
    - B. 0.
    - C. 20.
    - D. 40.

22. When analyzing how borrowing and lending affect the consumer's budget constraint, we measure spending in the current time period on the horizontal axis and spending in the future time period on the vertical axis. Assume that the interest rate at which the consumer can lend and borrow is 10% and income in period 1 is $1000 while income in period 2 is $1200. The point of maximum future consumption can be expressed as:
    - A. $1000 + 1200/1.1$.
    - B. $1000(1.1) + 1200$.
    - C. $1000+1200+.1$.
    - D. $1000/1.1 + 1200/1.1 + 1$.
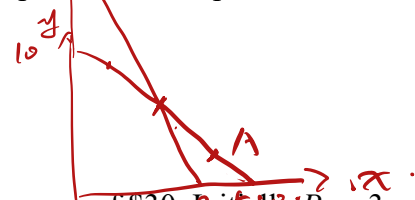
23. Suppose a consumer buys two goods, x and y and has income of $30. Initially $P_x = 3$ and $P_y = 3$ and the consumer chooses basket A with $x = 7$ and $y = 3$. The prices change to $P_x = 4$ and $P_y = 2$ and the consumer chooses basket B with $x = 5$ and $y = 5$.
    - A. These choices are consistent with utility maximization.
    - B. These choices are not consistent with utility maximization.
    - C. With this information it is not possible to determine if these choices are consistent with utility maximization.
    - D. Basket B must be preferred to basket A.

24. Consider the concept of revealed preference. Suppose a consumer chooses basket A over basket B when basket B costs the same amount. The consumer:
    - A. must find basket A better than basket B.
    - B. must find basket B better than basket A.
    - C. must find basket A at least as good as basket B.
    - D. must find basket B at least as good as basket A.

25. A curve that represents the consumer's "willingness to pay" is the consumer's:
    - A. exchange curve
    - B. demand curve
    - C. supply curve
    - D. None of the above

26. An Engel curve for good x describes:
    - A. how the consumption of good x varies as the price of good x changes.
    - B. how the consumption of good x varies as the consumer's income changes.
    - C. how the consumption of good x varies as the consumption of good y changes.
    - D. how the consumption of good x varies as price-consumption curve changes.

27. Suppose when the consumer's income rises by 100%, the consumer's consumption of good x falls by 1%. We can infer that the consumer's income elasticity for good x is:
   A. -1
   B. -0.01
   C. 1
   D. 0.01

28. Suppose the consumer's utility function is given by $U(x,y) = \sqrt{xy}$ where

$$MU_x = \frac{\sqrt{y}}{2\sqrt{x}} \qquad MU_y = \frac{\sqrt{x}}{2\sqrt{y}}$$

The equation for this consumer's demand curve for x is:
   A. $x = I$
   B. $x = \dfrac{I}{2P_x}$
   C. $x = 2P_x$
   D. $x = \dfrac{I}{4P_x}$

29. The substitution effect is:
   A. the change in the amount of the good consumed holding the level of income constant.
   B. the change in the amount of the good consumed as the price of the good changes holding income constant.
   C. the change in the amount of the good consumed as the price of the good changes holding utility constant.
   D. the change in the amount of the good consumed holding relative prices constant and changing the level of income.

30. Let $U(x,y) = \sqrt{xy}$ with $MU_x = \frac{\sqrt{y}}{2\sqrt{x}}$ and $MU_y = \frac{\sqrt{x}}{2\sqrt{y}}$. Let $I = \$100$, $P_x = \$10$ and $P_y = \$10$ be the initial set of prices and income. Now, let P_x rise to \$25. What are the (approximate) substitution and income effects of this change in prices?
   A. Income effect = -3.3; Substitution Effect = -2.1
   B. Income effect = -2.3; Substitution Effect = -1.7
   C. Income effect = -1.3; Substitution Effect = -1.7
   D. Income effect = -1.7; Substitution Effect = -1.3

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