厦门大学《经济学原理》课程试卷

王亚南经济研究院 2018 年级经济学本科国际化试点班

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试卷类型:(A 卷)

Principles of Economics

Midterm Examination

Part I
Multiple Choices (2 points each)

1. The two words economists use most often are

   (a) inflation and trade.

   (b) **supply and demand.**

   (c) competition and price.

   (d) cost and system

2. The law of demand states that, other things equal, an increase in

   (a) price causes quantity demanded to increase.

   (b) **price causes quantity demanded to decrease.**

   (c) quantity demanded causes price to increase.

   (d) quantity demanded causes price to decrease

3. Which of the following is an example of a market?

   (a) a gas station.

   (b) a garage sale.

   (c) a barber shop.

   (d) **All of the above are examples of markets.**

4. Which of the following characteristics is required for a perfectly competitive market?

   (a) The goods offered for sale are exactly the same.

   (b) There are so many buyers and sellers that no single buyer or seller has any influence over the market price.

   (c) It is difficult for new sellers to enter the market.

   (d) **Both a and b are correct.**

5. If, at the current price, there is a shortage of a good, then

   (a) sellers are producing more than buyers wish to buy.

   (b) the market must be in equilibrium.

   (c) **the price is below the equilibrium price.**

   (d) quantity demanded equals quantity supplied

6. Consider Frank's decision to go to college. If he goes to college, he will spend $21,000$ on tuition, $11,000$ on room and board, and $1,800$ on books. If he does not go to college, he will earn $16,000$ working in a store and spend $7,200$ on room and board. Frank's cost of going to college

   (a) is $33,800$.

   (b) **is $42,600$.**

   (c) is $49,800$.

   (d) is $57,000$.

7. Melody decides to spend three hours working overtime rather than going to the park with her friends. She earns $20 per hour for overtime work. Her opportunity cost of working is

   (a) the $60 she earns working.

   (b) the $60 minus the enjoyment she would have received from going to the park.

   (c) **the enjoyment she would have received had she gone to the park.**

   (d) nothing, since she would have received less than $60 worth of enjoyment from going to the park.

8. When small changes in price lead to infinite changes in quantity demanded, demand is perfectly

   (a) **elastic, and the demand curve will be horizontal.**

   (b) inelastic, and the demand curve will be horizontal.

   (c) elastic, and the demand curve will be vertical.

   (d) inelastic, and the demand curve will be vertical.

9. A linear downward-sloping demand curve intersects with the horizontal and vertical axis at 10 (quantity) and 10 (price), respectively. For prices above $5, demand is price

   (a) elastic, and raising price will increase total revenue.

   (b) inelastic, and raising price will increase total revenue.

   (c) **elastic, and lowering price will increase total revenue.**

   (d) inelastic, and lowering price will increase total revenue.

10. If the government removes a binding price ceiling from a market, then the price paid by buyers will

    (a) **increase, and the quantity sold in the market will increase.**

    (b) increase, and the quantity sold in the market will decrease.

    (c) decrease, and the quantity sold in the market will increase.

    (d) decrease, and the quantity sold in the market will decrease.

11. Suppose the government has imposed a price ceiling on laptop computers. Which of the following events could transform the price ceiling from one that is not binding into one that is binding?

    (a) Improvements in production technology reduce the costs of producing laptop computers.

    (b) **The number of firms selling laptop computers decreases.**

    (c) Consumers' income decreases, and laptop computers are a normal good.

    (d) The number of consumers buying laptop computers decreases.

12. The government has decided that the free-market price of rice is too low and wants to protect the rice producers. Suppose the government imposes a binding price floor in the rice market. However, rice producers complain that the price floor has reduced their total revenue. When such a complaint may be the real case?

    (a) **Demand for rice is elastic.**

    (b) Demand for rice is inelastic.

    (c) Alawys.

    (d) Never.

13. Which of the following will cause a decrease in consumer surplus?

    (a) an increase in the number of sellers of the good

    (b) a decrease in the production cost of the good

    (c) sellers expect the price of the good to be lower next month

    (d) **the imposition of a binding price floor in the market**

14. Motor oil and gasoline are complements. If the price of motor oil increases, consumer surplus in the gasoline market

    (a) decreases.

    (b) is unchanged.

    (c) increases.

    (d) **may increase, decrease, or remain unchanged.**

15. Assume the supply curve for diapers is a typical, upward-sloping straight line, and the demand curve for diapers is a typical, downward-sloping straight line. Suppose the equilibrium quantity in the market for diapers is 1,000 per month when there is no tax. Then a tax of $0.50 per diaper is imposed. The effective price paid by buyers increases from $1.50 to $1.90 and the effective price received by sellers falls from $1.50 to $1.40. The government's tax revenue amounts to $475 per month. Which of the following statements is correct?

    (a) After the tax is imposed, the equilibrium quantity of diapers is 900 per month.

    (b) The demand for diapers is more elastic than the supply of diapers.

    (c) **The deadweight loss of the tax is $12.50.**

    (d) The tax causes a decrease in consumer surplus of $380.

16. In the market for widgets, the supply curve is the typical upward-sloping straight line, and the demand curve is the typical downward-sloping straight line. The equilibrium quantity in the market for widgets is 200 per month when there is no tax. Then a tax of 5 dollars per widget is imposed. As a result, the government is able to raise 800 dollars per month in tax revenue. We can conclude that the equilibrium quantity of widgets has fallen by

    (a) **40 per month.**

    (b) 50 per month

    (c) 75 per month

    (d) 100 per month

17. A tax on a good

    (a) **gives buyers an incentive to buy less of the good than they otherwise would buy.**

    (b) gives sellers an incentive to produce more of the good than they otherwise would produce.

    (c) creates a benefit to the government, the size of which exceeds the loss in surplus to buyers and sellers.

    (d) All of the above are correct.

18. Which of the following quantities decrease in response to a tax on a good?

    (a) the equilibrium quantity in the market for the good, the effective price of the good paid by buyers, and consumer surplus.

    (b) **the equilibrium quantity in the market for the good, producer surplus, and the well-being of buyers of the good.**

    (c) the effective price received by sellers of the good, the wedge between the effective price paid by buyers and the effective price received by sellers, and consumer surplus.

    (d) None of the above is correct.

19. The size of the deadweight loss generated from a tax is affected by the

    (a) **elasticities of both supply and demand.**

    (b) elasticity of demand only.

    (c) elasticity of supply only.

    (d) total revenue collected by the government.

20. The deadweight loss from a tax of 2 dollars per unit will be smallest in a market with

    (a) inelastic supply and elastic demand.

    (b) **inelastic supply and inelastic demand.**

    (c) elastic supply and elastic demand.

    (d) elastic supply and inelastic demand.

Part II
Problems

Problem 1 (10 Points)

In his famous soliloquy, Hamlet ponders whether to continue to live or die:

> "To be, or not to be, that is the question / Whether 'tis nobler in the mind to suffer / The slings and arrows of outrageous fortune / Or to take arms against a sea of troubles / And by opposing end them. To die—to sleep / No more; and by a sleep to say we end / The heart-ache and the thousand natural shocks / That flesh is heir to: 'tis a consummation / Devoutly to be wish'd. To die, to sleep / To sleep, perchance to dream—ay, there's the rub / For in that sleep of death what dreams may come / When we have shuffled off this mortal coil / Must give us pause—there's the respect / That makes calamity of so long life" – *Hamlet* (3.1.55–68)

Sir Laurence Olivier in *Hamlet* (1948)

Suppose to Hamlet, the "benefit" of continuing living is -100 ("*to suffer, the slings and arrows of outrageous fortune*"), while the "benefit" of death is uncertain: with 50% probability, death brings eternal peaceful sleep ("*to die, to sleep*"), which Hamlet values at 100, but with 50% probability, death brings eternal nightmare ("*in that sleep of death what dreams may come ... must give us pause*"), which is even worse than living and which Hamlet values at -200.

1. Calculate the opportunity cost of continuing living for Hamlet (You can treat the "benefit" of living as either a negative benefit or a positive direct cost). (2 Points)

   `Benefit:` -100, `Opportunity cost:` -50
   `or, Benefit:` 0, `Opportunity cost:` 50

2. According to this calculation, if Hamlet is rational, should he choose "to be" or "not to be"? (2 Points)

   `Not to be`

3. If Hamlet chooses to die, Ophelia will be devastated. In other words, Hamlet's death will affect not only himself, but people around him. This is called **negative externality** ("negative" because Ophelia will be sad). Many people question whether Hamlet actually loved Ophelia, but he did write the following poem to her:

   > "Doubt thou the stars are fire,
   > Doubt that the sun doth move,
   > Doubt truth to be a liar,
   > But never doubt I love." – *Hamlet* (2.2.116–119)

   So let's suppose Hamlet does care about Ophelia and he values Ophelias's sadness as a result of his death at -100. What is now the opportunity cost of continuing living for Hamlet? Should he choose "to be" or "not to be" in this case? (2 Points)

   `Benefit:` -100, `Opportunity cost:` -150
   `or, Benefit:` 0, `Opportunity cost:` -50

   `To be`

4. The mathematician Blaise Pascal believes that when a person dies, it is also possible that he will go to Heaven. To Pascal, death results in 50% probability of eternal peaceful sleep (valued at 100), 50% probability of eternal nightmare (valued at -200), and 1% probability of going to heaven (valued at $+\infty$). (The three probabilities do not add up to 1, because Pascal is not good at math.) Suppose Pascal is rational (but not good at math), then according to his belief, should he choose to be or not to be? (2 Points)

   `Not to be.`

5. How about Schrödinger's cat? Should it choose "to be" or "not to be"? (2 Points)

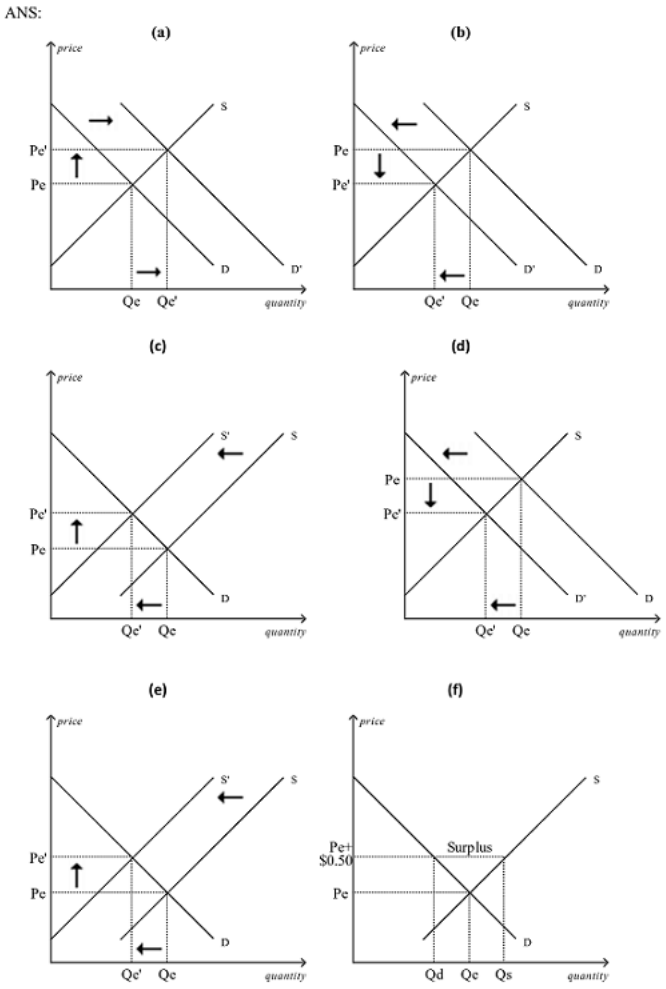
   `Both`

Problem 2 (10 points)

Suppose we are analyzing the market for hot chocolate. Graphically illustrate the impact each of the following would have on demand or supply. Also show how equilibrium price and equilibrium quantity would change.

1. Winter starts and the weather turns sharply colder. (2 Points)
2. The price of tea, a substitute for hot chocolate, falls. (2 Points)
3. Protesting farmers dump millions of gallons of milk, causing the price of milk to rise. (2 Points)
4. Consumer income falls because of a recession, and hot chocolate is considered a normal good. (2 Points)
5. Producers expect the price of hot chocolate to increase next month. (1 Point)
6. Currently, the price of hot chocolate is \$0.50 per cup above equilibrium. (1 Point)

Ans:


ANS:
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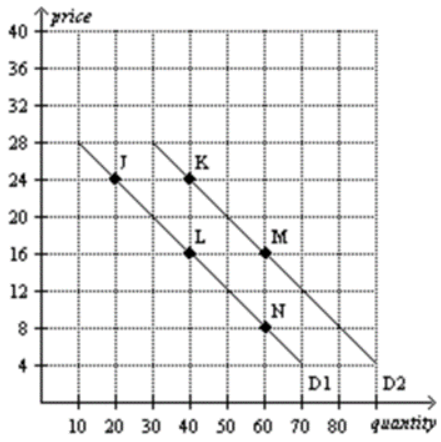
Problem 3 (10 points)

Use the following graph to answer the following questions.



1. What are point J's price and quantity? (2 Points)
2. What type of curve is this?(2 Points)
3. Does this curve show a positive or negative correlation between price and quantity?(2 Points)
4. Compute the slope of D_1 between points J and L.(1 Point)
5. What is the slope of D_1 between points L and N? Why would you not have to calculate this answer?(1 Point)
6. What is it called if we move from D_1 to D_2?(1 Point)
7. How do you know that the slope of D_2 is the same as the slope of D_1?(1 Point)

Ans:

1. $(20, 24)$**.**
2. **a demand curve.**
3. **a negative correlation between price and quantity.**
4. $-2/5$**.**
5. $-2/5$**; because the slope of a straight line is constant.**
6. **an increase in demand.**
7. **because the** 2 **lines are parallel.**

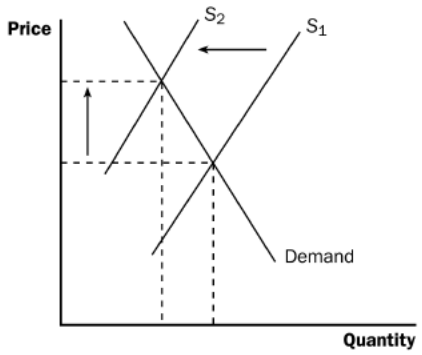
Problem 4 (10 Points)

Cups of coffee and donuts are complements. Both have inelastic demand. A hurricane destroys half the coffee bean crop. Use appropriately labeled diagrams to answer each of the following questions.

1. What happens to the price of coffee beans? (2 points)
2. What happens to the price of a cup of coffee? (2 points)
3. What happens to total expenditure on cups of coffee? (2 points)
4. What happens to the price of donuts? What happens to total expenditure on donuts? (4 points)

ANS:

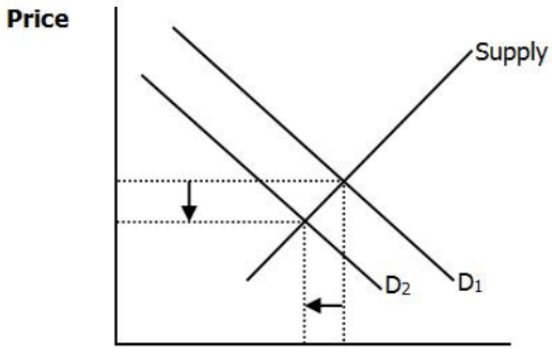
1. The effect on the market for coffee beans is shown below. When a hurricane destroys half of the crop, the supply of coffee beans decreases, the price of coffee beans increases, and the quantity decreases.



2. The effect on the market for cups of coffee is shown in Figure 2. When the price of coffee beans, an important input into the production of a cup of coffee increases, the supply of cups of coffee decreases, the price of a cup of coffee increases, and the quantity decreases.

3. Because cups of coffee have an inelastic demand, when the price of a cup of coffee increases, the total expenditure on coffee increases.

4. The effect on the market for donuts is shown below. When the price of coffee increases and the quantity demanded of coffee decreases, consumers demand fewer donuts because coffee and donuts are complements. When demand decreases, the price of donuts decreases. Because donuts have an inelastic demand, when the price of donuts decreases, the total expenditure on donuts decreases.



Problem 5 (10 points)

Suppose the government wants to reduce smoking and has imposed a per-unit tax on a pack of cigarettes. Assume that the tax policy had no effect on demand.

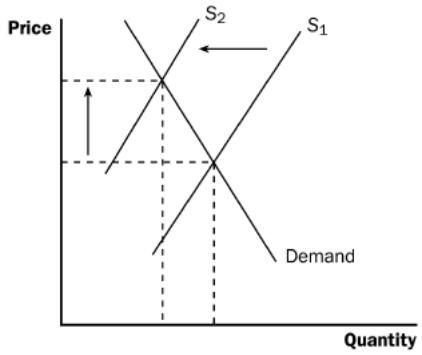
1. Use the demand and supply diagram to illustrate to which direction the supply curve would shift. Compare the original and the new equilibrium. (4 points)

2. The tax has changed the price of a pack of cigarettes to increase from \$2 to \$6. Assume that the price elasticity of demand for cigarettes is about 0.4 within this range. Based upon the above information, can we use the midpoint formula to compute the percentage change in quantity of smoking? If yes, compute it. If not, explain. (3 points)

3. Suppose the government not only impose a per-unit tax on a pack of cigarettes, but it also makes a public announcement that smoking is bad for health. The tax and the announcement together change the price of a pack of cigarettes to increase from \$2 to \$6. Assume that the price elasticity of demand for cigarettes is about 0.4 within this range. Based upon the above information, can we use the midpoint formula to compute the percentage change in quantity of smoking? If yes, compute it. If not, explain. (3 points)

ANS:

1. Supply curve would shift to the left. In the new equilibrium we have a higher price level and a lower equilibrium quantity.



2. Yes. The answer is 40 percentage (or 0.4).

3. No. The demand curve has shifted to the left. To use the midpoint formula, we need to assume that the old and new equilibria are on the same demand curve (or the demand curve is fixed)

Problem 6 (10 points)

Suppose the market demand and market supply curves are given,respectively, by $Q_d = 200 - P$ and $Q_s = 3P$. The price is measured in RMB. Suppose that a tax of T is placed on buyers so that the demand curve becomes $Q_d = 200 - (P + T)$.

1. What are the equilibrium price and quantity before the tax is imposed?
   The equilibrium price is 50 RMB and the equilibrium quantity is 150 units.

2. What price will sellers receive and what price will buyers pay after the tax is imposed? (Hint: solve for P in terms of T.)
   Buyers will pay $\frac{200+3T}{4}$ and sellers will receive $\frac{200-T}{4}$.

3. What quantity will be bought and sold after the tax is imposed?
   The new equilibrium quantity after tax is $\frac{600-3T}{4}$

4. How much tax revenue will be collected after this tax is imposed?
   The tax revenue is $\frac{600T-3T^2}{4}$.

5. What will be the deadweight loss from this tax?
   The dead weight loss is $\frac{3T^2}{8}$.