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Principle of Microeconomics

Midterm Examination

I. Multiple Choice Questions (62.5%)

Write down your paper letter on the top right hand corner of your Scantron sheet. Choose the most correct answer from the alternatives given, and shade the correct answer in your Scantron sheet.

1. Assume that Felicia and Rudy can switch between producing chicken and tomato in a constant rate.

Production Possibility

	Minutes needed to Make 1 kilogram of:		Amount Produced in 8 hours:	
	Chicken	Tomato	Chicken	Tomato
Felicia the farmer	60 min/kg	12 min/kg	8 kg	40 kg
Rudy the rancher	20 min/kg	10 min/kg	24 kg	48 kg

If Felicia and Rudy can cooperate to produce chicken and tomato, suppose each of them has 8 hours available for production, which of the following outputs is NOT on their combined production possibility frontier?

(A) 20 kg of chicken and 40 kg of tomato.

(B) 24 kg of chicken and 40 kg of tomato.

(C) 28 kg of chicken and 20 kg of tomato.

(D) 12 kg of chicken and 64 kg of tomato.

2. Which of the following events would cause a rightward shift of the demand curve of surgical masks?

(A) According to the government's report, the confirmed cases of the new pandemic disease, which spreads through sneezing, are rising this week.

(B) The Ministry of Health provides some new machines for producing masks to each firm for free.

(C) An increase in price of the non-woven fabric (不織布) for surgical mask.

(D) The announcement of new tax for each mask.

3. Suppose Alice and Bob share the park. Alice often leaves trash in the park, and this bothers Bob very much. According to the Coase theorem, which of the following is the necessary condition to alleviate the externality?

(A) Bob has the right to a clean park, and Alice can't leave trash.

(B) Alice has the right to leave trash, and Bob can't do anything about it.

(C) Alice is fined by the government.

(D) Either (A) or (B) holds.

4.

Price (Dollars per case)	Quantity Supplied (Cases of Water)				Quantity Demanded (Cases of Water)
	Ailee Mountain	Basin Mountain	Cascade Waters	Drinkmore	
0	0	0	0	0	1500
2	200	40	60	100	1000
4	400	80	120	200	800
6	600	120	180	300	600

If the four supplies listed are the only suppliers in this market and the market demand schedule is given in the last column. The equilibrium price and quantity are?

(A) $4 and 400 cases.

(B) $4 and 800 cases.

(C) $6 and 600 cases.

(D) $6 and 1200 cases.

5. Which of the following is an example of a public good?

(A) National Health Insurance

(B) Social housing

(C) National defense

(D) Mass rapid transit (MRT)

6. Which of the following is not a typical solution to the "Tragedy of the Commons"?

(A) Tax the use of the common resource.

(B) Turn the common resource into a club good.

(C) Turn the common resource into a private good.

(D) Regulate the use of the common resource.

7. Ben can make 2 hats or 3 shirts in an hour. Rick can make 4 hats or 5 shirts in an hour. Between Ben and Rick, who has the comparative advantage in producing hats, and who has the comparative advantage in producing shirts? Moreover, when Ben and Rick produce efficiently and make a trade which has benefit for both of them based on comparative advantage, what would happen?

(A) Ben in making shirts, Rick in making hats; Ben makes more hats and Rick makes more shirts.

(B) Ben in making shirts, Rick in making hats; Ben makes more shirts and Rick makes more hats.

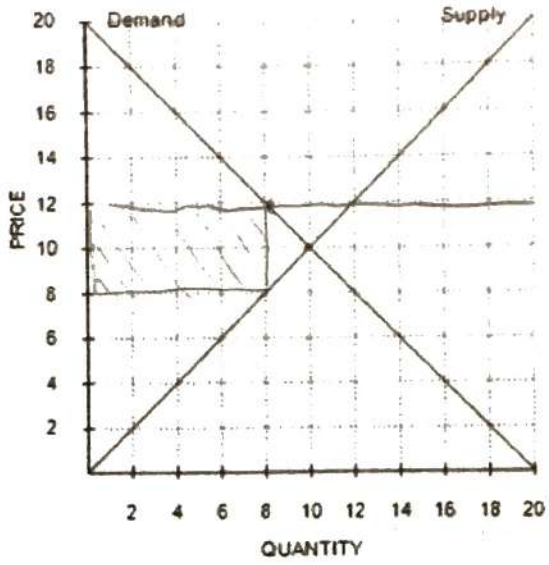
(C) Ben in making hats, Rick in making shirts; Ben makes more hats and Rick makes more shirts.

(D) Ben in making hats, Rick in making shirts; Ben makes more shirts and Rick makes more hats.

The following questions 8-13 are based on the information given below:

Demand curve: Q=20-P

Supply curve: Q=P



8. Where is the market equilibrium?

(A) Q*=10, P*=10

(B) Q*=8, P*=12

(C) Q*=12, P*=8

(D) None of the above

9. The government adds the price floor at p=12, how many goods will be traded?

(A) Q=8

(B) Q=12

(C) Q=10

(D) None of the above

10. What is the total surplus at equilibrium?

(A) 100

(B) 50

(C) 150

(D) None of the above

11. After the government adds the price floor p=12, what is the producer surplus?

(A) 64

(B) 96

(C) 100

(D) None of the above

12. From now on, the government wants to remove the price floor and add a unit tax on suppliers to let the quantity be the same.

How much tax revenue can the government get?

(A) 32

(B) 4

(C) 18

(D) None of the above

13. After adding the tax, the producer surplus is?

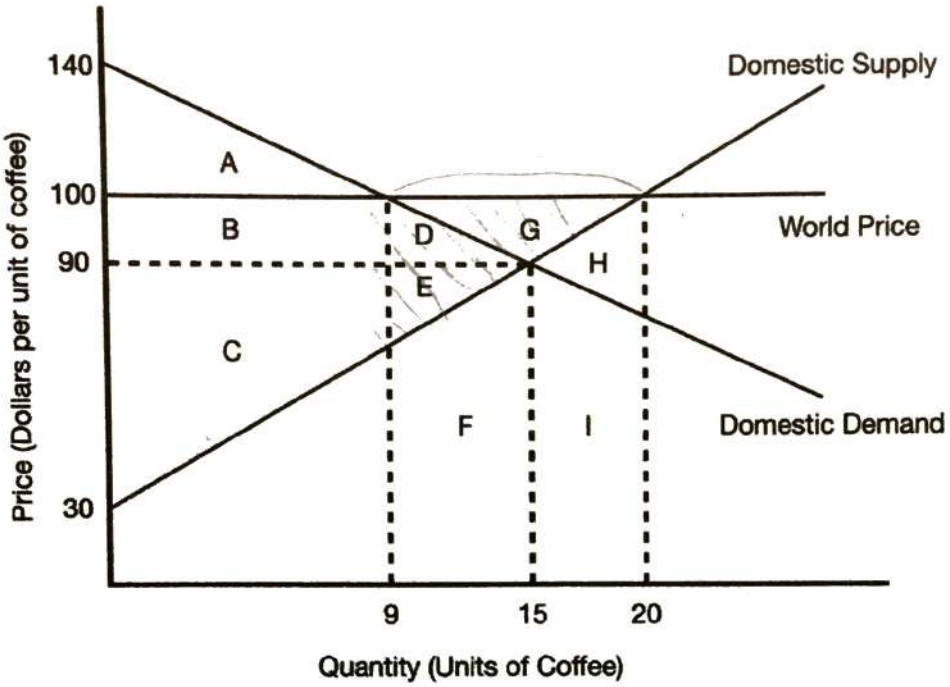
(A) 32

(B) 30

(C) 28

(D) None of the above

Figure 14



14. Refer to Figure 14, with trade, which area represents the export value?

(Hint: Export value is defined as the total worth of commodity in export.)

(A) D+E+G

(B) B+D+G

(C) B+C+D+E+G

(D) D+E+F+G+H+I

15. Refer to Figure 14, comparing to the situation before trade, what is the change in **total surplus** with trade?

(A) Increase by $55.

(B) Increase by $175.

(C) Decrease by $175.

(D) Increase by $1100.

The following questions 16-18 are based on the information given below:

Kites are manufactured by identical firms. Each firm's long-run average total cost and marginal costs of production are given by:

$$ATC = Q + \frac{100}{Q} \; and \; MC = 2Q$$

Where Q is the number of kites produced.

16. In long-run equilibrium, how many kites will each firm produce?

(A) 10

(B) 15

(C) 12

(D) 8

17. Suppose that the demand for kites is given by the formula:

$$Q = 8{,}000 - 50P$$

In the long-run equilibrium market, how many kites will be sold?

(A) 6,000

(B) 7,500

(C) 7,000

(D) 6,750

18. Suppose that the demand for kites unexpectedly goes up to:

$$Q^D = 8{,}500 - 50P$$

In the long run how many new firms will enter the kite-making industry?

(Suppose the cost function of individual firms do not change)

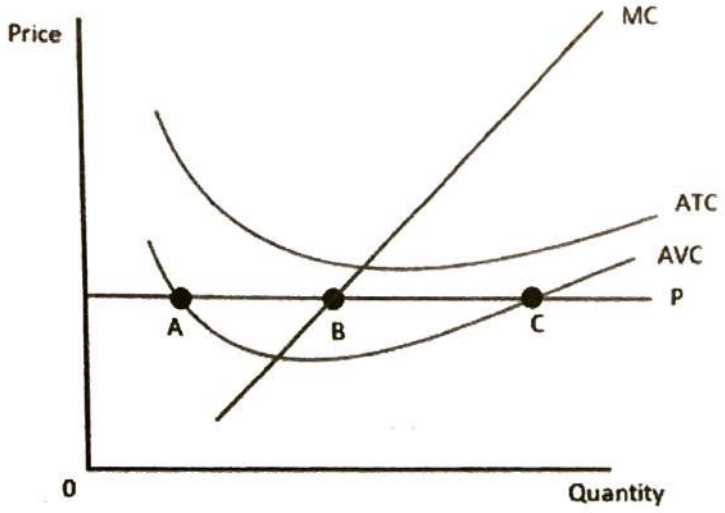
(A) 50

(B) 0

(C) 100

(D) 150

19.



Which of the point above is the long run equilibrium point?

(A) A

(B) B

(C) C

(D) None of the above

20. Refer to the Table:

Amount of Tax	Percent of Income
$15,000	15%
$30,000	20%
$60,000	30%
$90,000	40%

The tax system is

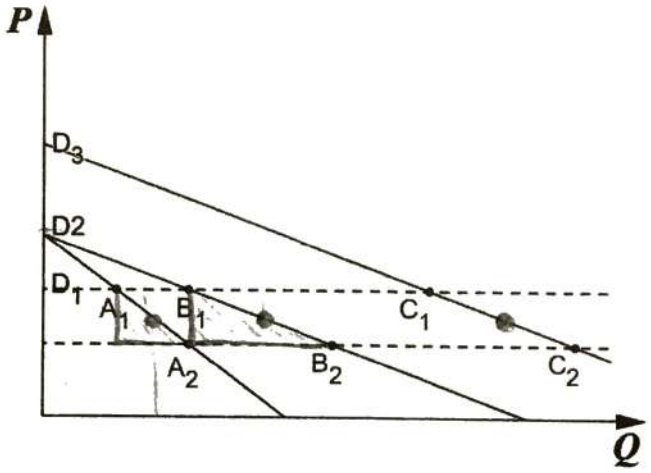
(A) progressive.

(B) regressive.

(C) proportional.

(D) lump sum.

21. As the figure shows, there are three demand curves, that is D1, D2 and D3. D2 and D3 are parallel. Denote the elasticity of demand calculated by midpoint method at the interval A1A2, B1B2 and C1C2 as EA, EB and EC, respectively. Please compare the value of EA, EB and EC.



(A) EA > EB > EC

(B) EA > EB = EC

(C) EA = EB > EC

(D) EC > EB > EA

22. When there is an order of good X, an online store buys them directly from some source at the price $4 per unit and then ships them to the consumer without incurring any cost. The online store finds the elasticity of the demand of its customers is 1.50 and is constant. How should the online store price the good if it wants to maximize its profit?

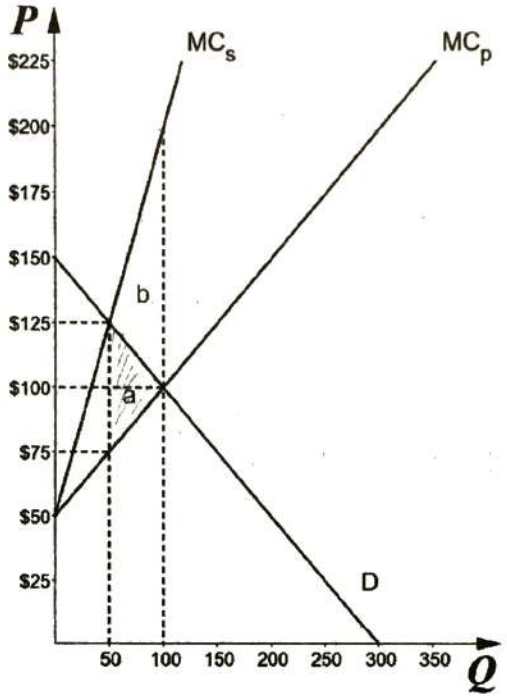
(A) $4

(B) $6

(C) $12

(D) $16

23. The figure shows the market for steel ingots. MCp is the curve representing the marginal cost of the private sector, MCs is the curve representing the marginal cost of the whole society, and D is the demand curve. If the market is competitive, what can the government do to achieve the socially optimal level?



(A) Institute a specific tax equal to area a.

(B) Institute a specific tax equal to area b.

(C) Institute a specific tax of $50.

(D) Outlaw the production of steel.

24. The following statements about long run and short run equilibrium in a competitive market, which is TRUE?

(A) The short run supply curve is the MC curve above the ATC curve

(B) The short run supply curve is the MC curve above the AVC curve

(C) The long run supply curve is the MC curve between the AVC and ATC curve

(D) The long run supply curve is the entire MC curve

25. The following statements about the decision of a firm in the **short run**, which is TRUE?

(A) A firm should continue producing if AVC < P < ATC

(B) A firm should continue producing if P < AVC

(C) A firm should exit the market if P < ATC

(D) A firm should shut down if P < ATC

II. Problems (37.5%)

Note: please show the complete calculation process accompanying with your answers. Answers without appropriate calculation process and explanation will not be given points. 請列出計算過程。只列出答案而無計算及理由說明者，即使答案正確，並不予計分。

1. (22.5%) Suppose that the supply and demand function in the VR market as the following:

$Q^S = 80 + 2P$ supply function,

$Q^D = 410 - P$ demand function,

Where P is the unit price of a VR and Q is the quantity.

(1) Solve the equilibrium price P_0 and quantity Q_0. (4%)

(2) Now suppose that a lump-sum tax T=$30 is placed on buyers 對買者課稅, $Q_t^D = 410 - (P + T)$ solve for the new equilibrium price P_t and quantity Q_t. (4%)

(3) What is the tax revenue of the government TA? (3%)

(4) Calculate the changes of the consumers surplus ΔCS and producers surplus ΔPS after the taxation, respectively. *(hint: the area of the regular trapezoid 梯形面積 = (base 1 上底長度+ base 2 下底長度) × height 高÷ 2)* (7.5%)

(5) Calculate the deadweight loss DW of social welfare due to the taxation. (4%)

2. (15%) Suppose that the typical medical procedure has a supply function $Q^S = 4P - 120$, and the demand for this medical procedure is $Q^D = 120 - 2P$, where P is unit price and Q is medical procedure units.

Please find:

(1) On your supply/demand diagram, show the quantity of medical procedure demanded if National Health Bureau (國民健康保險局) pays all of the procedure costs. What is the total surplus or loss TL1? (5%)

(2) If consumers have health insurance and only pay 25% per procedure of the equilibrium price, will the number of procedures performed maximize total surplus TL2 ?(5%)

(3) What sort of policies might prevent the "excessive" use of medical care in the Question (2), if it might use of care be viewed as "excessive"? What could it be the maximized social surplus SS? (5%)

MCQs

A 卷

CBCAA / BBADA / DDACA / CCAAA / AAACA

B 卷

ACAAA / AAACC / ACADD / DAABB / AACBC

C 卷

AADBC / BCAAA / AAADA / ACADA / CCCBA

Problems

1.

(1)

$P_0 = 110, Q_0 = 300$

(2)

$P_{t=} 100, Q_t = 280$

(3)

$Tax = 8400$

(4)

$\Delta CS = 5800, \Delta PS = 2900$

(5)

DWL = 300

2.

(1)

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(2)

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(3)

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