

作答說明：下列共有 20 格的填充題，每格 5 分。回答時須在答案紙上依下列之格式寫出題號(①至⑳)及對應之答案，無須列出計算過程。答錯不倒扣。

①	②	③	④	⑤
①之答案	②之答案			
⑥	⑦	⑧	⑨	⑩
⑪	⑫	⑬	⑭	⑮
⑯	⑰	⑱	⑲	⑳

1. Dr. Brown likes both coffee ( $c$ ) and tea ( $t$ ) and his utility function is  $U(c, t) = 9c + 12t$ . If the prices are  $p_c = 3$  and  $p_t = 5$ , and Dr. Brown spends \$15 on these products, then we know that he will buy a combination  $(q_c, q_t)$  equal to ① and obtain ② unit of utility.

2. Assume that the TOEIC course is a monopoly. And the demand function of the course is  $p = 4000 - 160q$ . The monopolist bears a marginal cost  $mc = 800$  and no other costs. The monopolist will charge a single price equal ③ to maximize his profit. If students need to pay a membership fee  $M$  to join the TOEIC program, and pay a use fee  $p_U$  (per course). The monopolist use this policy  $(M, p_U)$  to maximize profit, then the policy  $(M, p_U) =$  ④ ( , ).

3. An oligopolistic market consists 3 firms which involve price competition and produce an identical product. They have the same marginal cost  $mc = 25$ , and no other costs. The market demand is  $P = 625 - 2Q$ . The equilibrium demand of each firm is ⑤ and the price is ⑥.

4. A normal form game is as below,

		B	
		green	blue
A	green	$(\pi_A, \pi_B) = (5, 5)$	$(\pi_A, \pi_B) = (10, 20)$
	blue	$(\pi_A, \pi_B) = (20, 10)$	$(\pi_A, \pi_B) = (5, 5)$

\*Two firms A and B, and their production strategy {green, blue}.

According to the normal form game, we know that the Nash equilibrium payoff(s) is(are) ⑦; and if firm A is the first mover, then the Nash equilibrium payoff(s) is(are) ⑧.

5. A firm produces one unit product at a marginal cost  $mc = 2$ , and this firm also pollutes the air at a marginal damage  $md = 5q$ ,  $q$  is the quantity. If the firm faces an inverse market demand,  $p = 20 - q$ , in a perfect competition market, then we know that this firm will produce ⑨ units of product. And for an optimal social welfare, the government should impose a Pigouvian tax equal to ⑩ per unit product.

6. In a small country, residents only consume bread, oranges and cars. The following table shows the prices ( $P$ ) and quantities ( $Q$ ) of the three consumption goods produced in the year of 2010 and 2013, respectively. In 2013, a flood destroys most of orange trees and results in dramatic changes in the price and quantity of oranges.

	Bread		Orange		Car	
	$P$	$Q$	$P$	$Q$	$P$	$Q$
2010	10	50,000	100	10,000	5,000	100
2013	20	80,000	1,440	100	6,000	120

Suppose the base year is 2010. The weight for oranges when calculating the consumer price index (CPI) in the year of 2013 is ①. The CPI for the year of 2013 is ②.

7 The gross domestic product (GDP) in a small country can be described by the following production function:

$$GDP = A * K^{0.4} * L^{0.6},$$

where  $A$  denotes the technology,  $K$  the capital input, and  $L$  the labor input. Assume that factor prices are determined by competitive markets. If  $K$  increases 15% owing to a donation by foreign government, then  $GDP$  will change by ③ percent and the real wage will change by ④ percent.

8. Consider an economy described by the following equations:

$$GDP = C + I + G,$$

$$GDP = 5,000,$$

$$G = 1,200,$$

$$T = 1,000,$$

$$C = 100 + 0.8(GDP - T),$$

$$I = 1,000 - 5,000r,$$

where  $C$  denotes the consumption expenditure,  $I$  the private investment,  $G$  the government purchases,  $T$  the tax, and  $r$  the interest rate. The equilibrium interest rate is ⑤. Suppose  $G$  rises to 1,300, the size of the crowding out effect will be ⑥.

9. Let  $L$  denote the labor force,  $E$  the number of employed workers, and  $U$  the number of unemployed workers. Define the rate of job separation,  $s$ , as the fraction of employed individual who lose their job each month and the rate of job finding,  $f$ , as the fraction of unemployed individuals who find a job each month. If the labor market is in a steady state, the number of people findings jobs must equal the number of people losing jobs. That is, equilibrium requires  $fU = sE$ .

(i) Suppose  $s = 0.02$  and  $f = 0.30$ , the unemployment rate in the steady state will be ⑦.

(ii) The government is considering two labor policies. Policy A is expected to decrease  $s$  to 0.015 and Policy B is expected to increase  $f$  to 0.38. Policy ⑧ (A or B) can more effectively reduce the unemployment rate.

10. A small economy contains 2,000,000 \$1 bills. If people hold 80% of money as demand deposit and banks maintain a reserve ratio of 10 percent, the money multiplier will be ⑨. In the New Year, the central bank injects additional 200,000 \$1 bills to the economy. In addition, people increase cash holdings for shopping in the traditional market and for distributing red envelopes, so they only hold 60% of money (including the newly issued amount) as demand deposit. Therefore, the money multiplier will become ⑩.