- 請依題號順序於「選擇題作答區」內作答。

- 單選題，共25題，每題4分。

1. While traveling abroad, Tammy spent all of the money in her purse to buy 5 plates of spaghetti and 6 oysters. Spaghetti costs 8 units of the local currency per plate and she had 82 units of currency in her purse. If s denotes the number of plates of spaghetti and t denotes the number of oysters purchased, the set of commodity bundles that she could just afford with the money in her purse is described by the equation
    - (a) $8s + 6t = 82$.
    - (b) $6s + 8t = 82$.
    - (c) $8s + 7t = 82$.
    - (d) $5s + 6t = 82$.
    - (e) There is not enough information to determine the answer.

2. Dr. Strange gives 3 midterm exams. He drops the lowest score and gives each student her average score on the other two exams. Sarah is taking Dr. Strange's course and has a 60 on her first exam. Let x_2 be her score on the second exam and x_3 be her score on the third exam. If we draw her indifference curves for scores on the second and third exams with x_2 represented by the horizontal axis and x_3 represented by the vertical axis, then her indifference curve through the point $(x_2, x_3) = (50, 70)$ is
    - (a) L-shaped with a kink where $x_2 = x_3$.
    - (b) three line segments, one vertical, one horizontal, and one running from $(70, 60)$ to $(60, 70)$.
    - (c) a straight line, running from $(0, 120)$ to $(120, 0)$.
    - (d) three line segments, one vertical, one horizontal, and one running from $(70, 50)$ to $(50, 70)$.
    - (e) none of the above.

3. Joseph insists on consuming 4 times as much of y as he consumes of x (so he always has $y = 4x$). He will consume these goods in no other ratio. The price of x is 3 times the price of y. Joseph has an endowment of 20 x's and 45 y's which he can trade at the going prices. He has no other source of income. What is Joseph's demand for x?
    - (a) 105
    - (b) 65
    - (c) 15
    - (d) 12
    - (e) We can't determine the answer without knowing the price of x.

4. In 2017, Bruce spent his income on two goods, x and y. Between 2017 and 2018, the price of good x rose by 8% and the price of good y rose by 8%. In 2018, Bruce bought the same amount of x as he bought in 2017, but he bought more of good y than he had bought in 2017.
    - (a) y is a normal good.
    - (b) y is an inferior good.
    - (c) x is an inferior good.
    - (d) Nothing can be said about inferiority or superiority, since we don't know what happened to income.
    - (e) Bruce is acting irrationally, since the relative prices of x and y did not change.

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5. A student spends all of her income on pizza and books. When pizzas cost $3 each and books cost $10 each, She consumed 30 pizzas and 3 books per month. The price of pizzas fell to $2.90 each while the price of books rose to $11 each. The price change
   (a) made her worse off.
   (b) left her exactly as well off as before.
   (c) left her at least as well off as before and possibly helped her.
   (d) might have helped her, might have harmed her. We can't tell which unless we observe what she consumed after the price change.
   (e) had the same effect as a $3 increase in her income.

6. Steven is fond of cigars. His utility function is $U(x, c) = x + 10c - 0.5c^2$, where c is the number of cigars he smokes per week and x is the money that he spends on the consumption of other goods. Steven has $200 a week to spend. Cigars used to cost him $1 each, but their price went up to $2 each. This price increase was as bad for him as losing income of
   (a) $5.
   (b) $7.25.
   (c) $9.
   (d) $8.
   (e) $8.50.

7. In a crowded city far away, the civic authorities decided that rents were too high. The long-run supply function of two-room rental apartments was given by $q = 15 + 3p$ and the long-run demand function was given by $q = 237 - 3p$, where p is the rental rate per week. The authorities made it illegal to rent an apartment for more than $30 per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?
   (a) 14$
   (b) 7$
   (c) 11$
   (d) 28$
   (e) 21$

8. Which of the following statements is **not** correct?
   (a) Patents help internalize the externalities associated with technological advances.
   (b) Economists typically prefer regulations to corrective taxes because regulations provide more incentives for firms to seek continued reductions in pollution.
   (c) Allowing firms to trade pollution permits will lower the total cost of reducing pollution.
   (d) A big impediment to implementing the Coase theorem in many cases is high transactions costs.
   (e) None of the above.

9. A monopoly has the demand curve $q = 10,000 - 100p$. Its total cost function is $c(q) = 1,000 + 10q$. The government plans to tax the monopoly's profits at a rate of 50%. If it does so, the monopoly will
   (a) increase its price by 50%.
   (b) increase its price by more than 50%.
   (c) recover some but not all of the tax it pays by increasing its price.
   (d) not change its price or the quantity it sells.
   (e) None of the above.

10. Two stores are located side by side and attract customers to each other and to themselves by advertising. Where x_1 and x_2 are the advertising expenditures of stores 1 and 2, the profits of the firms are $(48+x_2)x_1 - 2(x_1)^2$ for store 1 and $(54+x_1)x_2 - 2(x_2)^2$ for store 2. Knowing these functions, one investor buys both stores. In order to maximize his total profits, how much should he spend on advertising for store 2?

    (a) $10

    (b) $26

    (c) $25

    (d) $35

    (e) None of the above.

11. The citizens of Mayville are having a severe budget shortage and are faced with eliminating athletics from the town high school. The town administrator has determined that the town can afford to maintain one sport. Exactly one of the three choices will prevail, and the choice will be made by way of pairwise voting, with the majority determining the outcome on each vote. The preferences of the voters are summarized in the table below.

	Voter Type		
	Type A	Type B	Type C
Percent of Electorate	20	42	38
First choice	Hockey	Football	Basketball
Second choice	Football	Basketball	Hockey
Third choice	Basketball	Hockey	Football

The town administrator is a huge basketball fan. If he wants to ensure that basketball is the winning sport, how should he set up the voting?

    (a) First vote: hockey vs. basketball; Second vote: winner of first vote vs. football

    (b) First vote: hockey vs. football; Second vote: winner of first vote vs. basketball

    (c) First vote: basketball vs. football; Second vote: winner of first vote vs. hockey

    (d) It is impossible for basketball to win according to Arrow's impossibility theorem.

    (e) None of the above.

12. The frangle industry is a monopoly, with a demand curve $100 - p$, where p is the price of frangles. It takes one unit of labor and no other inputs to produce a frangle. The Frangle-Makers Guild is a strong union. The guild sets a wage and prevents anyone from working for less than that wage. The frangle monopoly must pay that wage but can hire as much labor as it chooses to. If the guild chooses a wage so as to maximize the total earnings (wage times number of units of labor hired) of frangle makers, then

    (a) the price of frangles will be $25.

    (b) the price of frangles will equal the wage rate.

    (c) the wage rate will be $25.

    (d) the wage rate will be $50.

    (e) none of the above.

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13. 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.

    (e) None of the above.

14. Ricardian equivalence argues that when the government

    (a) cuts taxes and raises its deficit, consumers anticipate that they will face higher taxes later to pay for the resulting government debt, thus people will raise their own private saving to offset the fall in government saving.

    (b) cuts taxes and raises its deficit, consumers anticipate that they will face lower taxes later to pay for the resulting government debt, thus people will raise their own private saving to offset the fall in government saving.

    (c) increases taxes and raises its deficit, consumers anticipate that they will face higher taxes later to pay for the resulting government debt, thus people will raise their own private saving to offset the fall in government saving.

    (d) cuts taxes and decreases its deficit, consumers anticipate that they will face higher taxes later to pay for the resulting government debt, thus people will raise their own private saving to offset the fall in government saving.

    (e) none of the above.

15. Suppose the inflation rate target is zero and the long run federal funds target is also zero. If the federal funds rate set using the Taylor rule is 1.5% and inflation rate is 3%, the output gap is _____ .

    (a) -6%

    (b) 1.5%

    (c) 4.5%

    (d) 6%

    (e) none of the above.

16. Assuming all else equal, if firms expect the demand for their products to increase in the near future, _____ .

    (a) their labor demand curve will shift to the left.

    (b) their labor supply curve will shift to the left.

    (c) their labor demand curve will shift to the right.

    (d) their labor supply curve will shift to the right.

    (e) none of the above.

17. Which characteristic does money currently not have?

    (a) It is issued by a government or central bank.

    (b) It is considered valuable.

    (c) It is backed by gold.

    (d) It is a durable good.

    (e) Both answers (c) and (d) are correct.

18. An open-market operation refers to

    (a) changing the money supply by changing taxes.

    (b) changing the money supply by changing government spending.

    (c) an exchange of money for interest-bearing debt by the monetary authority.

    (d) an exchange of domestic money for foreign money by the monetary authority.

    (e) Both answers (b) and (c) are correct.

19. What immediate consequence does an increase in education time have in the endogenous growth model with human capital?

    (a) lower output.

    (b) lower output in the future.

    (c) lower wages.

    (d) lower human capital.

    (e) Both answers (a) and (b) are correct.

20. The phenomenon of underutilization of labor during a recession is called

    (a) labor stockpiling.

    (b) investing in human capital.

    (c) labor force stabilization.

    (d) labor hoarding.

    (e) none of the above.

21. The saving rate has the following characteristic in Solow's exogenous growth model

    (a) it increases with output.

    (b) it decreases with output.

    (c) it first decreases, then increases with output.

    (d) it first increases, then decreases with output.

    (e) none of the above.

[Questions 22–25] Suppose that there are two agents, 1 and 2, having the following optimization problems.
(Agent 1): $\max_{\{c_t, c_{t+1}\}} \log c_t + \beta \log c_{t+1}$ subject to

$$c_t + s_t = y_t, \quad c_{t+1} = y_{t+1} + (1 + r_t)s_t$$

(Agent 2): $\max_{\{c'_t, c'_{t+1}\}} \log c'_t + \beta' \log c'_{t+1}$ subject to

$$c'_t + s'_t = y'_t, \quad c'_{t+1} = y'_{t+1} + (1 + r_t)s'_t$$

Where (c_t, c'_t) denotes consumption, (s_t, s'_t) is saving, and r_t denotes the real interest rate. Let's suppose that Agent 1 receives income of $y_t = 1$ in the first period, but $y_{t+1} = 0$ in the second. Agent 2 has the reverse pattern: $y'_t = 0$ and $y'_{t+1} = 1$. Assume that $\beta = \beta'$.

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22. Find the credit supply function, $CR_t^s(r_t)$.

   (a) $CR_t^s(r_t) = \frac{1}{1+\beta}$

   (b) $CR_t^s(r_t) = \frac{\beta}{1+\beta}$

   (c) $CR_t^s(r_t) = 1 + \beta$

   (d) $CR_t^s(r_t) = \frac{1+\beta}{\beta}$

   (e) none of the above

23. Find the credit demand function, $CR_t^d(r_t)$.

   (a) $CR_t^d(r_t) = -\frac{1}{(1+\beta)(1+r)}$

   (b) $CR_t^d(r_t) = -\frac{\beta}{(1+\beta)(1+r)}$

   (c) $CR_t^d(r_t) = -\frac{1+r}{(1+\beta)}$

   (d) $CR_t^d(r_t) = -\frac{\beta(1+r)}{1+\beta}$

   (e) none of the above

24. Find the equilibrium real interest rate, r_t^*.

   (a) $r_t^* = \frac{1+\beta}{\beta}$

   (b) $r_t^* = \frac{1-\beta}{\beta}$

   (c) $r_t^* = \frac{1-\beta}{1+\beta}$

   (d) $r_t^* = \frac{\beta}{1-\beta}$

   (e) none of the above

25. Now suppose that β' decreases so that $\beta' < \beta$. Then the credit supply will _____, the credit demand will _____, and the equilibrium real interest rate r_t^* will _____.

   (a) increase; decrease; decrease

   (b) decrease; increase; increase

   (c) remain unchanged; increase; increase

   (d) increase; remain unchanged; decrease

   (e) none of the above

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