

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. A consumer has an income level I and the C-D utility function $U(x,y) = xy$. If the prices are $P_x=2P_y=2$, his/her demand (x^*, y^*) must be:
 - (A) $x^* = y^*$
 - (B) $x^* = 2y^*$
 - (C) $x^* = 3y^*$
 - (D) $y^* = 2x^*$

2. If the demand for good X goes down when the price of good Y goes up, these two goods are considered:
 - (A) complements
 - (B) substitutes
 - (C) homogeneous goods
 - (D) public goods

3. The indifference curves of a consumer over two normal goods (X, Y) must have the property:
 - (A) they intersect only once.
 - (B) they must be positively sloped.
 - (C) they must have the same slopes.
 - (D) they should never intersect.

4. The term economies of scale indicates that a firm's production has the property:
 - (A) short-run average cost goes up with output.
 - (B) short-run average cost goes down with output.
 - (C) long-run average cost goes up with output.
 - (D) long-run average cost goes down with output.

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5. A production firm's average costs (AC) and marginal costs (MC) must have the relation:
- (A) always $MC > AC$
 - (B) always $MC < AC$
 - (C) always $MC = AC$
 - (D) MC may be greater or lower than AC.
6. A consumer has an income level I and the C-D utility function $U(x,y) = \min\{x, y\}$. If the prices are $P_x=2P_y=2$, then his/her demand (x^*, y^*) must be:
- (A) $x^* = y^*$
 - (B) $x^* = 2y^*$
 - (C) $x^* = 4y^*$
 - (D) $x^* = 2x^*$
7. A consumer has an income level I and the C-D utility function $U(x,y) = x+y$. If the prices are $P_x=2P_y=2$, then his/her demand (x^*, y^*) must be:
- (A) $x^* = 0$
 - (B) $x^* = I/2$
 - (C) $y^* = 0$
 - (D) $y^* = I/2$
8. A monopolist, trying to maximize his profits, will choose a price/quantity combination that, compared with the competition equilibrium, has the properties:
- (A) price too low, quantity too low
 - (B) price too low, quantity too high
 - (C) price too high, quantity too low
 - (D) price too high, quantity too high
9. If a public good is provided by the consumers voluntarily in an economy, its equilibrium level, compared with the social optimal level, will be:

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- (A) too low
- (B) too high
- (C) the same
- (D) may be too high or too low

10. Which statement in the following is not true:

- (A) normal goods must be ordinary goods
- (B) normal goods may not be ordinary goods
- (C) income-inferior goods can be ordinary goods
- (D) income-inferior goods can be Giffen goods

11. A monopolist has a constant marginal cost of production $C=20$, and faces the market demand $Q = 100-P$. What then will be the consumer surplus if the monopolist maximizes his profits:

- (A) 1600
- (B) 1200
- (C) 800
- (D) 520

12. If the level of a public good is determined by simple majority rule by all members in a society, the voting outcome must be:

- (A) equal to the social optimal level
- (B) greater than the social optimal level
- (C) lower than the social optimal level
- (D) greater or lower than the social optimal level

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13. Which of the following policy is considered quantitative easing?
- (A) The central bank prints money and directly transfer it to households
 - (B) The central bank prints money and directly transfer it to financial institutions
 - (C) The central bank purchases short-term Treasury securities
 - (D) The central bank sells short-term Treasury securities
 - (E) The central bank purchases long-term Treasury securities
14. Which of the following events will decrease the unemployment rate?
- (A) A decrease in the number of employed workers and no changes in the total population
 - (B) A decrease in the labor force and an increase in the total population
 - (C) A decrease in the number of employed workers and no changes in the labor force
 - (D) An increase in the labor force and no changes in the number of employed workers
 - (E) A decrease in the labor force and no changes in the number of employed workers
15. Consider two economies, the US and Europe. Suppose that investors can buy either US or European risk-free one-period bonds. European bonds have an interest rate of i_t^{EU} and US bonds have an interest rate of i_t^{US} . Moreover, let e_t denote the amount of dollars that can be obtained for one Euro in period t . The values of i_t^{US} , i_t^{EU} , and e_t are as follows

i_t^{US}	i_t^{EU}	e_t
0.05	0.1	1.1

Suppose that the uncovered interest rate parity (UIP) holds, then what will be e_{t+1} ?

- (A) 0.89
- (B) 0.95
- (C) 1
- (D) 1.01
- (E) 1.05

[Question 16 to 18]

Consider a Solow growth model. A household uses s proportion of its income to invest. Let i_t denote the investment, c_t denote the consumption, and y_t denote the income, then

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$$i_t = sy_t$$

$$c_t = (1 - s)y_t$$

Moreover, a household's income is generated from the capital k_t , and the production function follows

$$y_t = Ak_t^\alpha$$

The accumulation rule of capital per capita is:

$$k_{t+1} = (1 - \delta)k_{t+1} + i_t$$

Let $\delta = 0.2, A = 1, s = 0.4, \alpha = 0.5$

16. Which of the following is the steady state capital per capita?

- (A) 0.25
- (B) 0.5
- (C) 1
- (D) 2
- (E) 4

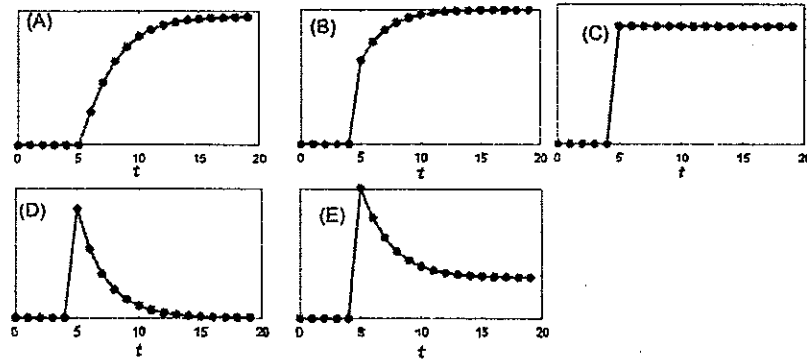
17. The golden rule saving rate denotes the saving rate that maximizes the steady state consumption.

Which of the following is the golden rule saving rate?

- (A) 0.5
- (B) 0.1
- (C) 0.2
- (D) 0.6
- (E) 0.8

18. Suppose the economy was initially at the steady state, and the productivity, A , increases permanently and unexpectedly at period 5. Which of the following graph characterizes the dynamics of consumption?

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[Question 19 to 20]

Consider a closed economy where the only products are apples and oranges. Let Q_t^a and P_t^a be the quantity and price of apples at time t , and let Q_t^o and P_t^o be the quantity and price of oranges at time t .

	Apple		Orange	
	Q_t^a	P_t^a	Q_t^o	P_t^o
t=2022	90	1	1	5
t=2000	50	1	50	1

19. Solve for the Real GDP in 2022 (base period 2000).

- (A) 91
- (B) 95
- (C) 100
- (D) 105
- (E) 200

20. Following question 19, solve for the consumer price index (CPI) in 2022 (base period 2000).

- (A) 300
- (B) 200
- (C) 105
- (D) 100
- (E) 91

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[Question 21 to 23]

Consider a two-period model with saving decisions. Let the household's utility be

$$U(c_1, c_2) = 2(c_1)^{\frac{1}{2}} + \beta 2(c_2)^{\frac{1}{2}}$$

Where $\beta = 0.8$ is the time discount factor. The household period 1 and period 2 budget constraints are

$$c_1 + b = e_1$$

$$c_2 = (1 + r)b + e_2$$

Let $e_1 = e_2 = 1$.

21. Solve for the equilibrium interest rate r .

- (A) 0
- (B) 0.2
- (C) 0.25
- (D) 0.5
- (E) 0.8

22. Suppose now there is a government. The government charges a lump sum tax from households at period 1. The government saves the tax income by lending to the credit market, and the return of the lending is transferred back to the households at period 2. How will the policy influence the equilibrium interest rates?

- (A) Increase
- (B) Decrease
- (C) No effect
- (D) Uncertain
- (E) None of the above

23. The government charges a proportional tax on consumption from households at period 1. The government saves the tax income by lending to the credit market, and the return of the lending is transferred back to the households at period 2. How will the policy influence the equilibrium interest rates?

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- (A) Increase
- (B) Decrease
- (C) No effect
- (D) Uncertain
- (E) None of the above

24. The permanent income hypothesis states that consumption is determined by the permanent income instead of the current income. Consider a discrete-time infinite horizon economy, and consumers live forever. A consumer's consumption utility functions are the same across periods, and a consumer discounts time by $1/(1 + \rho)$, where $\rho = 0.25$. The consumer's income comes from exogenously determined endowments. Moreover, the consumer can save or borrow from a credit market with an interest rate $r = \rho$. Suppose now the consumer's income of the current period increases 1 unit, but her income remains unchanged for all period after, then how much will the consumer's current consumption increase?

- (A) 0.2
- (B) 0.25
- (C) 0.5
- (D) 0.75
- (E) 0.8

25. The Fisher equation states the long-run relationship between nominal interest rate, real interest rate, and the inflation rate. Suppose that the Fisher equation holds and that monetary policy is neutral in the sense that it has no impact on the real interest rate in the long run. Then given that the real interest rate is fixed over time, if the central bank increases the nominal interest rate target, how will the inflation rate respond in the long run?

- (A) Increase
- (B) Decrease
- (C) Unchanged
- (D) Uncertain
- (E) None of the above

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