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2025 Taiwanese Economics Olympiad

Preliminary – Round 1: Literacy of Economics and Finance

Question Booklet

Time Saturday, December 21, 2024, 10:00 to 11:30 (90 minutes)

Locations Taipei Gongtong Lecture Building,
National Taiwan University
Taichung Mingdao High School
Kaohsiung TCCC Kaohsiung Xinyi

Instructions

- Fill in your contestant number in the boxes at the top.
- Use only a blue or black pen or pencil.
- Answer all questions on the answer sheet.
- Do all rough work in the question booklet.

Information

- This is an individual-based round.
- The number of questions is 30. All answers will be graded (4 points for a correct answer, minus 1 point for an incorrect answer, and zero points for no answer).
- If not stated otherwise, consider all goods, services, and assets infinitely divisible.
- Numbers of firms and people may be only integers.
- You may leave the examination venue more than 60 minutes after this round begins.

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1. Which of the following statements about the 2024 Nobel Prize in Economic Sciences is correct?
 - (1) It is the first time a woman has won the prize solo.
 - (2) The research analyzes global inequality through colonial history.
 - (3) The research provides effective strategies for addressing global inequality.
 - (4) The research highlights that economic institutions have a greater impact on economic development than political systems.

2. On a small island with only Emily and Frank, they grow apples (A) and bananas (B). Emily's production possibility frontier is $5A + 3B = 300$, and Frank's is $3A + 2B = 240$. If they wish to engage in specialized division of labor and trade, which of the following statements is correct?
 - (1) The value of one apple should be 1.25 bananas.
 - (2) Their combined production possibility frontier is $3A + 3B = 540$.
 - (3) If they must produce at least 60 apples, they can produce at most 120 bananas.
 - (4) Frank has an absolute advantage in producing apples and a comparative advantage in producing bananas.

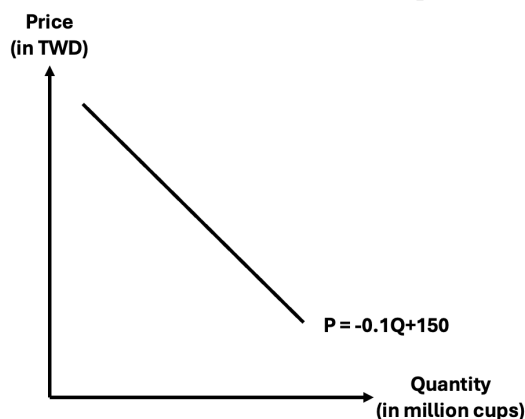
3. Which of the following statements about supply and demand is incorrect?
 - (1) As Typhoon Usagi approaches, people stockpile vegetables, causing a change in quantity supplied.
 - (2) A department store anniversary sale with discounts will cause a change in quantity demanded.
 - (3) A McDonald's collaboration with HUNTER×HUNTER (獵人 [日本動漫]) card series will cause a shift in the demand curve.
 - (4) The lease of the shop owner expires, and the large sales of all products will cause a shift in the supply curve.

4. In the town of TEO, the demand for Christmas trees is $Q = -\frac{1}{2}P + 210$, and the supply is $Q = P + 30$. To prevent excessively high prices during the Christmas season, the mayor sets a price ceiling of 160. Under this regulation, what will the market price and quantity be?
 - (1) Price = 160, with 30 units surplus.
 - (2) Price = 160, with 60 units surplus.
 - (3) Price = 160, supply and demand will be balanced.
 - (4) Price = 120, supply and demand will be balanced.

5. Which of the following statements about deadweight loss is correct?
 - (1) Public goods, due to their external benefits, do not cause deadweight loss.
 - (2) Adverse selection, as it occurs before transactions, does not cause deadweight loss.
 - (3) Pigouvian tax, being levied based on pollution levels, does not cause deadweight loss.
 - (4) In monopolistic competition, deadweight loss does not occur because there are many firms.



6. According to the Ministry of Economic Affairs, Taiwan has approximately 16,000 bubble tea shops, with 1 billion cups sold annually. If the bubble tea shop market operates as perfect competition, where the marginal cost of each cup is NT\$50, and the demand curve for bubble tea is as shown. If the shops form a pricing alliance, how much would their total profit increase?



- (1) NT\$10 billion
(2) NT\$15 billion
(3) NT\$20 billion
(4) NT\$25 billion
7. SantaClaus is the sole gift supplier in a Christmas town. The market demand for gifts is $Q = -\frac{1}{2}P + 200$, the marginal cost of production is $MC = Q + 100$, and the marginal revenue is $MR = -4Q + 400$. Which of the following statements is correct?
- (1) When the market reaches allocative efficiency, SantaClaus's total revenue will be maximized.
(2) When SantaClaus achieves productive efficiency, the entire market will reach allocative efficiency.
(3) Since marginal cost is increasing, SantaClaus needs to reduce output to achieve productive efficiency.
(4) To achieve allocative efficiency, the government must provide SantaClaus with a per-unit subsidy of 20.
8. The Covid pandemic changed consumption patterns, with online shopping sales continuing to grow. The chart shows the payoff matrix for buyers and sellers in online shopping. Which of the following statements is incorrect?

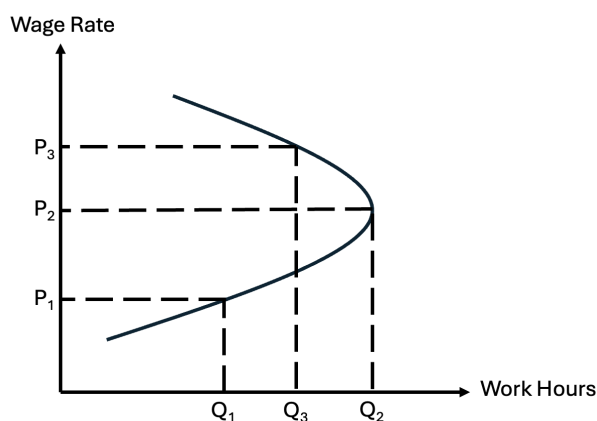
		Seller	
		To deliver	Not to deliver
Buyer	To pay	(10,10)	(-20,20)
	Not to pay	(30,-10)	(0,0)

Payoff: (Buyer, Seller)

- (1) Sellers will choose to deliver, maximizing total market payoff.
(2) If buyers know sellers will deliver, they will choose not to pay.
(3) Third-party payment systems like PayPal can achieve Pareto efficiency.
(4) At Nash equilibrium, buyers will choose not to pay, and sellers will choose not to deliver.



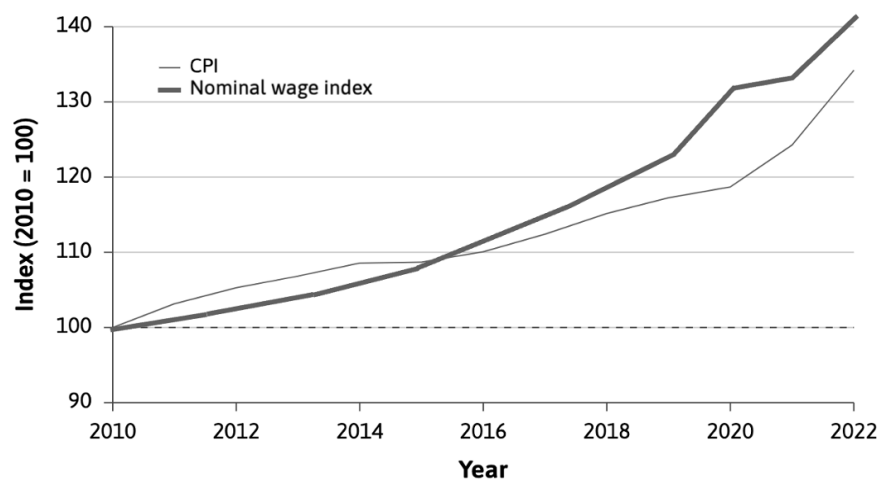
9. Which of the following statements about the properties of goods is correct?
- (1) Sunlight, as a natural resource, is a common resource.
 - (2) Shared office spaces, which accommodate many members, are club goods.
 - (3) National Health Insurance, provided by the government, is a public good.
 - (4) Chimei Museum (奇美博物館), a privately established entity, is a private good.
10. Country A is an industrial powerhouse, but the production in its factories has also led to wastewater pollution. The marginal private benefit is given by $Q_{PB} = -\frac{1}{3}P + 800$, and the marginal private cost is given by $Q_{PC} = \frac{1}{2}P + 200$. The government of Country A wants to impose a per-unit tax on wastewater discharge and use all the tax revenue for environmental protection. What should the tax amount per unit be for the total tax revenue to be the highest?
- (1) 1,000
 - (2) 1,100
 - (3) 1,200
 - (4) 1,300
11. To reduce carbon emissions, the government requires Lemon Technology and Mango Technology to each cut 140 units of emissions. The marginal cost of Lemon Technology's carbon reduction is $3Q$, and Mango Technology's is $4Q$. If carbon trading occurs, and the government charges a 10% fee on carbon credits. If both companies trade carbon to minimize the cost of carbon reduction, which of the following statements is correct?
- (1) The total reduction cost for each company will be equal.
 - (2) Even with a 15% transaction fee, trading would still occur.
 - (3) At a total carbon trading price of 9,500, both companies will choose to trade.
 - (4) According to the Coase theorem, transaction costs prevent carbon trading between these two companies.
12. The chart shows the supply curve of labor in a certain country. Which of the following statements is correct?



- (1) Employers would prefer to set wages at P_3 .
- (2) This chart is unreasonable because wage rate is not a function of work hours.
- (3) At P_1 , the substitution effect of wage increases outweighs the income effect.
- (4) The government should set the minimum wage at P_2 to maximize labor productivity.



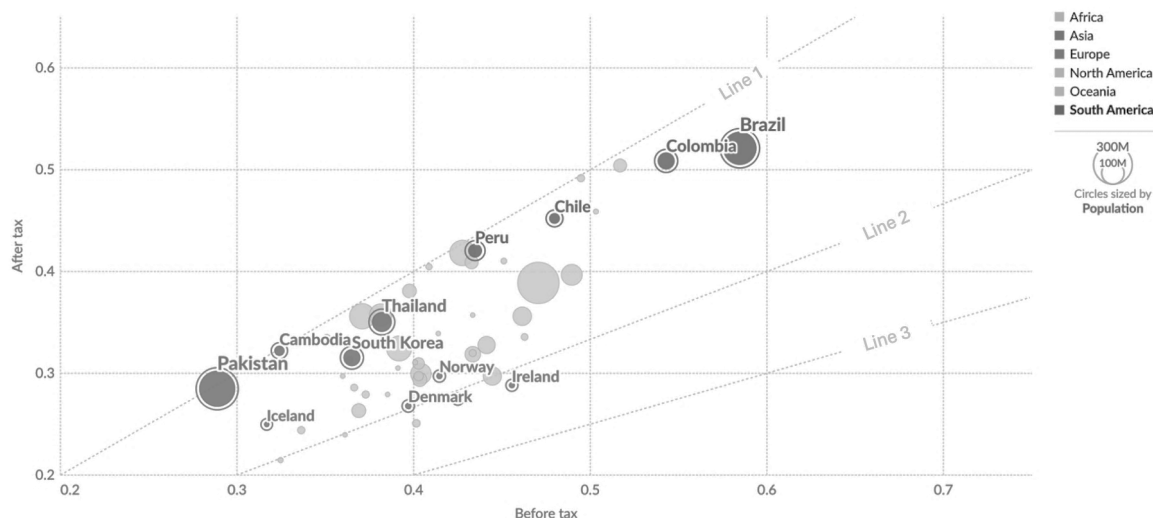
13. Which of the following statements about asymmetric information is correct?
- (1) Rent-seeking increases firm profits and enhances market efficiency.
 - (2) The party with more information can use signaling to mitigate moral hazard.
 - (3) In goods and services markets, sellers always have more information than buyers.
 - (4) Companies can use efficiency wages to avoid adverse selection when recruiting new employees.
14. Which of the following statements about GDP calculation is correct?
- (1) Buying a used house counts as investment.
 - (2) Overseas tourism by citizens counts as export.
 - (3) Buying clothes using department store gift cards counts as consumption.
 - (4) Government subsidies for retired farmers count as government expenditure.
15. Which of the following is not included in Taiwan's GNI?
- (1) Earnings from Taiwanese investments in U.S. stocks
 - (2) Salaries of Taiwanese employees stationed in the U.S.
 - (3) Salaries of U.S. managers hired by a multinational bank in Taiwan
 - (4) Income of Chen Wei-Yin (陳偉殷) on the Long Island Ducks (長島鴨) baseball team in the U.S.
16. The chart shows changes in the U.S. consumer price index (CPI) and nominal wage index between 2010 and 2022. Which of the following statements is correct?



- (1) Real wages in the U.S. were higher in 2015 than in 2010.
 - (2) Real wages in the U.S. increased between 2020 and 2021.
 - (3) Real wages in the U.S. continuously declined from 2010 to 2015.
 - (4) The inflation caused by the pandemic was more significant than that caused by quantitative easing (QE).
17. Which of the following statements about economic indicators is correct?
- (1) Rising inflation rate indicates economic growth.
 - (2) Unemployment rate is a leading economic indicator.
 - (3) Nominal GDP measures a country's productive capacity.
 - (4) PPP (purchasing power parity) is calculated based on the law of one price.

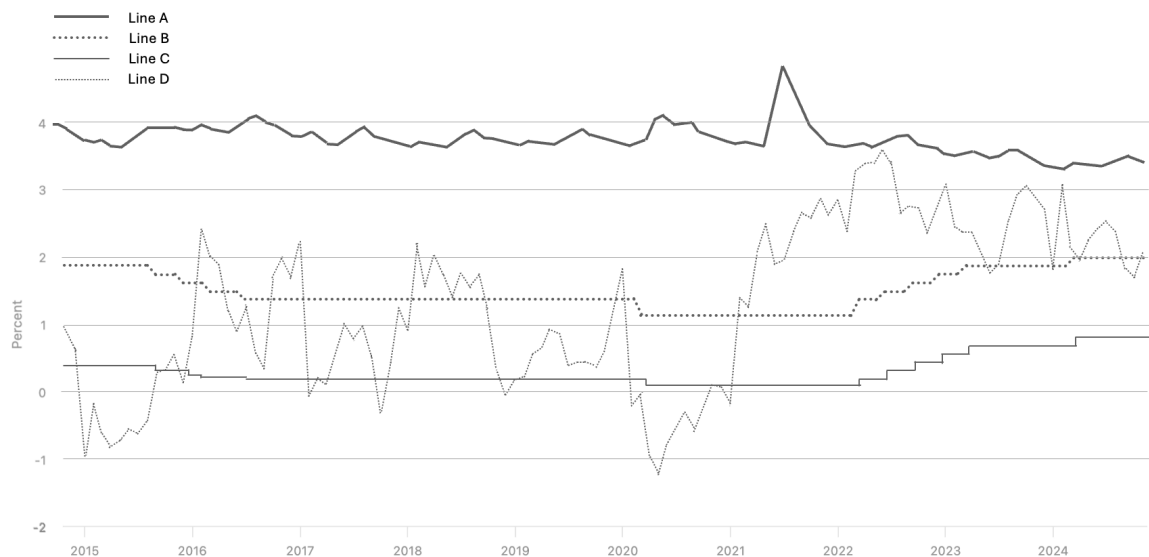


18. Which of the following statements about wages and income is correct?
- (1) The Phillips curve can be used to measure income inequality.
 - (2) When a society's income distribution is more equal, market efficiency increases.
 - (3) Calculating income inequality using wages results in higher inequality than using disposable income.
 - (4) In Taiwan, the mean wage is lower than the median wage, indicating a higher proportion of low-income individuals.
19. The chart displays the 2023 pre-tax and post-tax Gini indices of various countries. Which of the following statements is correct?



- (1) Compared to Peru, Ireland's progressive income tax rate is likely higher.
 - (2) Nordic countries should increase taxes further to reduce income inequality.
 - (3) Line 1's left side has no countries, showing that taxation does not widen income inequality.
 - (4) Pakistan shows no difference between pre-tax and post-tax Gini indices, indicating no income tax is levied.
20. In September, the U.S. Federal Open Market Committee (FOMC) decided to lower the federal funds rate by 0.5%. Which of the following statements is correct?
- (1) The U.S. may be experiencing higher-than-expected inflation.
 - (2) After lowering the federal funds rate, the U.S. dollar will appreciate.
 - (3) The FOMC should not lower the federal funds rate, as it could increase unemployment.
 - (4) In addition to lowering the federal funds rate, the FOMC could buy government bonds to achieve the same goal.
21. Which of the following statements about the crowding-out effect is incorrect?
- (1) Increased government spending suppresses private investment.
 - (2) If the economy is at full capacity, there will be full crowding-out.
 - (3) The crowding-out effect occurs during contractionary fiscal policy.
 - (4) If the LM curve is horizontal, the crowding-out effect will not occur.

22. At the end of 2021, Taiwan's Ministry of Finance issued NT\$96 billion in consumption vouchers. In early 2023, an additional NT\$140 billion was distributed as cash payments. If Taiwan's marginal propensity to consume is 0.15, how much GDP growth can these policies be expected to generate?
- (1) NT\$41.65 billion
 - (2) NT\$137.65 billion
 - (3) NT\$181.65 billion
 - (4) NT\$277.65 billion
23. Currently, around 130 countries worldwide are researching central bank digital currency (CBDC). Which of the following is not an advantage of digital currency?
- (1) Boosting a country's GDP
 - (2) Reducing illegal transactions and financial crimes
 - (3) Enhancing the stability and security of commercial banks
 - (4) Improving the effectiveness of monetary policy implementation
24. Current home loan interest rates include variable and fixed rates. Which of the following statements is incorrect?
- (1) Variable rates adjust with changes in the rediscount rate.
 - (2) If a borrower has stable income, a fixed rate is more suitable.
 - (3) Fixed rates are typically lower than variable rates at the time of loan approval.
 - (4) If a borrower expects future rates to decrease, a variable rate is more suitable.
25. The chart shows Taiwan's past decade trends in inflation rate, unemployment rate, rediscount rate, and overnight rate. Which of the following statements is correct?



- (1) Line A represents the overnight rate.
- (2) Line B represents the unemployment rate.
- (3) Line C represents the rediscount rate.
- (4) Line D represents the inflation rate.

26. Which of the following is not a basic assumption of the efficient market hypothesis?
- (1) Since the market is efficient, there is no deadweight loss.
 - (2) People are rational and independent, unaffected by others.
 - (3) Prices reflect a good's value, eliminating arbitrage opportunities.
 - (4) Markets have no asymmetric information, and events are transparent.
27. Kevin's pre-tax income for 2024 is NT\$1.5 million. Based on the following tax information, how much tax does Kevin need to pay?

Exemption per person: NT\$97,000 Standard deduction for single taxpayers: NT\$131,000 Special deduction for wage income: NT\$218,000	Net taxable income and tax rates: NT\$0–540,000: 5% NT\$540,001–1,210,000: 12% NT\$1,210,001–2,420,000: 20%
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- (1) NT\$85,180
 - (2) NT\$126,480
 - (3) NT\$152,300
 - (4) NT\$300,000
28. Pineapple offers a one-year warranty for its laptops, with customers having the option to purchase Pineapple Care for extended coverage. The Pineapple Care plan covers 80% of repair costs in the second and third years. Based on statistics, the repair cost of a laptop increases as follows: 10,000 in the first year (30% chance of failure), 15,000 in the second year (40% chance of failure), and 20,000 in the third year (50% chance of failure). What should the price of Pineapple Care be?
- (1) 7,324
 - (2) 9,978
 - (3) 12,472
 - (4) 12,800
29. Brian will start working in 2025 and plans to contribute a fixed amount annually to a retirement account. He plans to work for 40 years and withdraw 360,000 annually for 20 years starting from 2065. If the market interest rate is 5% and unemployment is not considered, how much must Brian contribute annually?
- (1) 56,060
 - (2) 151,140
 - (3) 171,430
 - (4) 180,000
30. Which of the following is most likely an income statement for the social media industry?

	Net revenue	Cost of revenue	Operating expense	Other expenses and taxes	Net profit
(1)	648,125	490,142	130,971	10,742	16,270
(2)	134,092	25,959	62,192	6,843	39,098
(3)	84,039	40,848	24,646	3,841	14,974
(4)	35,976	11,409	19,085	637	4,125

(all figures in million USD)

END OF QUESTIONS



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