※ 注意：請於試卷內之「非選擇題作答區」依序作答，並應註明作答之大題及小題題號。

1. Suppose that a person with $100,000 to invest believes that stocks will have a real return over the next year of 7 percent. He or she also believes that bonds will have a real return of 2 percent over the next year. This person believes (probably contrary to fact) that the real return on bonds is certain—an investment in bonds will definitely yield 2 percent. For stocks, however, he or she believes that there is a 50 percent chance that stocks will yield 16 percent, but also a 50 percent chance they will yield -2 percent. Hence stocks are viewed as being riskier than bonds.

   (a) Assume utility function $U(I) = -I^{-1}$. Calculate the certainty equivalent yield for stocks. What do you conclude about whether this person will invest $100,000 in stocks or bonds? (6%)

   (b) Assume utility function $U(I) = -I^{-10}$. Calculate the certainty equivalent yield for stocks. What do you conclude about whether this person will invest $100,000 in stocks or bonds? (6%)

2. Consider a two-period model with two firms, A and B. In the first period, they simultaneously choose one of two actions, Enter or Don't enter. Entry requires the expenditure of a fixed entry cost of 10. In the second period, whichever firms enter play a pricing game as follows. If no firm enters, the pricing game is trivial and profits are zero. If only one firm enters, it earns the monopoly profit of 30. If both firms enter, they engage in competition as in the Bertrand model with homogeneous products.
   (a) Using backward induction, fold the game back to the first period in which firms make their choice of Enter or Don't enter, Write down the normal form (a 2 by 2 matrix) for this game. (6%)
   (b) Solve for the mixed-strategy Nash equilibrium of this game. (6%)
   (c) Compare the results from the mixed-strategy Nash equilibrium to the Bertrand Paradox. (6%)

3. On the island of Pago-Pago, there are two lakes and 20 fishers. Each fisher gets to fish on either lake and gets to keep the average catch on that lake. On Lake X, the total number of fish caught is given by

$$F^X = 10L_X - \frac{1}{2}L_X^2$$

   Where L_x is the number of fishers on the lake. The amount an additional fisher will catch is MP_x=$10 - L_x$. For Lake Y, the relationship is

$$F^Y = 5L_Y$$

   (a) Under this organization of society, what will the total number of fish caught be? Explain the nature of the externality in this equilibrium. (6%)
   (b) The chief of Pago-Pago, having once read an economics book, believes that she can raise the total number of fish caught by restricting the number of fishers allowed on Lake X. What is the correct number of fishers on Lake X to allow in order to maximize the total catch of fish? What is the number of fish caught in this situation? (7%)
   (c) Being basically opposed to coercion, the chief decides to require a fishing license for Lake X. If the licensing procedure is to bring about the optimal allocation of labor, what should the cost of license be (in terms of fish)? (7%)

見背面

4. 中美貿易戰愈演愈烈。2018 年四月，美國川普為了減少美中貿易赤字，對部分中國進口產品施以 10%~25% 的關稅。同時，川普大幅減稅刺激經濟，特別是希望能吸引美企將生產從中國移回美國生產。然而，直到 2020 年底，美國對中國的貿易赤字攀升，而非減少。請用 IS-LM model 說明，為何美國沒減少對中逆差，反而加劇? (10%)除此之外，欲吸引美國企業將生產從中國移回美國生產的目標也未實現，請說明貿易保護政策長期而言對本國的消費和就業有何影響? (10%) 請從 economic identity 推導出，美國要減少美中貿易赤字的根本辦法，是提升儲蓄率(10%)。

5. 中國 2019 年的人均收入是 10000 美元，即將躍出中等收入陷阱，向 OECD 國家人均收入收斂。然而，中國在 1979 年的人均收入是 155 美元，只比二個非洲國家高，也比印度窮許多。如今，中國人均收入約是印度 3 倍。請用 Solow growth model 解釋中國這四十年來的經濟成長奇蹟(Hint:就 labor, capital, human capital, technology, openness 等五點分別說明。建議圖示。)(10%)。

6. 目前美國的 GDP 約是 21 兆美元，中國的 GDP 約是 15 兆美元。如果未來數年，美國的 GDP 平均成長率約 2%，中國的 GDP 平均成長率約 5%，而人民幣對美元不升值，約需幾年，中國將成為世界最大經濟體？(5%) 假設人民幣對美元每年平均升值 2%，約需幾年，中國將成為世界最大經濟體？(5%)

試題隨卷繳回