科目：經濟學　　系所：亞太工商管理學系(A 組)　　是否使用計算機：否
考試時間：100 分鐘　　本科原始成績：100 分

一、　單選題，每題 2 分，共 40 分

1. If a good is Giffen and its price increases,
   a. the income effect will be positive and the substitution effect will be positive.
   b. the income effect will be negative and the substitution effect will be negative.
   c. the income effect will be positive and the substitution effect will be negative.
   d. the income effect will be negative and the substitution effect will be positive.

2. If good *X* is a normal good and its price rises, then quantity demanded
   a. may or may not fall.
   b. will always fall.
   c. will always rise.
   d. will remain unchanged.

3. If the Prisoners' Dilemma is repeated over and over again with the same two players having an indefinite time horizon,
   a. the unique equilibrium is to play the Nash equilibrium of Rat each period.
   b. players can cooperate on Silent if they are not too patient.
   c. players can cooperate on Silent if they are patient enough.
   d. players can only cooperate on Silent in the initial stages of the game.

4. Two games that differ only in the timing of moves—one simultaneous, the other sequential move—can sometimes have completely different subgame-perfect equilibria. Why?
   a. The second mover can choose non-credible threats.
   b. The first mover can choose an action that it would deviate from if its action were secret.
   c. Subgame-perfect equilibrium cannot be applied to simultaneous games.
   d. The simultaneous version of the game has more proper subgames.

5. Two firms engage in Bertrand competition in differentiated products. After doing all the appropriate calculations, you find the best-response functions are $P_B = 2.5 + 0.15P_C$ and $P_C = 1.5 + 0.075P_B$. Without doing any further calculations, can you determine the relationship between their Nash equilibrium prices?
   a. Yes, $P_B > P_C$
   b. Yes, $P_C > P_B$
   c. Yes, $P_B = P_C$
   d. No; it cannot be determined.

6. If bargaining is costless, the assignment of property rights for an externality
   a. has no impact on the possibility of an efficient outcome and no distributional impact.
   b. has no impact on the possibility of an efficient outcome but does have a distributional impact.
   c. does have an impact on the possibility of an efficient outcome but has no distributional impact.
   d. does have an impact on the possibility of an efficient outcome and does have a distributional impact.

7. Externalities between two firms can be "internalized" if:
   I. The two firms merge.
   II. Bargaining costs are zero.
   III. The externalities affect each firm equally.
   IV. Marginal costs for both firms are constant.

   Which statements correctly completes the sentence?
   a. Only II
   b. All except III
   c. I and II, but not III and IV
   d. I and IV, but not II and III

8. Efficient production of a public good requires
   a. that individuals pay for such goods according to benefits received.
   b. that each individual's MRS be equal to the opportunity costs of public goods for private goods.
   c. that the sum of individuals' MRSs be equal to the opportunity cost of public goods for private goods.
   d. that governments produce at the low point of the average cost curve for the public good.

9. For a constant-returns-to-scale production function,
   a. marginal costs are constant but the average cost curve has a U-shape.
   b. both average and marginal costs are constant.
   c. marginal cost has a U-shape; average costs are constant.
   d. both average and marginal cost curves are U-shaped.

10. Suppose the production function for good q is given by $q = 3K + 2L$ where K and L are capital and labor inputs. Consider three statements about this function:
    I. The function exhibits constant returns to scale.
    II. The function exhibits diminishing marginal productivities to all inputs.
    III. The function has a constant rate of technical substitution.

Which of these statements is true?

a. All of them.

b. I and II but not III.

c. I and III but not II.

d. only I.

11. In the *IS*–*LM* model when the Federal Reserve decreases the money supply, the public _____ bonds, and the interest rate _____, leading to a(n) _____ in investment and income. This is called the monetary transmission mechanism.

a. buy; rises; increase.
b. sell; falls; decrease.
c. sell; rises; decrease.
d. buy; rises; decrease.

12. According to the Mundell–Fleming model for a small open economy with flexible exchange rates, if the Federal Reserve cannot alter domestic interest rates, changes in the money supply could still influence aggregate income through changes in the:

a. exchange rate.
b. price level.
c. level of government spending.
d. tax rates.

13. If the monetary base is denoted by B, rr is the ratio of reserves to deposits, and cr is the ratio of currency to deposits, then the money supply is equal to _____ multiplied by B.

a. $(rr + 1)/(rr + cr)$
b. $(cr + 1)/(cr + rr)$
c. $(rr + cr)/(rr + 1)$
d. $(rr + cr)/(cr + 1)$

14. The government raises lump-sum taxes on income by \$100 billion, and the neoclassical economy adjusts so that output does not change. If the marginal propensity to consume is 0.6, investment:

a. rises by \$100 billion.
b. rises by \$60 billion.
c. falls by \$60 billion.
d. falls by \$100 billion.

15. In the Solow growth model of an economy with population growth but no technological change, if population grows at rate n, total output in the steady state grows at rate _____, and output per worker grows at rate _____ in the steady state.
    a. n; n
    b. n; 0
    c. 0; 0
    d. 0; n
16. One of the main hypotheses of the real business cycle theory is that recessions are caused by:
    a. adverse technology shocks.
    b. lack of aggregate demand.
    c. decrease in government deficit.
    d. labor hoarding by firms.
17. If the production function is $Y = AK^{2/3}L^{1/3}$ in the land of Antegria, and the capital force increases by 6 percent while labor and TFP are constant, labor productivity, measured by Y / L, will:
    a. increase by 4 percent.
    b. increase by 1.33 percent.
    c. decrease by 4 percent.
    d. decrease by 1.33 percent.
18. In a 100-percent-reserve banking system, if a customer deposits $100 of currency into a bank, then the money supply:
    a. increases by $100.
    b. decreases by $100.
    c. increases by more than $100.
    d. remains the same.
19. In the long run, according to the quantity theory of money and classical macroeconomic theory, if velocity is constant, then _____ determines real gross domestic product (GDP) and _____ determines nominal GDP.
    a. the productive capability of the economy; the money supply
    b. the money supply; the productive capability of the economy
    c. velocity; the money supply
    d. the money supply; velocity
20. According to the quantity equation, if money is growing at a 10 percent rate and real output is growing at a 3 percent rate, but velocity is growing at increasingly faster rates over time as a result of financial innovation, the rate of inflation must be:
    a. increasing.

b. decreasing.
c. 7 percent.
d. constant.

二、 問答與計算，共 60 分

1. (15 分) In a homogeneous products duopoly, each firm has a marginal cost curve $MC = 10 + Q_i$, $i = 1, 2$. The market demand curve is $P = 50 - Q$, where $Q = Q1 + Q2$.

   a. (5 分) What are the Cournot equilibrium quantities and price in this market?

   b. (5 分) What would be the equilibrium price in this market if the two firms acted as a profit-maximizing cartel?

   c. (5 分) What would be the equilibrium price in this market if firms acted as price-taking firms?

2. (25 分) Two firms are competing in an oligopolistic industry. Firm 1, the larger of the two firms, is contemplating its capacity strategy, which could be either "aggressive" or "passive." The aggressive strategy involves a large increase in capacity aimed at increasing the firm's market share, while the passive strategy involves no change in the firm's capacity. Firm 2, the smaller competitor, is also pondering its capacity expansion strategy; it will also choose between an aggressive strategy and a passive strategy. The following table shows the profits associated with each pair of choices:

		Firm 2	
		Aggressive	Passive
Firm 1	Aggressive	25, 9	33, 10
	Passive	30, 13	36, 12

   a. (5 分) If both firms decide their strategies simultaneously, what is the Nash equilibrium of the normal form game?

   b. (5 分) If both firms decide their strategies sequentially and suppose firm one could move first and firm 2 move hereafter. What are the strategies of firm 1 and firm 2, respectively?

   c. (5 分) Following above question b, what is the pure Nash equilibrium of the normal form game?

   d. (5 分) Following above question b, what is the subgame perfect Nash equilibrium of the extensive form game?

e. (5 分) Compare your answer to questions C and D; how would you explain this difference?

3. (20 分) 考慮下列的 IS-LM-BP 模型，若此經濟為小型開放經濟體且採取浮動匯率制度，假設目前的名目匯率 E=1/2，且資本在國際間可以完全自由移動，以致於利率與世界利率水準相同。該經濟體的相關行為函數如下：

$$\left.\begin{aligned} &C = 200 + 0.85\cdot(\text{Y-T})\text{-8r},\\ &\text{I=1700-32}\cdot\text{r},\\ &\text{G=1800},\\ &\text{T=200+0.2Y},\\ &\text{NX=870-0.08Y-200}\cdot\text{(1/E)}. \end{aligned}\right\}\text{IS curve}$$

$$\left.\begin{aligned} &(\text{M}/\text{P})^{\text{d}} = 0.25\text{Y} - 25\cdot\text{r},\\ &(\text{M}/\text{P})^{\text{s}} = 2250. \end{aligned}\right\}\text{LM curve}$$

其中，C 為民間消費、Y 為產出、I 為投資、T 為稅收、r 為利率、G 為政府消費、NX 為淨出口、E 為名目匯率、M 為貨幣數量、P 為物價。請回答下列問題：

a. (5 分)當 E=1/2 時，請導出 IS 曲線。
b. (5 分)當 E=1/2 時，請導出 LM 曲線。
c. (5 分)假設該經濟體的執政當局決定推行多項大型公共建設，希望提高政府支出到 G=2200，請問這將會造成國際收支赤字或盈餘？而在匯率尚未調整前，此財政政策下的國內均衡利率及產出各等於多少？
d. (5 分)接續 c 小題，當匯率自由調整後，使經濟體系達至新的全面均衡狀態，請問在此狀態下的利率、產出與匯率各為多少？