Please note that you can answer the questions either in English or in Chinese.

A. Multiple Choices 單選題 (32 pts)

1. Which of the following statement is false about price elasticity in both the short run and long run?

   (a) The demand for non-durables is much more price elastic in the long run.

   (b) For durable goods, demand is more elastic in the short run.

   (c) More substitutes are usually available in the long run.

   (d) Point elasticity varies along the demand curve.

   (e) For durable goods, income elasticity is larger in the long run than in the short run.

2. Suppose the demand curve for x is given by $Q_x^D = 10 - 2p_x + P_y$, where p_x is the price of x and p_y is the price of a related good y. Which of the following is true?

   (a) Suppose $p_x = 1$, $p_y = 2$, the price elasticity of demand is -0.2.

   (b) x is a normal good.

   (c) Suppose $p_x = 1$, $p_y = 2$, the cross-price elasticity of demand is 0.1.

   (d) y is a compliment good for x

   (e) y has a positive sloped Engel curve.

3. Which is not true for an optimal choice (x^*, y^*) of a consumer equilibrium?

   (a) (x^*, y^*) are demand functions and both are functions of p_x, p_y and income I.

   (b) The MRS diminishes as an individual moves downward along the demand curve.

   (c) The level of utility increases as an individual moves downward along the demand curve.

   (d) A Corner solution is not optimal since $MRS \neq px/py$.

   (e) The marginal utility per dollar of expenditure is the same for each good.

4. Consider the following information about the choices that Jack makes. Which of the following is not true?

	x	y	p_x	p_y	I
Week 1	10	20	2	1	40
Week 2	6	14	2	2	40
Week 3	20	10	2	2	60

   (a) x and y are both normal goods.

   (b) x and y are complement for Jack.

   (c) Jack's utility decreases between week 1 and week 2.

   (d) Jack's utility increases between week 2 and week 3.

   (e) Jack's utility increases between week 1 and week 3.

5. Which of the following is not true for a monopoly market?

   (a) If $MC = 0$, the firm will produce at the point where the elasticity of demand is exactly -1.

   (b) With monopoly power, the monopolist can produce as many as it wants to make profit than that from a competitive market.

   (c) The monopoly usually set the price as a markup on its marginal cost and thus higher than its cost.

   (d) A monopolist can charge any price it wants.

   (e) The optimal rule to maximize profit via the $MR = MC$ for a monopoly firm is the same as in Competitive market.

6. Which is false about the cost functions in the short run and long run?

   (a) The U-shaped LAC curve is due to economy/diseconomy of scale when changing scale.

(b) MC crosses the AVC and AC curves at their minimum points in the short run.

(c) The law of diminishing marginal returns implies that marginal cost increases as output increases.

(d) Long run fixed cost curve is also decreasing.

(e) LMC intersects at the minimum of LAC in the long run.

7. Which of the following is not true?

(a) A firm may incurs a loss in the short run due to $P < AC$ in a perfectly competitive market.

(b) Producer surplus and profit are the same thing in the long run for a firm in a competitive market.

(c) The Long-Run supply curve for a competitive market is the LMC above the minimum point of LAC.

(d) A firm that makes economic profit must also make accounting profit.

(e) Sunk costs are costs that have been incurred and cannot be recovered.

8. Suppose that John's utility function is given by $U(I) = \sqrt{10 \cdot I}$, where I is annual income in thousands of dollars. John earns an income I of 40 thousand with certainty year after year. Suppose he is offered a chance to take a new job that offers a 0.6 probability of earning $I = 44$, and a 0.4 probability of earning $I = 33$. Which of the following statement is not true?

(a) John is risk averse.

(b) The utility of his current salary is 20.

(c) The expected utility of the new job is 19.85, thus he should not take the job.

(d) John is willing to pay a risk premium to protect himself against the variable income associated with the new job.

(e) None of the above is true.

B. Synthesized Problems (18 pts)

1. Suppose an monopolistic firm with total cost function $TC(Q) = Q^2 + 50$ is facing the demand curve $P = 40 - Q$. Answer the following questions.

   (a) Find the profit maximizing output Q^*, price P and profit.(3 pts)

   (b) What would the equilibrium price and quantity be in a competitive market? Compute the deadweight loss due to monopoly.(5 pts)

2. Consider the following extensive-form game of production strategies between two cereal companies. (a) Find out the Nash Equilibrium for this game and explain why the concept of Nash Equilibrium fails to predict the outcome of this game.(5 pts) (b) What is the subgame perfect equilibrium of this game? (5 pts)
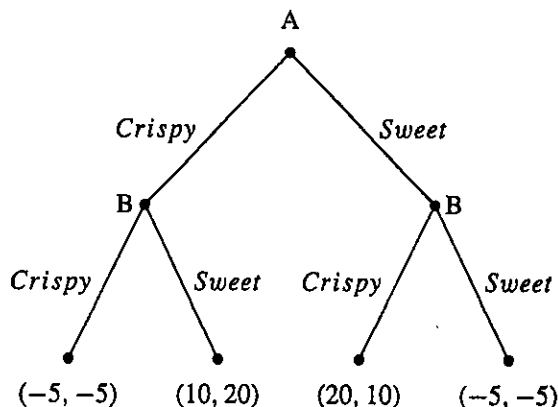
C. 問答題 (請依題序作答，未列算式、推理過程或適當說明者，不予計分)

1. 根據 Solow 成長模型，當某國的儲蓄率增加時，在其他情況不變之下，其實質 GDP 的成長率會增加或減少？請先說明 Solow 成長模型的主要內容，再解釋你的答案。(10%)

2. 根據恆常所得假說 (permanent income hypothesis)，請解釋「國民年金」制度的施行，會對於台灣的消費支出造成什麼影響？請先簡短地說明恆常所得假說，再解釋消費支出是否會有所變化。(為簡化分析，你可以假設其他條件不變。)(10%)

3. 貨幣供給成長率為 μ，物價膨脹率為 π。假設實質貨幣需求函數可表示為：

$$\frac{M^d}{P} = L(Y, R) = Y \cdot \psi(R)$$

其中 R 為名目利率，Y 為實質 GDP。

a) 實質 GDP 的成長率如果增加，則 μ 與 π 之間的關係會發生如何的變化？請解釋理由。(10%)

b) 如果名目利率 R 上升，則 μ 與 π 之間的關係會發生怎樣的變化？請解釋原因。(10%)

4. 假設 E 為新台幣兌美元的匯率 (新台幣/美元，亦即 1 美元可兌換的新台幣數額)，P^T 為台灣物價，P^U 為美國物價：

a) 請解釋購買力平價 (purchasing power parity, PPP)。(5%)

b) 如果購買力平價成立，在台灣物價膨脹率為 6%，美國物價膨脹率為 9% 時，E 的變動率 $(\Delta E / E)$ 是多少？請說明理由。(5%)