

一、單選題 (一題 5 分，共 40 分)

1. The marginal cost curve intersects
 - (a) the total cost curve at its minimum.
 - (b) the average variable cost curve at its minimum.
 - (c) the average fixed cost curve at its minimum.
 - (d) the average total cost curve at its maximum.
2. Which of the following statements is true?
 - (a) When the marginal product increases, the marginal cost decreases.
 - (b) The marginal product of an input increases as more and more inputs are used.
 - (c) When the marginal cost curve lies above the average total cost curve, the average total cost curve slopes downward.
 - (d) When the marginal cost curve lies under the average variable cost curve, the average variable cost curve slopes upward.
3. Which of the following statements is true about a profit-maximizing firm in a perfectly competitive market?
 - (a) A firm should shutdown when seeing a loss in the short run whatever the fixed cost is.
 - (b) A firm should shutdown when price is less than minimum average total cost in the short run.
 - (c) A firm should leave the industry when price is less than the minimum average total cost in the long run.
 - (d) A firm could earn positive economic profits in a long run competitive equilibrium.
4. Which of the following statements about the perfectly competitive market is true?
 - (a) The government must take action to affect price to make the invisible hand work.
 - (b) The price can efficiently allocate the production of goods within an industry.
 - (c) Entry and exit of firms is a sign that the price mechanism is not working well.
 - (d) We could make a starving person better off without making someone else worse off in a perfectly competitive market.
5. Which of the following statements about trades between countries is true?
 - (a) For a importing nation, winners in the trade are sellers.
 - (b) For a exporting nation, losers in the trade are sellers.
 - (c) Imposing tariffs would raise the government's revenue and increase social surplus.
 - (d) Deadweight loss could be avoided by lifting tariffs.

6. The production of industrial goods in a plant emits harmful gases that cause breathing difficulty. Which of the following will happen if the government imposes a Pigouvian tax on the plant?
- (a) Marginal private cost will fall.
 - (b) Marginal external cost will increase.
 - (c) The demand for the good will increase.
 - (d) The quantity supplied of the good will decrease.
7. Which of the followings is not true about the Coase Theorem?
- (a) Negotiations lead to the socially efficient outcome regardless of who has the legal property right.
 - (b) Government intervention is not necessary to solve externality problems.
 - (c) The initial property right doesn't affect the distribution of surplus.
 - (d) If the transaction costs associated with negotiating are too high, bargaining might not lead to the efficient outcome.
8. Which of the following statements is true about public goods and common pool resource goods?
- (a) When constructing market demand curve for public goods, individual demand curves should be summed horizontally.
 - (b) Common pool resource goods are excludable but non-rival.
 - (c) Privatization of the common pool resource goods may give the owner incentives to regulate and solve the overuse problem.
 - (d) Public goods can only be provided by governments.

二、計算說明題

1. (25%) 假設冰淇淋市場為完全競爭市場，已知個別店家生產冰淇淋的總成本函數為 $200 + 2q^2$ 。
- (a) (5%) 請計算個別廠商的供給函數。
 - (b) (3%) 假設市場上有 200 家完全相同的廠商，請問市場短期總供給函數為何？
 - (c) (7%) 若市場總需求為 $Q_D = 3600 - 10P$ ，請計算短期均衡價格、數量與個別廠商的產量與利潤。
 - (d) (10%) 請計算長期的均衡價格與數量，並計算長期冰淇淋廠商數目。
2. (15%) 假設荒島上只有 A 和 B 兩個人，且都只能在海邊捕魚或摘果維生。A 一週最多可以捕 50 條魚或摘 25 顆果子，B 一週最多可以捕 40 條魚或摘 10 顆果子，整理如下表所示。

	魚	果子
A	50	25
B	40	10

- (a) (5%) 請求算 A、B 分別捕魚或摘果的機會成本，並列表回答。(請注意機會成本的單位)
- (b) (5%) 請問 A、B 各自在生產何種商品上具有絕對利益、比較利益？
- (c) (5%) 若 A、B 兩人進行交易，則 B 最多願意接受用多少條魚換一顆果子，又 A 最少需要 B 用多少條魚來換一顆果子，才願意接受交易？
3. (10%) 有條高速公路的行車時間如下：若行駛車輛數目少於 80 台，每輛車通過這條高速公路抵達終點的時間為 60 分鐘，然而若車輛數目大於 80 台將導致塞車，塞車時每輛車經由這條高速公路抵達終點所需的時間和車輛數目的關係可以用以下式子

$$t = 60 + (x - 80), x > 80$$

來表示， t 是經由這條高速公路抵達終點所需的時間， x 是車輛數目並應為整數。

- (a) (5%) 請求算第 85 輛車開上這條高速公路的邊際外部成本 (marginal external cost) 和社會邊際成本 (marginal social cost)。
- (b) (5%) 若不行駛這條高速公路，車輛可以改走平面道路抵達同一終點，走平面道路所需的時間為 161 分鐘，若目標是要讓總行車時間最小，請問應該只讓多少輛車上高速公路？
4. (10%) 請評論以下兩敘述。
- (a) (5%) 多數擁護大學學費補貼的支持者主張「由於高等教育具有正向外部性，政府應高度補貼公立大學全部學生的學費」，請根據老師上課時對教育外部性的討論，評述補貼擁護者的主張。
- (b) (5%) 請分別說明課堂中提到的兩種政府介入處理外部性的方式：**command-and-control policies** 和 **market-based policies**，並重點說明為何後者能提供外部性製造者更大的誘因尋找更有效率的外部性處理方式。