

4.5 Oligopoly and Game Theory

Name: _____ Class: _____ Date: _____

Total: 10 marks

KEY WORDS payoff matrix 收益矩阵 • dominant strategy 占优策略 • nash equilibrium 纳什均衡
• oligopoly 寡头垄断 • prisoner's dilemma 囚徒困境

Objective

Build the skills to answer exam questions on **oligopoly and game theory**.

You must be able to:

- describe an **oligopoly** 寡头垄断 with few firms and **mutual interdependence** 相互依存
- explain how **collusion** 合谋 and a **cartel** 卡特尔 raise prices
- use a **payoff matrix** 收益矩阵 and identify a **dominant strategy** 占优策略 and a **Nash equilibrium** 纳什均衡
- explain the **prisoner's dilemma** 囚徒困境

1 Worked examples

Study these first. Each one shows the method for a question type used later.

■ Oligopoly

A **few** large firms that are **mutually interdependent** — each firm's best choice depends on what rivals do.

■ Collusion

If firms **collude** to form a **cartel**, they can restrict output and raise prices toward the **monopoly** outcome.

■ Game theory

A **dominant strategy** is best whatever the rival does. A **Nash equilibrium** is an outcome from which neither firm wants to deviate. In a **prisoner's dilemma**, both would gain by cooperating, but each has an incentive to defect — so cooperation often fails.

2 Practice

2.1 State two features of an oligopoly. [2]

2.2 Define a dominant strategy. [1]

2.3 State why firms in a prisoner's dilemma may fail to cooperate. [2]

3 Exam-style questions

3.1 An oligopoly has [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** one firm
 - B** a few interdependent firms
 - C** very many firms
 - D** no firms

3.2 A successful cartel raises prices toward the [1]

- | | |
|---|---|
| A | B |
| C | D |
- A** competitive outcome
 - B** monopoly outcome
 - C** zero-price outcome
 - D** marginal-cost outcome

3.3 Two firms each choose “high price” or “low price”. Each earns more by cutting its price whatever the other does.

(a) Name each firm’s strategy. [1]

(b) Name the likely outcome (both charge a low price). [1]

(c) Name this type of game. [1]