4 Oligopoly and game theory – Part 2

Name: ______________ Class: __________ Date: ____________

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
oligopoly	寡头垄断			
game theory	博弈论			
dominant strategy	优势策略			
Nash equilibrium	纳什均衡			

Recall

In Part A you met monopoly. Now markets with just a **few** big firms:

- Cars, phones, and airlines are sold by a handful of large companies.
- Each firm watches what its rivals do before deciding.

Each idea has a worked example before the Practice.

New ideas

1 Oligopoly

An **oligopoly** 寡头垄断 is a market with a **few** large firms that are **interdependent** –each firm's best move depends on what its rivals do.

2 Game theory

Because firms react to each other, economists use **game theory** 博弈论. A **payoff matrix** shows each firm's profit for every combination of choices.

3 Dominant strategy and Nash equilibrium

- A **dominant strategy** 优势策略 is a firm's best choice **whatever** the rival does.
- A **Nash equilibrium** 纳什均衡 is an outcome where no firm can do better by

changing its choice alone.

Worked example. Two firms each pick High or Low price. Profits (A, B): both High $\rightarrow (10, 10)$; A Low, B High $\rightarrow (14, 4)$; both Low $\rightarrow (6, 6)$. For A, Low beats High whatever B does, so **Low is dominant** –and by symmetry for B. The Nash equilibrium is both Low $(6, 6)$, worse for both than cooperating.

■ 4 Why cooperation is hard

Firms would both gain by cooperating (acting like a monopoly), but each has an incentive to cheat –so they often end up at the worse outcome. This is the prisoners' dilemma.

Watch out: the Nash equilibrium can be **worse for everyone** than cooperating – yet each firm still ends up there, because each is following its own best move given the other's.

Practice

Try these in order. The methods are all above.

2.1 State what an oligopoly is. [2]

2.2 State what a "dominant strategy" is. [2]

2.3 State what a Nash equilibrium is. [2]

2.4 For the example (both Low = $(6, 6)$, cooperating = $(10, 10)$), state which outcome the firms reach and why it is worse for them. [2]

2.5 Explain why firms in an oligopoly find it hard to cooperate. [2]