



**The correct answer to each question is highlighted in yellow. *An explanation is offered in italics below each question.***

### **INDUSTRY ATTRACTIVENESS**

#### **Question 1**

After a busy second semester at HBS, you start a summer internship at a strategy consulting firm. During the first lunch with your colleagues, you hear conversations regarding ongoing projects. Your attention is drawn to a few statements you hear, each related to a different project and industry. Please indicate whether you agree or disagree with the reasoning in each statement.

1. “This industry has high barriers to entry, minimal competition, powerless buyers, and no substitutes, so the average firm in this industry must be very profitable.”
  - A. I agree
  - B. **I disagree**

*The correct answer is B.*

*The statement concerns only four of the five + one competitive forces, and even a single unattractive force can drive the profits out of an industry. The industry might have powerful suppliers who appropriate the bulk of the profits.*

*Consider, for instance, the soft drink bottling industry. Rivalry among bottlers is limited by territorial exclusivity; retail customers have little choice but to buy from their Coke and Pepsi bottlers; entry into the bottling business is difficult because existing bottlers have locked up contracts with the leading concentrate makers; and few substitutes for bottling exist. Nonetheless, powerful suppliers—the concentrate makers Coke and Pepsi—have extracted most of the profits from the soft drink bottling industry, and industry profitability is modest.*

2. “I am starting a new project in an intensely competitive industry with low barriers to entry, powerful customers and suppliers, ample substitutes, and no complements. Clearly, there will be no highly profitable companies in this industry.”
  - A. I agree
  - B. **I disagree**

*The correct answer is B.*

*When all five + one competitive forces are unfavorable, the industry structure is challenging and average profitability is low. However, an individual firm may still position itself so as to be very profitable. For example, consider post-1993 Ryanair in the airline industry.*

## **Question 2**

Consider the following events that might occur in the personal computer (PC) industry. Please indicate whether you believe that each event will raise the bargaining power of customers in the PC industry.

1. Smartphones (such as the iPhone) become more able to perform the functions of a personal computer.
  - A. **This will increase the bargaining power of customers.**
  - B. This will not increase the bargaining power of customers.
2. Lenovo and Hewlett-Packard, the two largest makers of PCs, merge.
  - A. This will increase the bargaining power of customers.
  - B. **This will not increase the bargaining power of customers.**
3. Corporate customers increasingly want the various PCs in an office to be compatible with one another and, ideally, to come from the same vendor.
  - A. This will increase the bargaining power of customers.
  - B. **This will not increase the bargaining power of customers.**

*Part 1: The correct answer is A. The rise of smartphones gives customers access to better substitutes, thereby increasing their bargaining power.*

*Part 2: The correct answer is B. The merger gives customers fewer PC makers to choose among and therefore reduces their bargaining power.*

*Part 3: The correct answer is B. The desire for compatibility binds each corporate customer to one specific PC maker, increasing the costs each customer must incur to switch between PC makers. This reduces customer bargaining power. (You might initially think that as each corporate customer concentrates its purchases with one PC maker, the customer becomes more powerful with respect to PC makers. Indeed, it is true that larger-volume customers tend to be more powerful. But in the event described here, the total volume purchased by each customer (and the associated clout enjoyed by the customer) does not increase. All that changes is that each customer gets locked into one PC maker.)*

### Question 3

Consider the toy retailing industry in the United Kingdom. In the table below, match up each event in the left column with the main effect of the event on industry structural attractiveness in the right column. Each event should be matched only to the most prominent *single* effect. (*For this question, it is possible that an effect is associated with multiple events.*)

Event	Structural Effect
a. Discount retailers that have sold toys for many years decide to devote more of their floor space to toys and less to other categories of goods.	1. The bargaining power of suppliers decreases.
b. In the past, a leading retailer had told each toy maker that it would purchase goods only if identical goods were not sold to other retailers. But now government authorities ban this practice.	2. The rivalry among existing competitors increases.
c. Real estate developers construct new retail space faster than total retail demand grows.	3. The threat of new entry declines.
d. Hewlett Packard begins to make videogame consoles, a major category sold by toy retailers. In doing so, it joins Sony, Nintendo, and Microsoft, among others, as console providers.	4. The threat of substitutes increases.

Which is the correct match?

- A. a-4, b-2, c-3, d-1
- B. a-2, b-2, c-1, d-1
- C. a-2, b-1, c-1, d-3
- D. a-4, b-1, c-3, d-2

*The correct answer is B.*

*Event a increases the floor space that existing rivals in toy retailing devote to toys. Essentially, the event is an increase in industry capacity. This boosts the rivalry among existing competitors.*

*Event b bans a mechanism that had kept retailers from offering identical goods. With identical goods on their shelves, existing rivals are more likely to compete fiercely on the basis of price. Hence rivalry becomes more intense.*

*Event c generates excess supply of a key input for toy retailers—retail floor space. This gives the retailers greater bargaining power over a key supplier, real estate developers.*

*Event d makes it easier for toy retailers to play the suppliers of videogame consoles off against one another. This weakens the bargaining power of the suppliers.*

#### Question 4

Country A and Country B each has a dairy industry. Each industry produces milk and cheese, and there is no dairy trade between the two countries. The industries in the two countries are similar except in a few ways listed below. Please examine each difference and indicate whether that difference alone leads rivalry in the dairy industry to be more intense in Country A than in Country B or more intense in Country B than in Country A.

1. Dairy consumers in Country A are highly similar to one another. Dairy consumers in Country B have diverse tastes; for instance, there exist different segments of consumers who like different kinds of cheeses.
  - A. This leads rivalry to be more intense in Country A than in Country B
  - B. This leads rivalry to be more intense in Country B than in Country A

*The correct answer is A.*

*In Country B, where tastes are more diverse, price cuts and similar competitive moves are less effective as a means of stealing sales from the competition. For example, a consumer who prefers a particular type of cheese is less likely to switch to a different type because of a small difference in price. As a result, rivalry is less intense in Country B.*

2. Though the dairy industries in Country A and Country B are similar in size, the industry growth rate is higher in Country A than in Country B.
  - A. This leads rivalry to be more intense in Country A than in Country B
  - B. This leads rivalry to be more intense in Country B than in Country A

*The correct answer is B.*

*In Country B, where the growth rate of the industry is relatively low, producers that want to grow are more likely to have to steal sales from competitors. This intensifies rivalry in Country B.*

3. A series of storms recently forced a large number of dairy farms in Country B to shut down, and it will take years to rebuild them. As a result, there are far more dairy producers in Country A than in Country B.
  - A. This leads rivalry to be more intense in Country A than in Country B
  - B. This leads rivalry to be more intense in Country B than in Country A

*The correct answer is A.*

*Rivalry is less intense where there are fewer, larger firms, as in Country B, than where there are many, smaller firms, as in Country A. Where there are relatively few firms and each has a large market share, each firm's desire to steal sales from the competition by means of a price cut is tempered by the impact of the price cut on the firm's existing sales. (Recall, for instance, how expensive it was for British Airways or Aer Lingus to make aggressive price reductions.) In addition, it is easier for firms to read each other's signals and to discipline one another when there are fewer firms in an industry.*

### Question 5

Your company operates a chain of movie theaters. Each theater has capacity for 500 tickets per day. The ticket price is \$10.

Costs are as follows:

- Unavoidable fixed costs: \$10,000 per week for rent, equipment, and insurance (must be paid regardless of opening).
- Per ticket costs, paid only when you sell a ticket (can be incurred on any day).
  - Film licensing: \$3 per ticket.
  - Staffing & concession costs per ticket:
    - Monday – Thursday: \$4 per ticket
    - Friday – Sunday: \$5 per ticket
- Operating overhead (utilities, minimum crew), incurred only if you open that day: \$800 per day.

Demand estimates are as follows:

- Monday – Thursday: 150 tickets/day (below capacity)
- Friday – Sunday: 500 tickets/day (full capacity)

If you decide to operate on any given day, assume you will sell tickets equal to the demand estimates for that day. Furthermore, assume there are no other costs, including shutdown costs. On which days should you operate to maximize profit?

- A. Monday through Thursday only
- B. All seven days
- C. None (shut down)
- D. Friday through Sunday only

*The correct answer is D.*

*When deciding on which days to operate, ignore rent, equipment, and insurance costs because they have to be paid regardless of opening; they are sunk costs because they cannot be avoided (or recovered) by shutting down operations.*

*Operate if: Price  $\geq$  ANSC – shutdown costs*

*With no shutdown costs, operate if: Price  $\geq$  ANSC or Total Revenue  $\geq$  Total NSC*

*Friday to Sunday: Total Revenue  $>$  NSC. Total revenue per day is \$10 per ticket  $\times$  500 tickets = \$5,000. Non-sunk costs per day include film licensing costs of \$3  $\times$  500 = \$1,500; staffing and concession costs of \$5  $\times$  500 = \$2,500; and operating overhead of \$800—for a total of \$4,800. \$5,000  $>$  \$4,800, so you open on Friday to Sunday and earn a contribution of \$200 per day.*

*Monday to Thursday: Total Revenue  $<$  NSC. Total revenue per day is \$10 per ticket  $\times$  150 tickets = \$1,500. Non-sunk costs per day include film licensing costs of \$3  $\times$  150 = \$450; staffing and concession costs of \$4  $\times$  150 = \$600; and operating overhead of \$800—for a total of \$1,850. \$1,500  $<$  \$1,850, so you close Monday to Thursday. By closing, you avoid a negative contribution of \$350 per day.*

*Thus, to maximize profit given demand and avoidable costs, open Friday to Sunday.*

## Question 6

Consider the global smartphone industry. Match each event with the structural effect. Each event should be matched only to the most prominent single effect. (*For this question, each effect is associated with only one event.*)

### Event

- a. A few semiconductor firms (e.g., TSMC, Qualcomm) gain even greater control over advanced chip production, forcing phone makers to accept higher prices and stricter supply terms.
- b. The rapid spread of 5G technology increases fixed costs and intellectual property required to design niche smartphones for specialized markets.
- c. Consumers increasingly rely on desktop streaming apps and wearables for entertainment and communication, reducing time spent on phones.
- d. Large retail chains and wireless carriers consolidate, controlling a bigger share of distribution.

### Structural Effect

- 1. The bargaining power of customers increases.
- 2. The bargaining power of suppliers increases.
- 3. The threat of substitutes increases.
- 4. The threat of new entry decreases.

Which is the correct match?

- A. a-2; b-4; c-3; d-1
- B. a-3; b-2; c-1; d-4
- C. a-4; b-3; c-2; d-1
- D. a-1; b-2; c-4; d-3

*The correct answer is A.*

*Event a matches with effect 2: semiconductor suppliers tighten control, increasing supplier power.*

*Event b matches with effect 4: 5G raises the cost of smartphone production, making it harder for new players to enter, decreasing threat of entry.*

*Event c matches with effect 3: wearables and desktop apps substitute for smartphones, raising threat of substitutes.*

*Event d matches with effect 1: Distribution consolidation increases customer (buyer) power.*

## COMPETITIVE ADVANTAGE

### Question 7

Two companies, Blue Bottle Coffee and Dunkin', compete in providing coffee to different customer segments. The table below summarizes each segment's willingness to pay (WTP) for a cup of coffee from each company, as well as each company's cost per cup.

	Segment 1 Urban Professionals	Segment 2 College Students	Segment 3 Commuters
<b>Blue Bottle:</b>			
WTP generated	\$6.50	\$5.00	\$4.25
Cost incurred	\$3.50	\$3.00	\$3.25
<b>Dunkin':</b>			
WTP generated	\$3.75	\$4.50	\$3.75
Cost incurred	\$2.25	\$2.00	\$2.00

Which of the following statements is true?

- A. Blue Bottle has a competitive advantage in all three segments.
- B. Dunkin' has a competitive advantage in all three segments.
- C. Blue Bottle has a competitive advantage in Segment 1, while Dunkin' has a competitive advantage in Segments 2 and 3.
- D. Dunkin' has a competitive advantage in Segment 1, while Blue Bottle has a competitive advantage in Segments 2 and 3.

The correct answer is C.

A company attains a competitive advantage when it manages to drive a wider wedge between the willingness to pay it generates and the costs it incurs than competitors achieve. As shown below, Blue Bottle achieves a wider difference between its WTP and costs than Dunkin' does for customer segment 1 (\$3.00 versus \$1.50), while Dunkin' has an advantage over Blue Bottle in serving customer segment 2 (\$2.50 versus \$2.00) and customer segment 3 (\$1.75 versus \$1.00)

	Segment 1 Urban Professionals	Segment 2 College Students	Segment 3 Commuters
<b>Blue Bottle:</b>			
WTP generated	\$6.50	\$5.00	\$4.25
Cost incurred	\$3.50	\$3.00	\$3.25
	} \$3.00	} \$2.00	} \$1.00
<b>Dunkin':</b>			
WTP generated	\$3.75	\$4.50	\$3.75
Cost incurred	\$2.25	\$2.00	\$2.00
	} \$1.50	} \$2.50	} \$1.75

## Question 8

TaskFlow Inc. sells workflow automation software to mid-sized law firms. Its pitch is the following: automating routine tasks saves paralegal labor and reduces costly compliance errors.

Here's the baseline situation for a typical customer (without TaskFlow):

- Annual paralegal labor costs = \$200,000
- Annual compliance error costs (includes penalties, redoing work) = \$40,000

TaskFlow Autotask system (the current offer to customers):

- Cuts paralegal labor costs by 15%
- Cuts compliance error costs by 25%
- TaskFlow charges customers \$35,000 per year
- TaskFlow's internal cost to deliver and support service is \$30,000 per year

TaskFlow is considering three alternatives to its Autotask system:

1. Basic version (no compliance module):
  - Compared to Autotask system, paralegal labor costs savings remain unchanged
  - Compared to Autotask system, compliance cost savings drop to 10%
  - Compared to Autotask system, TaskFlow's internal cost to deliver and support service falls by \$5,000
2. Premium version (AI powered contract review):
  - Compared to Autotask system, paralegal labor cost savings rise to 20%
  - Compared to Autotask system, compliance cost savings rise to 50%
  - Compared to Autotask system, TaskFlow's internal cost to deliver and support service increases by \$15,000
3. Price discount:
  - Compared to Autotask system, paralegal labor and compliance costs savings remain unchanged
  - Compared to Autotask system, price charged to customers decreases by 10%

Based on the facts above, which statement is correct?

- A. The *Basic* version is a successful low-cost alternative to the Autotask system, lowering cost and increasing the wedge between WTP and cost.
- B. The *Premium* version is a successful differentiation alternative to the Autotask system, pushing WTP up and increasing the wedge between WTP and cost.
- C. The *Price discount* is a successful low-cost alternative to the Autotask system since customers get a better deal while increasing the wedge between WTP and cost.
- D. None of the three moves increases the wedge between WTP and cost.

*The correct answer is B.*

*With statement B, the Premium option increases WTP from \$40,000 (under the Current Offer) to \$60,000 under the Premium option. While the cost to deliver the Premium option increases to*



*\$45,000 (from \$30,000 under the Current Offer), the wedge between WTP and Cost increases from \$10,000 under the Current Offer to \$15,000 under the Premium option.*

*With statement A, the cost to deliver the Basic option decreases to \$25,000 (from \$30,000 under the Current Offer), but the wedge between WTP and Cost decreases from \$10,000 under the Current Offer to \$9,000 under the Basic option.*

*With statement C, customers do get a better deal with the 10% price discount, but the price discount does not affect the wedge between WTP and Cost; the wedge of \$10,000 remains the same under the Current Offer or with the price discount.*

## STRATEGIC INTERACTION

### Question 9

A company that has historically dominated its market faces an entrant for the first time. The company prides itself on its rationality and its commitment to maximizing shareholder value. Which of the following factors makes it more likely that the company will respond to the entrant with aggressive price reductions?

- A. The incumbent company must change prices in all parts of the market in unison (i.e., it cannot drop prices in some parts of the market without dropping prices elsewhere).
- B. The incumbent company has made large, unrecoverable, industry-specific investments in plant, property, and equipment in the past.
- C. The incumbent company believes it would be difficult to raise prices after a period of low prices.
- D. The entrant has displayed a pattern of rapid expansion in the other markets it has entered in the past.

*The correct answer is D.*

*A. No. This makes it very expensive to respond with aggressive price reductions. The incumbent must incur a reduction in profits on every existing customer in order to save the (presumably fewer) customers it would lose to the entrant.*

*B. No. These are sunk costs and should not bear on the decision.*

*C. No. This increases the cost of responding with aggressive price reductions, as the period of low prices will extend well beyond the time the entrant leaves the market.*

*D. Yes. If the entrant has a pattern of expanding, it is more likely that the profit reduction it will eventually cause exceeds the costs of responding aggressively to repel or contain the entrant. It is better to deal with the new entrant sooner, when the damage is more contained.*

### Question 10

When large firms compete with smaller firms, the larger firms can gain competitive advantage over the smaller competitors by:

- A. increasing their own fixed costs, regardless of whether the small firms must imitate the move.
- B. taking any type of action that imposes equal additional fixed costs on itself and each competitor.
- C. increasing their own marginal (or variable) costs of producing the product in ways that are easily imitated by the smaller competitors.
- D. decreasing their own marginal (or variable) costs of producing the product in ways that are easily imitated by the smaller competitors.

*The correct answer is B.*

*Increasing fixed costs only provides additional competitive advantage to large firms if the small firms must imitate the move since small firms are spreading the additional fixed costs over fewer units, resulting in a higher increase in average costs. So A is false, and B is true.*

*Considering statement C: If the increase in marginal (or variable) cost contemplated here causes a more-than-offsetting increase in willingness to pay, then small players can match the increase in marginal (or variable) costs and enjoy the same increase in willingness to pay. This results in no change in competitive advantage. If the increase in marginal (or variable) cost contemplated here causes a less-than-offsetting increase in willingness to pay, then small players can forego the move and increase their relative wedge between willingness to pay and cost. Hence, C is false.*

*D is false for the same reason: Any cost advantage that the large players might seek can be easily imitated and therefore will not be sustained.*

### Question 11

A small hotel and a large hotel provide accommodation for casino visitors. There is no other reason for people to stay at these hotels, and there are no other hotels near the casino. Each hotel can charge one of just two room rates: \$120 per night or \$140 per night. Each hotel charges the same price to all of its customers.

The following table gives nightly profits for each hotel. For example, if the small hotel charges \$140 per room per night and the large hotel charges \$120, the large hotel will earn a profit of \$3,000 per night in total and the small hotel will lose \$1,500 per night. Assume that the two hotels make their decisions at the same time; each chain seeks to maximize its own profits; each knows the other's profits; and each knows that the other wants to maximize profits.

		Small Hotel Room Price	
		\$120	\$140
Large Hotel	\$140	\$1,100; \$900	\$1,800; \$700
Room Price	\$120	\$1,200; \$400	\$3,000; (\$1,500)

Consider the following statements:

1. If both hotels set their prices once and forever, it is an equilibrium for both hotels to set a price of \$140.
2. If both hotels set their prices once and forever, it is an equilibrium for both hotels to set a price of \$120.
3. If both hotels set their prices once and forever, it is an equilibrium for the large hotel to set a price of \$120 and the small hotel to set a price of \$140.

With which statement do you agree?

- A. 1 only
- B. 2 only
- C. 3 only
- D. 1 and 2 only

*The correct answer is B.*

*Statement 1 is incorrect, and Statement 2 is correct. When hotels set their prices once and forever, each hotel has a dominant strategy: regardless of what the other hotel does, it is better off setting a low price. Both hotels will act on this strategy, leaving an equilibrium in which both hotels set a price of \$120. The situation in which both hotels set a price of \$140 is not an equilibrium since each hotel has an incentive to set a price of \$120 when the other sets a price of \$140.*

*Statement 3 is also incorrect. If the large hotel sets a price of \$120, the small hotel will set a price of \$120 (not \$140) because \$400 is better than negative \$1,500. Hence Statement 3 is incorrect.*

## Question 12

MetroRail operates the only express train between two large cities. It sells 1,250 round-trip tickets/day at a price of \$295. Trains are full and cannot add capacity. MetroRail's marginal (or variable) cost is \$200 per ticket.

A new competitor, SwiftRail, announces entry with capacity for 400 tickets/day at a fixed price of \$225 per ticket. SwiftRail's marginal (or variable) cost is also \$200.

MetroRail considers two responses:

1. Maintain the ticket price of \$295. MetroRail estimates that SwiftRail will fill its capacity and sells all 400 tickets. MetroRail estimates that it will lose 250 riders to SwiftRail and that 150 riders will be new travelers who previously did not ride express trains. MetroRail estimates that it will not gain any new customers.
2. Match SwiftRail's \$225 price. Reducing price will not hurt volume as MetroRail will sell all 1,250 tickets.

If MetroRail wants to maximize short-run profit, which response should it choose, and by how much will its profit change relative to pre-entry?

- A. MetroRail should not change price. MetroRail profit falls by \$38,000 per day.

- B. **MetroRail should not change price. MetroRail profit falls by \$23,750 per day.**
- C. MetroRail should match SwiftRail's price. MetroRail profit falls by \$83,750 per day.
- D. MetroRail should match SwiftRail's price. MetroRail profit falls by \$81,250 per day.

*The correct answer is B.*

*If MetroRail pursues Option 1 and does not change price, MetroRail will lose 250 travelers to SwiftRail. For MetroRail, every rider makes a  $\$295 - \$200 = \$95$  contribution to covering its fixed costs. A loss of 250 travelers, then, reduces MetroRail's operating profits by  $250 \times \$95 = 23,750$ .*

*By pursuing Option 2, MetroRail foregoes  $\$295 - \$225 = \$70$  of margin on each of its 1,250 passengers. This reduces MetroRail's operating profit by \$87,500. Since MetroRail incurs a smaller reduction in profits by maintain its ticket price of \$295, this is what it should do.*

### Question 13

Two companies, EchoStream and WaveMusic, are deciding how to allocate resources for their music-streaming platforms. Each company can choose one of three strategies for the coming year:

1. Exclusive Artist Deals (EAD) — spend heavily to sign top artists exclusively.
2. Algorithm Innovation (AI) — invest in technology for personalized recommendations.
3. Low-Cost Licensing (LCL) — focus on keeping licensing costs low and serving budget-conscious listeners.

The payoff matrix below shows the annual profits (in millions of dollars) each company receives under every combination of strategies. In each cell, EchoStream's profit is on the left, WaveMusic's on the right.

		WaveMusic		
		LCL	AI	EAD
EchoStream	EAD	3, 9	5, 7	8, 6
	AI	4, 5	6, 6	9, 4
	LCL	2, 3	5, 4	7, 2

The two companies make their decisions at the same time. Each company knows its own profit and its rival's profit; each company wants to maximize its profit under each combination of strategies; and each company knows that the other wants to maximize its profit.

An analyst makes the following observations:

1. If each company expects the other to pursue Exclusive Artist Deals (EAD), both will choose EAD. This is an equilibrium.
2. If EchoStream chooses LCL, WaveMusic should choose AI. Therefore, (LCL, AI) is an equilibrium.
3. If each company expects the other to pursue AI, both will choose AI. This is an equilibrium.
4. If EchoStream knows WaveMusic will choose LCL, it should also choose LCL.

Which statement do you agree with?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 3 only
- D. 3 and 4 only
- E. 1 only

*The correct answer is C.*

*Statement 1 is incorrect. If both pick EAD, EchoStream could deviate to AI and earn 9 instead of 8; WaveMusic could deviate to LCL and earn 9 instead of 6. This is not an equilibrium.*

*Statement 2 is incorrect. If EchoStream chooses LCL, WaveMusic should choose AI, but this is not an equilibrium. At (LCL, AI), EchoStream would prefer to deviate to AI ( $6 > 5$ ).*

*Statement 3 is correct. At (AI, AI), both earn 6, and neither can improve by switching strategies. So this is an equilibrium.*

*Statement 4 is incorrect. If WaveMusic picks LCL, EchoStream should choose AI ( $4 > 2$ ), not LCL.*