Homework 8

Scenario
An industry contains 5 firms, with the following sales:

Firm 1 $80 million
Firm 2 $50 million
Firm 3 $40 million
Firm 4 $10 million
Firm 5 $5 million

Question 1.1

1.1. What is the four-firm concentration ratio? Please answer as a number between 0 and 1.

Please enter 2 digits after the decimal point.

Question 1.2

1.2. What is the value of the Herfindahl index?

Please enter a whole number, with no decimal point.

Scenario
An industry contains fifteen firms, each with identical market shares.

Question 2.1

2.1. What is the value of the Herfindahl index?

Please enter a whole number, with no decimal point.

Question 2.2

2.2. What is the value of the four firm concentration ratio? (Express your answer as a number between 0 and 1.0.)

Please enter 2 digits after the decimal point.

Scenario
This graph shows the demand for cable TV services in a town of 50,000 households. The local government has given a monopoly franchise to a cable company. The graph also shows the marginal revenue (MR) curve, the marginal cost (MC)
curve, and the average total cost (ATC) curve for cable TV services. Notice that the firm's monthly marginal cost is constant at $10 per household. Assume that in the long run, the cable company can avoid any fixed costs if it stops providing service in this community.

**Question 3.1**

3.1. True or False: The firm has no fixed costs.

- True
- False

**Question 3.2**

3.2. What price and quantity combination will the monopolist choose to maximize profits?

- A. Price = $10; Quantity = 20,000 households
- B. Price = $10; Quantity = 44,000 households
- C. Price = $10; Quantity = 50,000 households
- D. Price = $30; Quantity = 14,000 households
- E. Price = $30; Quantity = 35,000 households
- F. Price = $40; Quantity = 12,000 households
- G. Price = $40; Quantity = 20,000 households
- H. Price = $50; Quantity = 20,000 households
- I. Price = $75; Quantity = 50,000 households

**Question 3.3**

3.3. How much profit does the monopolist earn each month?

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Please enter a whole number, with no decimal point.
Question 3.4

3.4. Suppose the government forces the cable company to set price equal to marginal cost. In the long run, how many households would the cable company choose to supply at this price?

Please enter a whole number, with no decimal point.

Question 3.5

3.5. Suppose the government requires that the cable company set price equal to average total cost. That is, the government requires that the company offer service to anyone who wants it at a price equal to the company's average total cost. The government also imposes a fine of $10,000 per month if the cable company stops providing service. In the long run, how many households would have cable TV service under this form of price regulation?

Please enter a whole number, with no decimal point.

Question 3.6

3.6. Suppose the government requires the cable company to set price equal to average total cost. Which of the following is least likely to occur?

- A. The quality of service will fall.
- B. The company will be more likely to let its labor costs increase.
- C. The company will choose to lower its price below the mandated price ceiling to get more subscriptions.
- D. Other industries may try to devise new, ways to compete with the natural monopoly of cable delivery of television programs.
- E. The amount of choice available through the cable provider will fall.

Scenario

Suppose you are the mayor of a small town with one cable television company. You are in charge of regulating the price the cable tv company can charge for subscriptions to its services. You know that demand for cable TV and the total costs of the cable company are as follows:

\[ QD = 260 - 16P \]
\[ TC = 100 + 10Q \]

Question 4.1

4.1. What is the cable TV company's marginal cost?

Please enter a whole number, with no decimal point.

Question 4.2

4.2. Now suppose you decide to make the cable provider charge \( P = ATC \). What price do you set? (Hints: you should draw yourself a graph, and you will need the quadratic formula. Also note that the quadratic formula will give you two answers. Pick the one that is best for your constituents.)
Question 4.3

If you make the cable provider charge \( P = ATC \) as above, how many subscriptions get sold?

Please enter a whole number, with no decimal point.

Question 4.4

If you make the cable provider charge \( P = ATC \) as above, what are the firm's profits?

Please enter a whole number, with no decimal point.

Question 5

In markets with asymmetric information or hidden information, consumer protection or "Lemons Laws" increase sales of high-quality goods because:

- A. They require sellers to sell both high- and low-quality goods.
- B. Sellers have much less incentive to exaggerate a good's quality because buyers will often return lemons that were advertised as high quality.
- C. No one will sell a lemon for fear of being fined or imprisoned.
- D. They prohibit anyone from selling a lemon.

Scenario

Consider the following story: "When Joe didn't have car insurance, he drove very cautiously because he knew he would have to pay for any damage to his car. Now that he has car insurance, he drives like a maniac because he knows that even if he gets into an accident, his insurance will cover it."

Question 6.1

The economic problem in this story is known as:

- A. Adverse selection
- B. Moral hazard
- C. Signaling
- D. Screening

Question 6.2

Suppose you work at the car insurance company and Joe comes in to sign up for car insurance. Which of these solutions would NOT help to alleviate the problem of Joe's potentially risky behavior?

- A. Make Joe sign a pledge to continue driving as safely as possible.
Scenario
You are the manager of a factory. Workers at the factory are assigned to one of two tasks, one of which requires skilled labor and one of which requires unskilled labor. You pay skilled workers a higher wage than you pay unskilled workers, so everyone who applies for a job says they're skilled.

Question 7.1

7.1. Suppose skilled workers pay to take a certification course to demonstrate their ability. This is an example of:

- A. Adverse selection
- B. Moral hazard
- C. Signaling
- D. Screening

Question 7.2

7.2. Again, suppose skilled workers pay to take a certification course to demonstrate their ability. In order for you as the employer to believe this signal, it must be the case that:

I. Skilled workers find it easier (in terms of time and effort, if not money) to pass the certification course.
II. The wages paid to skilled workers must be significantly higher than those paid to unskilled workers.

- A. I only
- B. II only
- C. I and II
- D. Neither I nor II

Question 7.3

7.3. Suppose that you yourself decide to implement a test to determine whether applicants are skilled or not. This is called:

- A. Adverse selection
- B. Moral hazard
- C. Signaling
- D. Screening

Scenario
The graph below shows Debbie's demand for doctor visits in an average year if she has to pay for the entire bill: that is, if she has no health insurance.
Note that the horizontal axis starts at 2, because we can assume that Debbie might have to go to the doctor twice a year on average regardless of the price: for example, if she gets into a car accident or breaks her leg while skiing. However, if the cost of medical services is sufficiently low, she demands more doctor visits: for example, she might go to the doctor if she has a bad cold rather than taking over-the-counter medications. The orange line shows the supply of doctor visits. We're assuming for this problem that, on average, the marginal cost of providing medical services is $800 per visit, so the supply curve is horizontal at 800.

**Question 8.1**

**8.1.** From a standpoint of economic efficiency, how many times should Debbie visit the doctor?

- A. 2 times per year
- B. 4 times per year
- C. 8 times per year
- D. 12 times per year

**Question 8.2**

**8.2.** Suppose Debbie purchases insurance for $3,200 per year that allows her unlimited free doctor visits. How many times will she go to the doctor now?

- A. 2 times per year
- B. 4 times per year
- C. 8 times per year
- D. 12 times per year

**Question 8.3**

**8.3.** Why is this problem an example of moral hazard? (You can refer to the previous questions.)

- A. When she has health insurance, Debbie demands many more doctor visits than when she doesn't have health insurance.
B. Health insurance allows Debbie to get the medical care she needs and deserves.

C. Some people may not have health insurance, and it's not fair that Debbie is consuming more than her fair share just because she has insurance.
**Question 8.4**

8.4. Suppose Debbie's insurance company tries to solve this moral hazard problem by charging Debbie 50% of the cost of health care. On the following graph, use the red line (cross symbols) to show how this affects Debbie's demand for medical services.

Tool tip: For information on using the graph tool, click the Help button.

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**Question 8.5**

8.5. Again, suppose Debbie's insurance company tries to solve this moral hazard problem by charging Debbie 50% of the cost of health care. How many times does Debbie visit the doctor now? (You can refer to your graph in the previous question.)

- A. 2 times per year
- B. 4 times per year
- C. 8 times per year
- D. 12 times per year

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**Question 9**

9. The seller of a used house claims that it is structurally sound and that the heating and air conditioning system are in good shape. He offers a 1-year warranty on the house in which he agrees to repair any defects found during this time. A potential buyer should expect these statements to be:

- A. An exaggeration, because the seller has an incentive to lie to get a high price
- B. Not credible, because otherwise why would the seller offer the warranty
- C. Truthful, because home sellers are generally honest people
- D. Truthful, because offering a warranty would be expensive if the house were defective

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**Question 10**
10. If an economist refers to a "lemons market," what should you infer?

- **A.** She is referring to a market for fruit.
- **B.** She is referring to any market with asymmetric or hidden information.
- **C.** She is referring to a market where sellers of high-quality goods withhold their products from the market so most goods that are bought and sold are lemons.
- **D.** She is referring to any market where a transaction could leave buyers with a bad taste.