**Economics Questions**

PART A  
1. Some people have suggested that forced population control is an efficient means of reducing the Tragedy of the Commons associated with our clean air and water resources. Provide an argument that would support this theory, and also an argument that would oppose this theory. Then, provide another possible solution that would rely on market mechanisms.

2. Describe a government created monopoly. Why might one be created? Give an example.

3. Describe the difference between marginal cost an average total cost. Why are both these costs important to a profit- maximizing firm?

PART B  
1. Tina hires jet to do odd jobs around her home and agrees to pay him five dollars per hour. Tina further agrees to guarantee Jeff at least 40 hours of work per week, and to pay him 1.5 times his base pay for any hours worked beyond 40. It just works 45 hours this week, are his wages a fixed cost or a variable cost to Tina? Explain.

2. List the characteristics of a perfectly competitive market.

3. Imagine that you’re on vacation in Russia, when suddenly you’re arrested and accused of spying for the United States. (You’re innocent, of course.) Your captors and form you that if you confess, you’ll receive a prison sentence of two years, while your co-conspirator (whom you’ve never heard of) will receive a prison sentence of 20 years. If you both confess, you’ll each receive a prison sentence of five years. You’re also told that your co-conspirator is being offered the same option. If you both maintain your innocence, however, there’s not enough evidence to convict either of you. Applying economic theories to the problem, what should you choose to do, and why?

4. The hotel owner, having heard that new hotel plans to open in his area, says, “We have too many hotels in this town already. Statistics show that vacancy rates average 20% on any given night”. Assuming this is correct, evaluate his negative assessment of the situation in terms of business- stealing and product- variety externalities.

5. Explain the theory that education acts as a signaling device. How does this contrast to the theory of education as an investment in human capital?

6. Explain the difference between inferior goods in normal goods. As a developing economy experiences increase in income (measured by GDP), what do you predict will happen to the demand for inferior goods?

7. Indicate whether each of the following is a private good, a common resource, a natural monopoly, or a public good.   
A. a firework display public good  
B. a movie viewed at a large theater private good  
C. video rental private good

8. The consumption of alcohol is often cited as an example of a negative externality. Explain his situation which alcohol would be considered a negative externality.

9. Describe the purpose of antitrust laws. What do they accomplish?

10. Describe way consumer who chooses a consumption bundle in which the relative price exceeds the marginal rate of substitution can’t be at an optimum.

**Business Statistics Questions**

11. Assume you have a data set from a normally distributed random variable. Answer the following questions about it.

a. will the ransom variable be discrete, continuous, or neither? How do you know?

b. will the data be qualitative or quantitative? How do you know?

12. A university has been tracking the percentage of alumni giving to its annual fund each year for the past 10 years. The data is given here.

14% 13% 15% 21% 19% 24% 25% 28% 25% 31%

Answer the following questions about this data.

1. What are its mean and median?
2. What is the procedure for using mean and median to determine whether the data is skewed, and if so, in what direction?
3. Apply the procedure you described to the mean and median computed in part a.

13. under which off the following conditions would it be appropriate to use a Binomial random variable? In each case, explain why your answer is correct.

a. a department will interview 10 candidates for a position, and call back for second interviews those who answer the interview questions to the satisfaction of all the interviewers. They hope to call back at least 3, but past experience suggests an average of about 1 call back per 4 interviews.

b. a factory posts on the wall the number of days since its last safety infraction or injury. In the past year, the factory has had a safety infraction or injury on 6 different days. The factory is interested in the number of days that can be expected to elapse without an injury.

c. fifteen of a doctor’s patients have the same aliment. Studies have shown that about 86.5% of patient with this aliment respond to a certain drug. The doctor prescribes the drug to all 15, but the number who will respond in this case is, of course, not known in advance.

14. the mean time for a racecar driver’s crew to perform a pit stop is 13.2 seconds, with a standard deviation of 0.9 seconds. To maintain his current lead, the drive needs a pit stop in 12.5 seconds or less. Assuming this random variable is normally distributed, what is the probability of the driver getting the pit stop in a short enough time to maintain his leas?

15. from a sample of size 175, the sample mean is X = 54.37 and sample standard deviation is s = 7.07

a. construct a 95% confidence interval for the population mean and show your work.

b. explain how your work in part a would have been different if the sample size had been only 12 instead.

16. A random sample from the population of registered voters in California is to be taken and then surveyed about an upcoming election. What sample size should be used to guarantee a sampling error of 3% or less when estimating *p* at the 95% confidence level?