Multiple Choice (MC) questions have only one correct answer. Other kinds of questions may have more than one correct answer. If you don’t understand the meaning of a question, you may write to your own TF (on course website see Classes > Teaching Fellows), but do not expect him/her to give you answers. The problem set will not be graded, but the way you discuss the problems in your discussion section will affect your discussion-section score. Your work on the problem sets will improve you performance in the course, but only if you understand the ideas behind the answers. Good reasons for your answer are more important than what the answer is. You are allowed to work on the problem sets with other students.

1. You buy an expensive gym membership, but never go to the gym because it is always more tempting to stay home. However, you feel bad that you cannot get yourself to go to the gym. Was your decision to buy the membership voluntary? Was it rational?

2. In a prison, prisoner Alice has apples and wants oranges. Her prison cellmate Betty has oranges. Alice decides to give Betty cigarettes in exchange for her oranges, because all prisoners will accept cigarettes in exchange for goods and services. Is this an example of barter or of buying and selling? How is the “money” used here different from paper money?

3. True or False:
   i. Most markets are perfectly competitive
   ii. If the market for bananas is perfectly competitive, identical bananas must be sold at the same price everywhere in the market
   iii. People who conduct arbitrage typically buy high and sell low to make a profit

4. Which of the following explains why an individual’s demand curve for beer might be downward sloping:
   a. At lower prices you may want to go out for a beer every day
   b. At lower prices you feel comfortable buying beer for your friends
   c. At lower prices it is easier to produce beer
   d. Both a. and b.

5. You have an old car that you wish to sell. A passerby on the street approaches you and offers to buy it in exchange for 1,000 NEO. He tells you NEO is a new type of cryptocurrency (virtual money, similar to Bitcoin) that he will transfer through your phone. NEO is not a physical object and has no other uses whatsoever.
   i. You have never heard of NEO and you know that very few people in the U.S. would accept it as payment. Would you accept or reject the buyer’s offer?
   ii. The next morning, you see on the front-page article of The Economist (a high-quality economics magazine) that Amazon and other major retailers have started accepting NEO as a means of payment. Now would you call the buyer and accept his offer? Why or why not?

6. True or False: Each of the following represents a voluntary exchange.
   i. Anna buys an orange from her local grocer.
   ii. Juan pays the local mafia half of his profits in exchange for “protection” from “accidents”, e.g. his shop being burned to the ground.
   iii. Bob pays $500 for a bottle of snake oil, which the salesman says can cure baldness.
   iv. Under Obamacare, Tim has to buy health insurance that covers pregnancies.
   v. When Nana sees chocolate in the store, her desire to eat it forces her to buy it.
7. Many Canadians cross the border to the U.S. to do their shopping, because prices are cheaper in the U.S. Is this an example of arbitrage? Suppose they go back to Canada and sell what they bought in the U.S. Is that arbitrage?

8. Between the smartphone market and the market for black beans, which market do you believe more closely resembles perfect competition? Explain.

9. Suppose you want to draw Ben’s demand curve for iPhones. Which of the following questions would you ask him?
   a. How many iPhones will you buy this year?
   b. What do you think the price of iPhones will be tomorrow?
   c. At a price of $400, how many iPhones would you buy?
   d. If you buy 2 iPhones, what will be the price of an iPhone?

QUESTIONS 10-15 ARE BASED ON THE FOLLOWING SCENARIO: Fatima’s lunch and Thea’s lunch are identical. Suppose Juan is going to pay Fatima $10 for her lunch. Thea is going to sell her lunch to Enrico for $18. Guangzhi is an arbitrageur, and he sees an opportunity. Answer the following questions.

10. Who are the “losers” if these trades go through without Guangzhi doing anything?
    a. Fatima and Thea
    b. Fatima and Enrico
    c. Juan and Thea

11. How can Guangzhi make money by arbitrage?
    a. Buy lunch from Juan and sell to Enrico
    b. Buy lunch from Fatima and sell to Thea
    c. Buy lunch from Fatima and sell to Enrico

12. Based on your answer, how much will Guangzhi have to offer to buy lunch if he wants to make money? Let B be the buying price.
    a. B > $10
    b. B < $10
    c. $10 < B < $18

13. How much could Guangzhi charge for this lunch, which he will sell to complete the arbitrage and make money? Let S be Guangzhi’s selling price.
    a. S > $18
    b. S < $18
    c. B < S < $18

14. How much money does Guangzhi make?
    a. S – B
    b. B + S
    c. $18 – B

15. If the Economics department is filled with arbitrageurs like Guangzhi, what can you say about the prices of identical lunches in the department?
16. The supply and demand model applies when three of the following four conditions are met. Which condition is not required?
   a. The item traded must be a physical good and not a service.
   b. There must be many buyers.
   c. There must be many sellers.
   d. All buyers and sellers must trade an identical item.

17. Suppose there is a voluntary trading market for used cars. There are two types of cars: high-quality vs. low-quality. Half of the sellers have high-quality ones and the other half have low-quality ones. High-quality cars are worth $9,000 for sellers and low-quality cars are worth $1,000. If a buyer does not know the type of cars and is willing to buy a used car for $5,000, who will trade with him and what type of car will he get? If the buyer is smart enough and understands this market, how much should he pay for a used car?

18. Explain whether in the following examples, the law of one price should apply. If it does not apply, also explain why it does not.
   i. McDonalds burger in the airport versus McDonalds burger in Commonwealth Avenue.
   ii. A taco in Massachusetts versus a taco in California
   iii. An orange at “fancy” Wholefoods versus an orange at “mundane” Star Market.
   iv. An iPhone X in the Apple store at BU West Campus vs the same iPhone at the Apple store at BU East Campus.