Please write answers in **ink**. You may use a pencil to draw your graphs. Good luck.

**Part I: 30 points**

1. The concepts of supply and demand enable us to think more clearly and consistently about causes and consequences. Learning to use these concepts, however, requires more than the ability to see where supply curves and demand curves intersect. Their effective use requires us to recognize what factors are likely to influence supply and demand, respectively, and in what direction this influence is likely to be exerted.

   The good in question is cotton, with the quantity measured in bales and the price measured in dollars per bale. To begin with, we assume (merely for simplicity) that the supply curve and demand curve for cotton in the U.S. form a standard supply and demand diagram.

   Your task is to decide what effect each of the changes described below will have on the price of cotton paid to U.S. growers by raw cotton buyers and the quantity exchanged.

   - Will the event described affect the supply of cotton or the demand for cotton?
   - Will it cause the supply or demand curve to increase (shift right) or decrease (shift left)?
   - What effect will this have on the price and quantity exchanged?

   a. Excellent new synthetic fabrics are developed.
      **A reduction in demand for cotton, lower price and a drop in quantity exchanged.**

   b. The supply of shepherds declines dramatically because of better job opportunities in the cities.
      **This reduces the production of wool, causing the price of wool to rise. The demand for cotton (a substitute) rises, causing both the price and the quantity exchanged to rise.**

   c. Improvements in the cotton gin make ginning less costly.
      **This is a technological improvement that shifts the supply curve to the right (or down). The price of cotton falls, thereby raising the quantity of cotton demanded/exchanged.**

   d. Scientists develop new strains of cotton permitting two crops per year in the U.S.
      **Same as (c) above.**

   e. Cotton-growers association conducts successful advertising campaign to persuade people that cotton shirts are extremely comfortable.
      **This increase the demand for cotton, raising the price and the quantity of cotton supplied/exchanged.**

   f. New chemical is discovered that can be added to cotton at an insignificant cost to make ironing of cotton shirts unnecessary.
      **Same as (e) above.**
Part II: 70 points—10 points each

1. a. Jon is on eBay, bidding for a first edition of the influential Frank Miller graphic novel *Batman: The Dark Knight Returns*. In this market, who is Jon competing with: the seller of the graphic novel or the other bidders? **He is competing with other bidders.**

   b. Now, Jon is in Japan, trying to get a job as a full-time translator; he wants to translate English TV shows into Japanese and vice versa. He notices that the wage for translators is very low. Who is the “competition” that is pushing the wage down: Does the competition come from businesses who hire the translators or from the other translators themselves? **Again, Jon is competing with other translators. They are the competition.**

2. In the *Wall Street Journal* (15 June 2011) Justin Lahart reports that, “Last month’s drop in sales was driven largely by a 2.9% decline in auto sales. That’s in part due to car dealers halting incentives and increasing prices in the face of a vehicle shortage caused by the disruption of global auto-supply chains after Japan’s earthquake and tsunami.”

   Is this a decline in demand, a decline in supply, or neither of these two? Explain? **It’s a decline in supply. Cars are more scarce, so the price has risen causing a decline in the quantity of autos demanded. The higher prices mean that consumers are less willing and able to buy autos.**

3. In the 1990s, the Atkins diet, which emphasized eating more meat and fewer grains, became very popular. What do you suppose that did to the price and quantity of bread? Use supply and demand analysis to support your answer. **Demand for bread decreases and thus equilibrium price and quantity decrease.**
4. The market for marbles is represented in the graph below. What is the total producer surplus? The total consumer surplus? What are the total gains from trade?

![Marble Market Graph]

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\text{Consumer Surplus} = (50)(\$11 - \$5)/2 = \$150, \quad \text{Producer Surplus} = (50)(\$5 - \$1)/2 = \$100, \quad \text{Total Surplus} = \$250.
\]

5. If a business can make the job seem fun (by having inexpensive pizza parties) or at least safe (by nagging the city government to put police patrols around the factory), what probably happens to the supply of labor? What happens to the equilibrium wage if a factory or office or laboratory becomes a great place where people “really want to work?” How does this explain why the hourly wage for the typical radio or television announcer is only $13 per hour, lower than almost any other job in the entertainment or broadcasting industry? (Source: Bureau of Labor Statistics, *National Occupational Employment and Wage Estimates*, available online.)

When jobs become more fun or more safe, more people want to work in those jobs. This pushes down the wage in those jobs. This means that business owners have a strong incentive to find inexpensive ways to make their jobs fun, safe, and desirable. This helps explain why TV and radio announcers earn very little money: Because lots of people want to be on TV or the radio. People like the attention and the fame.

6. A classic essay about how markets link each other is entitled “I, Pencil,” written by Leonard E. Read (his real name). It is available for free online at the *Library of Economics and Liberty*. As you might suspect, it is written from the point of view of a pencil. One line is particularly famous: “no single person on the face of this earth knows how to make me.” Based on what you’ve learned in this chapter about how markets link the world, how is this true?

No one knows how to perform all of the steps in making a pencil: Growing the right kind of wood, making graphite, inventing safe, nontoxic paint, making the metal thing that holds the eraser, making the rubber eraser on the top. There are many steps, and no one person knows the ins and outs of more than a few of the steps, especially when it comes to the details. Yet the pencil is made anyway illustrating how much cooperation is required and induced to produce even a simple object like a pencil. This cooperation is made possible by the functioning of the
price system. Prices provide the signals and the incentives to respond to these signals.

7. In 1980, University of Maryland economist Julian Simon bet Stanford entomologist Paul Ehrlich that the price of any five metals of Ehrlich’s choosing would fall over 10 years. Ehrlich believed that resources would become scarcer over time as population grew, while Simon believed that people would find good substitutes, just as earlier people developed iron as a substitute for scarce bronze. The price of all five metals that Ehrlich chose (nickel, tin, tungsten, chromium, and copper) fell over the next 10 years and Simon won the bet. Ehrlich, an honorable man, sent a check in the appropriate amount to Simon.

a. What does the falling price tell us about the relative scarcity of these metals?

The falling price indicates that the metals are less scarce compared to what they were before.

b. What could have shifted to push these prices down: Demand or supply? And would demand have increased or decreased? And supply?

A falling price could have been due to a reduction in demand (caused, for example, by the development of substitutes) or supply could have increased (caused, for example, by new discoveries of these scarce resources).