Unemployment and its Natural Rate

Answer 1: a. The actual rate of unemployment is the sum of the natural and cyclical rates: $u = u_n + u_c$. So plug in the given numbers and solve to get

$$5.7 = 5.2 + u_c \quad \implies \quad u_c = 0.5.$$

Answer 2: b. If we take them out of the labor force calculation, then labor force participation falls. Furthermore, recall that we calculate the unemployment rate with

$$u = \frac{\text{unemployed}}{\text{labor force}}.$$

We take these people out of the labor force and thus the numerator and denominator fall by the same amount. This has the effect of reducing the unemployment rate as well. To see this, let U be the number of unemployed, L be the labor force, and x be the number of people we're taking out of the labor force (and thus no longer quality as unemployed either). Then the new unemployment rate is

$$\frac{U - x}{L - x}.$$

Since $U < L$, it follows that we're reducing the numerator by a larger percent than we are reducing the denominator. This means that the numerator is now relatively smaller than the denominator and thus the whole fraction is smaller.

Answer 3: c. Brünnhilde's unemployment is frictional because relevant jobs are available—she just hasn't taken one yet for whatever reason. Woglinde's unemployment is structural because the jobs just aren't there.

Answer 4: a. Frictional employment essentially means that there are jobs available but for various reasons have not been filled yet—maybe you've received offers but are holding out for a workplace in which you can wear slippers all day. Or maybe you're just waiting for a better salary. If a person is receiving unemployment insurance, then being unemployed is less miserable, so people will be more willing/able to hold out for a better job offer, thus increasing the duration of frictional unemployment. So yeah, trade-offs and incentives and all that.

On the other hand, IT makes it easier for people to find exactly the right job—it's easy to go onto Monster.com and filter out jobs you don't want, as opposed to manually searching through classifieds in newspapers. So IT reduces frictional unemployment.

Answer 5: b. Quick recap.

- If the unemployment is the result of a business cycle (i.e. a recession), then it is cyclical unemployment. Otherwise, it is natural unemployment.
- Within the realm of natural unemployment: If it takes time to find the right job, then it's frictional unemployment. If there just aren't enough jobs, then it's structural unemployment.

Excess wages isn't a cyclical issue; and it has nothing to do with workers waiting for a job. According to the supply/demand framework, it means that the supply of labor exceeds the demand for labor, i.e. more

people want to work than firms want to hire. Ergo, structural. Yep, I'm pretentious enough to use the word "ergo" with no shame.

Answer 6: d. There aren't enough jobs, and therefore the only way you can get a job is for a currently employed person to quit? That's structural.

Answer 7: d. First draw the supply and demand for labor in market A, in equilibrium. Enact the union, which brings the wage above the equilibrium level—union jobs have a higher wage. This also means that labor supplied exceeds labor demanded, so we have a surplus of labor, i.e. unemployment.

Those unemployed workers then start looking for jobs in market B, which increases the supply of labor in that market. This brings down the wage in nonunion market B.

Answer 8: d. The **efficiency wage theory** says that firms can pay above-equilibrium wages to increase worker productivity. This make cause current workers to put in more effort during the work day; or it might attract better workers to hire in the first place.

The Monetary System

Answer 9: d. When there's no medium of exchange, the only way a trade happens is if I have what you want, and you have what I want. This is going to be a relatively rare occurrence and creates severe frictions in an economy, leading to inefficient allocation of resources. The existence of money allows this double coincidence of wants to be subverted—exchange what you have for money, then use the money to buy what you want whenever you happen to find someone selling it.

Answer 10: b. Not much to add here.

Answer 11: a. Option (b) is backwards—M1 is a strict subset of M2, i.e. everything in M1 is part of M2 but not vice versa. Credit cards are not counted as money; they just represent loans on future funds. Savings deposits are included in only M2 since they're not uber-liquid.

Answer 12: a. When the Fed makes an open-market purchase, then dollars the Fed used to be holding onto enters the market, increasing the money supply. In return, the Fed now holds onto a bond. The opposite story holds for an open-market sale.

Answer 13: a. Employment and production, in the long run, are determined by the economy's ability to produce goods and services—its productivity, size of the labor force, etc. The money supply has no effect (we call this *money neutrality*). In the short run, however, money is not neutral and consequently the Federal Reserve's actions can help fight (or prolong, or even cause) recessions.

In the long run, inflation is a function of the money supply and thus of the Fed's actions. In the short run, however, prices might be "sticky" or rigid, in which case the Fed wouldn't be able to affect them much.

Answer 14: b. Since the system has \$5 billion in excess reserves, it means require reserves constitute \$395 billion. So \$395 billion must be 8 percent of whatever the total deposits are. Let R be the total deposits. Then using the maths, we have

$$R \times 0.08 = \$395b \quad \Longrightarrow \quad R = \$4937.50b.$$

Answer 15: b. It's asking, what amount of new reserves must be created in order to ultimately generate \$81250? Since the reserve ratio is 4 percent, it means the money multiplier is

$$\frac{1}{0.04} = 25.$$

Hence, we want to solve

$$R \times 25 = \$81250 \quad \Longrightarrow \quad R = \$3250.$$

Answer 16: b. To increase the money supply, we want money going from the Fed into the economy—this is an open-market purchase. In general, the Fed primarily uses open-market operations to adjust the money supply.