Practice Problems, Quiz B, ECO 5003

1. Set up a simplified balance sheet for Universal Bank that has the following data (million $):

   Federal Govt. Bonds       $ 560
   Loans                      850
   Demand Deposits            1,440
   Vault Cash                 50
   Reserves at Fed.            40

   Now suppose the reserve ratio is 6.25%.

   A. Is this bank loaned up? If yes, why? If no, how much can it loan?
   B. Assume Universal Bank sells $80 (million) of its bonds to the Fed. If no other changes have occurred, how much new money can the bank create?
   C. Suppose Universal Bank lends the maximum it can, and that all of the funds lent wind up in Metropolis Bank when borrowers' checks clear. If Metropolis was loaned up before this occurred, how much new money can it create?
   D. Assuming there were no excess reserves anywhere else in the system when the Fed purchased Universal Bank's bond, what is the maximum amount of new money that could be created. (Include the amount that Universal Bank can create from excess reserves, if any, that it had before the bond sale to the Fed.)

2. Consider the following diagram:

   ![Diagram](https://via.placeholder.com/150)

   A. What are the names of curves R and Z in the diagram?
   B. Is either of the two curves stable over time?
   C. How are the curves related to the “natural rate of unemployment”?
   D. If activist policy increases AD so that an expansionary gap occurs, what happens in the above diagram? Is something suspect here?
3. Suppose there is a contractionary gap. Employ the three quadrants below to illustrate how monetary policy can be employed to move the economy to the potential level of real GDP. Discuss the chain of events that follows from the Fed’s action(s) and relate them to your illustrations. Why might the policy move fail to work?

(a)  
(b)  
(c)

4. A straight-line demand curve has the following intercepts.

\[ Q \text{ axis: } 2,000 \]
\[ P \text{ axis: } 400 \]

A. What is the slope of this demand curve?
B. What is the equation for this demand curve?
C. Suppose \( Q = 1,200 \). What will price be, and what will be the elasticity of demand at this point? Is demand elastic or inelastic? How do you know?
D. What is the maximum total revenue that can occur, given this demand curve?

5. Zindy’s hamburgers is planning to cut the price of its deluxe burger in the San Baloneo Metro area from $2.40 to $2.25. Its competitor, McDonald’s, charges $2.50 for a similar burger. Before the price cut, Zindy’s is selling 12,000 of the burgers per week, and McDonald’s is selling 18,000 of its similar, competing burger. Zindy’s consultants estimate that the own price elasticity of demand for the Zindy’s burger over the range of the price change is \(-4.0\) and that the cross price elasticity of demand of the McDonald’s burgers for changes in Zindy’s price is \(+3.2\). Determine:
A. the quantities sold per week by the two firms after Zindy’s price cut; and, B. the change in total revenue from deluxe hamburger sales experienced by each firm.
(Assume that no change occurs in McDonald’s deluxe hamburger price.)
Solutions:

1. A. The bank is loaned up. Required reserves on 1440 in deposits are 90, which is the sum of their vault cash and reserves at the Fed.  
B. $80 (million), an amount equal to its excess reserves.  
C. Metropolis will have $75 (million) excess reserves and can lend that amount.  
D. 80 x 1/0.0625 = 80 x 16 = $1,280 (million). Universal was at first loaned up.

B. It is argued that the long-run Phillips curve is stable, while the short-run curve seems harder to pin down. (It may have shifted to the right in the 1970s and 1980s and to the left in the 1990s.)  
C. The long-run Phillips curve is vertical at the “natural rate of unemployment.”  
D. The activist policy pushes the unemployment rate below the natural one, and a movement from A to a point B, further up the R curve, occurs. However, this policy is inflationary, so that over the long run prices rise. Unemployment increases, and the economy goes to a point C, at an even higher inflation rate, on the Z curve. (This would likely be accompanied by a rightward shift of the short-run curve.) Note: One would have to ask why rational policy makers would want to push the economy beyond full employment in the first place. Are the “passive” folks just setting up a straw man??

3. In quadrant (a), an increase in the money supply decreases the interest rate. (Show Money D and Money S curves.) The Fed would most likely buy bonds from banks to increase the money supply. It would pay the banks by increasing their reserve deposits. (Its other tools are the discount rate and the reserve ratio. A lowering of these would also increase bank reserves.) In quadrant (b), the decrease in the interest rate increases planned investment. (Show investment D curve.) In quadrant (c), the increase in planned investment shifts AD to the right, and equilibrium real GDP rises to the potential level. (Show appropriate short-run AS and AD curves.) The weakest link in this chain is that between the interest rate and planned investment, since firms’ desires to invest also depend on expectations. If firms are pessimistic about the future, they may not invest even though interest rates are low.

4. A. The slope is -400/2,000 = -0.2  
B. Q = 2,000 – 5P or, P = 400 – 0.2Q  
C. P = 400 – 240 = 160. \( E_d = -5(160/1200) = -0.67 \). Inelastic, abs. value < 1.  
D. MR = 0 at Q = 1000; P = 200. TR = $200,000

5. Both Zindy’s Q and Zindy’s TR will increase. Employing the arc formula, Zindy’s new quantity sold is 15,556. Zindy’s TR will increase by $6,201. Using the arc formula, McDonald’s Q will fall to 14,632. McDonald’s TR falls by $8,420.