Problem 1. Define **short run** and **long run**.

Answer 1. The short run is a length of time over which wages and prices are sticky. So in the short run, the labor market can be out of full employment equilibrium (e.g. positive cyclical unemployment).

In the long run, wages and prices are fully flexible so that there is full employment (cyclical unemployment is zero). We will assume that demand and supply of labor do not change and therefore potential GDP is constant. Therefore the long run aggregate supply function (LRAS) is simply potential GDP, a vertical line at Y_p.

Problem 2. Which of the following are implied by the LRAS? (More than one may be true.)

(a) Government spending completely crowds out private spending

(b) The money supply will not affect real GDP and other real variables like unemployment and the real wage

(c) Government borrowing can affect monetary policy via the Fisher effect

(d) The Federal Reserve can reduce efficiency wages by reducing inflation

Answer 2: a & b. Since LRAS is vertical, it's easy to see that shifting aggregate demand has no effect on equilibrium output – it's going to be at Y_p. This means monetary policy and fiscal policy cannot affect output in the long run, they will only generate changes in the price level.

So if the government spends \$100, it must mean private spending declines by \$100 so that the economy is still at Y_p. This is called *complete* crowding out. And if the Federal Reserve increases the money supply by 1,000,000,000%, output in the long run is unchanged. This is called *money neutrality*.

Problem 3. If the government increases its purchases through deficit financing, what will be the long-run result (assuming wage and price flexibility)?

(a) real GDP will remain the same, price level will remain the same, nominal interest rate increases, real interest rate increases

(b) real GDP will remain the same, price level increases, nominal interest rate increases, real interest rate increases

(c) real GDP will remain the same, price level increases, nominal interest rate increases, real interest rate remains the same

(d) real GDP will remain the same, price level increases, nominal interest rate will remain the same, real interest rate will remain the same

Answer 3: b. First draw AD/LRAS. Government purchases via deficit financing increases AD, which gives higher P but same $Y = Y_p$.

Since P is higher, it means the demand for money increases. This increases the nominal interest rate R.

And finally, since the government is borrowing (deficits), that increases the demand for loanable funds, which gives higher real interest rate.

Problem 4. This dude said, "In the long run, we are all dead."

(a) Adam Smith

(b) John Maynard Keynes

(c) David Ricardo

(d) Kanye West

(e) "Macho Man" Randy Savage

(f) Count Chocula

(g) None of the above

Answer 4: b. Keynes meant that analyzing what happens is the long run is not relevant to current affairs. In the short run wages and prices might not be fully flexible, and accordingly the economy might not be a full unemployment and hence there might be room for fiscal or monetary policy to bring the economy back to full employment.

Both wage and price rigidity can arise from legally binding, written and signed contracts (i.e. *explicit contracts*), or from social considerations (i.e. *implicit contracts*). A firm might not want to cut someone's wage because it will make them look back. A firm might not want to raise the price of a good because it might offend customers.

Problem 5. According to Keynes (short run), which of the following is the trigger for recessions?

(a) supply shocks

(b) erratic monetary policy

(c) demand shocks

(d) wage and price rigidity

Answer 5: c. Here's the chain of logic for the Keynesian (SRAS) model.

- Suppose demand goes down, i.e. a negative demand shock.
- Then at the existing price level, firms are producing too much stuff.
- To sell all of their stuff, they'd like to be able to cut some costs and thus reduce the price of their product.
- But if wages are sticky, then firms can't cut the cost of labor – they can't reduce the wage (or generally other costs).
- Therefore their only choice is to reduce output and fire some workers.
- So in the short run – for as long as wages remain sticky – output will be below potential .

Problem 6. Shifts in the SRAS are caused by

(a) changes in inventory

(b) changes in production costs

(c) changes in substitute goods

(d) changes in the house of flies

(e) none of the above

Answer 6: b. As wages (and input costs more generally) are allowed to adjust closer and closer to their equilibrium values, firms are allowed to adjust prices closer and closer to their equilibrium values. This can be seen by shifting the SRAS curve over time until SRAS, LRAS, and AD all intersect in the same place.

For example, if the economy is hit by a negative AD shock, then price level will fall a little and output will fall. Over time wages can adjust downwards, and hence firms are able to lower their price a little bit more and consequently produce a little bit more – this means SRAS shifts downwards. Eventually SRAS will shift so far down that it'll intersect at Y_P again.

Big point is this: in the short run, you can have below potential GDP and hence cyclical unemployment. This is because the *self-correcting mechanism* by which prices reach their long-run equilibrium values is interrupted by rigidities.

Problem 7. A slow self-correcting mechanism is seen as

(a) a vertical AD

(b) a horizontal AD

(c) a flatter AD

(d) a steeper AD

(e) all of the below

Answer 7: d. The three AD channels – interest rate effect, wealth effect, and foreign trade effect – become less effective. In other words, household consumption doesn't respond very much to changes in the price level any more. People might have to spend their money repaying debt instead, or won't want to borrow more money even if the interest rate is lower.

Problem 8. Which of the following is a reason some economists cite against using an expansionary fiscal policy during a recession?

(a) coordination failure

(b) fallacy of composition

(c) sticky wages and prices

(d) self-correcting mechanism

(e) always not none of the pseudo-quasi-stochastically-above

Answer 8: d. Classical economists believed that firms would be able to reduce their costs and cut wages in order for producers to not have to reduce output. Then the economy would remain at full employment. In other words, the self-correcting mechanism would cause the economy to, um, correct itself. The point of Keynesian economics is that the self-correcting mechanism will only be able to carry out in the long run, and the economy would be functioning below potential for a long time waiting for the long run to actually come.

Problem 9. Stagflation poses a policy dilemma because

(a) expansionary policy would cause inflation to increase even more

(b) contractionary policy would cause output to fall even more

(c) self-correcting mechanism takes a long time

(d) all of the above

(e) all of the above and none of the above and only some of the above and three of the below

Answer 9: d. Stagflation is when SRAS shifts to the left, which is called an *adverse supply shock*. An example is a sudden increase in oil prices. This shift gives lower Y and higher P. Increasing AD will increase Y but at the expense of higher P. Decreasing AD will bring P back down but at the expense of lower Y. So there's a tradeoff between inflation and unemployment in the short run. Since the long run takes a while to actually happen, it's not clear what, if anything, should be done apropos demand management policy.