PART I – TRUE/ FALSE/ UNCERTAIN (4 points each)

1. Like expansionary monetary policy, expansionary fiscal policy returns output in the medium run to its natural level, and increases prices. Therefore, fiscal policy is also neutral.

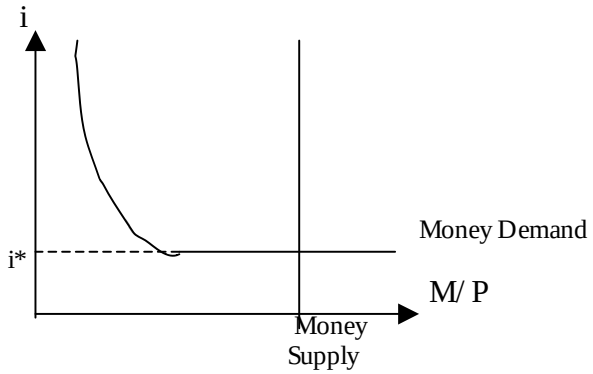
2. If investment is completely insensitive to the interest rate (i.e. in the Investment function I = aY – bi, b is equal to zero), then the AD curve will be vertical.

3. A politician faced with a steeper AS curve is more likely to embark on a given disinflation program than one faced with a flatter AS curve (assume that the steeper slope is due to a higher sensitivity of nominal wages to the unemployment rate).

4. Money cannot be neutral in the short-run – the neutrality of money is exclusively a medium run phenomenon.

PART II – IS/ LM and AS/ AD – A special case (10 points each)

1. Consider the following diagram for the money market



Note carefully what this means. Money demand is completely unresponsive to the interest rate if interest rate falls below i*. In other words, the interest rate must ordinarily fall in order to convince people to hold more money, but once it has fallen to i*, no further drop is required for individuals to hold more money, regardless of what their income level is. They will be willing to hold any amount of money at this interest rate. Derive the LM curve **graphically** for this economy (i.e. consider changes in Y and what it does to the Money Demand function, and translate this information into (i, Y) space; show both the money market diagram and the IS-LM diagram when you do this). Explain intuitively its shape. (**Hint** : Changes in Y will **NOT** shift the **entire** money demand curve up)

2. Suppose the IS curve has the usual negative slope. Derive **graphically** the AD curve in this economy (ie, consider changes in P and how it affects the IS-LM diagram and translate this information into a diagram in (Y,P) space; show both the IS-LM diagram and the AS-AD diagram when you do this). Explain intuitively why it has the slope it does.

3. Suppose the AS curve has its regular upward slope, and it intersects the AD curve you just derived at some initial point. The government then increases the money supply. Does the AD curve shift? Is monetary policy effective, at least in the short run?

PART III – THE PHILLIPS CURVE (9 points each)

Consider the following set of equations :

Phillips Curve : $\pi_t = {}_{t-1}\pi_t^e + 5 - u_t$

Okun's Law : $u_t - u_{t-1} = - g_{yt}$

Aggregate Demand (in terms of growth rates) : $g_{yt} = g_{mt} - \pi_t$

We have used the following notation :

t – a time subscript denoting year
π_t – the inflation rate in year t (the rate of change of prices between t-1 and t)
${}_{t-1}\pi_t^e$ – the inflation expected by workers for year t formed at the end of year t-1
u_t – the unemployment rate in year t
g_{yt} – the growth rate of output between year t and year t-1
g_{mt} – the growth rate of nominal money between year t and year t-1

Assume that u_t, g_{yt}, and π_t are all determined in the middle of the year, while g_{mt} is set at the beginning of the year by the government. As described above, workers form expectations about next year's inflation rate at the end of the current year, ie, after the current year's inflation rate, unemployment rate and output growth have all been determined.

1. What is the natural rate of unemployment in this economy?

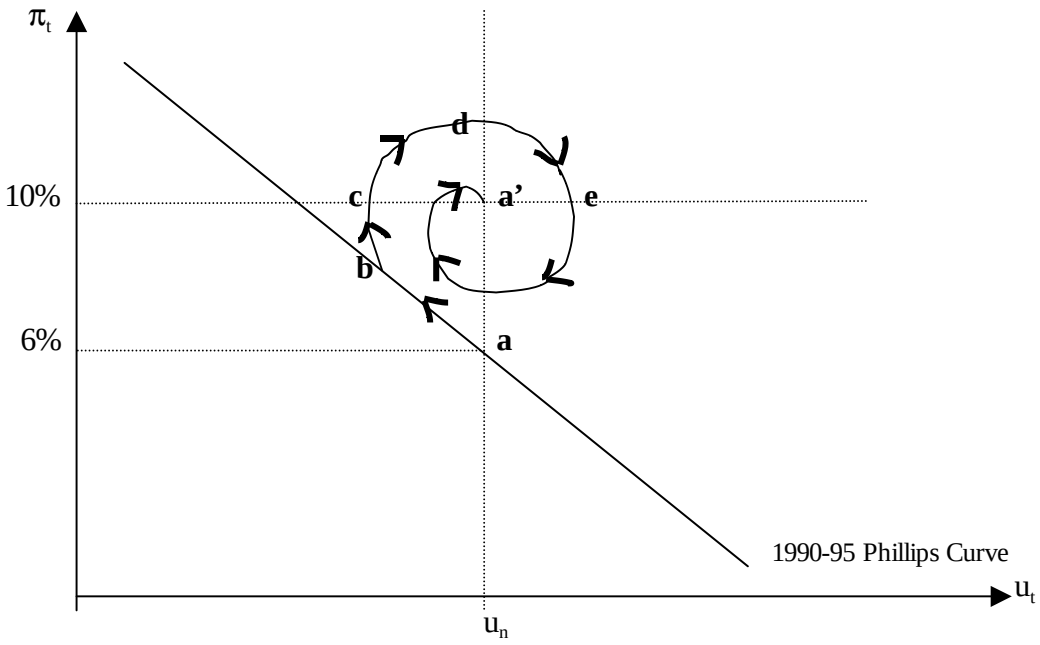
2. Suppose we start in the year 1990 with unemployment at its natural rate, and with the government having set the growth rate of money at 6% for all years. Suppose also that the economy is in a medium run equilibrium. What is g_{yt} and π_t?

3. Draw a Phillips curve in (u, π) space to describe the information provided so far. In your diagram, show the natural rate of unemployment and the corresponding inflation rate.

4. Suppose the government maintains the growth rate of money at 6% each year till 1995. But in 1995, the government increases this growth rate to 10% every year from then on. Suppose also that workers use adaptive expectations, and expect the next year's inflation rate to be equal to the inflation rate in the current year. Calculate the values of the unemployment rate and the inflation rate for 1995. Show these values on the diagram you drew for part 3.

5. What are the unemployment and inflation rates in 1996? Show on the diagram where the economy is in the middle of 1996.

6. **(No math is required for this part – just provide word answers)** If you trace the evolution of the economy, you will find that the values (u_t, π_t) trace out the following **approximate** path from 1995 onwards.



The economy starts at **a** and moves along the path **abcdea'**. The new medium run equilibrium is at **a'**

(a) Consider the path **abc**. Along this path u_t is falling while π_t is rising. Intuitively why is u_t following this path?
(b) Consider the path **cde**. Along this path u_t is rising while π_t is first rising and then falling. Why does u_t continue to rise along this path? Why does π_t first rise and then fall?

(**Hint** : Think about what is happening to the real money supply along these paths)