

**Part 1:**

1) Aggregate Supply equation:

$$P_t = (1/a) * P_{t-1} * (1+\mu) * F(1-Y/aN, z);$$

Aggregate Demand:

$$Y_t = Y(M/P_t, G, T);$$

2) In the short run the AD schedule shifts to the right, and the AS schedule does not shift. The AD shifts because there is more demand at any given price level once government spending increases. Both the IS and LM schedules shift. IS shifts right because of the increase in government spending, and the LM shifts up because the increase in the price level reduces the real money supply. Therefore in the short run output is higher, prices are higher, and the interest rate is higher too.

3) The AS will continue to shift up as long as the equilibrium level of output is different from the natural level of output. Given that the short run equilibrium output is higher than the natural level, the expected prices will increase over time, causing the AS to shift upwards. In the IS/LM graph, the LM continues to shift up, as increases in the price level continue to lower the real money supply. The final result in the long run is then the following: output is back to its natural level, prices and interest rates are higher, and the real money stock is lower. The composition of output has changed: G is higher, C is unchanged, and I has decreased due to the higher interest rates.

4) In the unemployment/wage graph, an increase in unemployment insurance will cause the wage setting equation to shift up. This implies that the natural rate of unemployment will be above the previous natural rate. This is so because workers have more bargaining power, but, given the fixed markup charged by firms, real wages will remain unchanged (i.e. the price setting equation does not shift). Therefore in equilibrium the only way to make workers accept the same real wage is through an increase in unemployment, that reduces their bargaining power.

5) The increase in the natural rate of unemployment implies that the natural level of output has fallen. The AS relationship shifts up in the short run so that the schedule passes through the new natural level of output at the previous price level. This schedule continues to shift up, moving the equilibrium point along the AD curve until equilibrium output equals the (new) natural level in the long run.

6) In the short run, both the AS and the AD schedules have shifted up. The short run effect is to increase the price level. The short run effect on output is ambiguous. The AS schedule will

continue to shift up as long as output exceeds the new natural level. The long run equilibrium point is at the new natural level of output (i.e. AD and AS intersect each other at the new natural level of output). Therefore the policy causes a rise in prices and a decrease in output in the long run.

**PART 2: Multiple Choice**

1- (a) 2- (a) 3- (d) 4- (b) 5- (d) 6- (d)

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