

## Macroeconomics 1

### Problem set 4

*Tick the correct alternatives (more than one may be correct) or write your answer in the space provided. Unless otherwise stated, the notation and behavioural assumptions are the same as in the lectures and textbook.*

1. Assume the price level and real income are exogenous and the nominal interest rate  $i$  is endogenously determined on the money market. Draw the nominal demand and supply for money in the  $(M, i)$  space (i.e. with the nominal interest rate on the vertical axis and the nominal supply and demand for money on the horizontal axis). With the graph as an aid, tick the correct statement.
  - a) A reduction in the nominal money supply increases the equilibrium interest rate.
  - b) A reduction in real income increases the equilibrium interest rate.
  - c) An increase in the price level reduces the equilibrium interest rate
  - d) A fall in nominal income increases the equilibrium interest rate.
  
2. Which of the following results in a shift in the LM curve?
  - a) The central bank buys bonds from the public.
  - b) Private agents want to hold more money at any level of income and the interest rate.
  - c) Nominal income changes.
  - d) Real income changes.
  
3. Assume the nominal interest rate and real income are exogenous and the price level is endogenously determined on the money market. Draw the nominal demand and supply for money in the  $(M, i)$  space. With the graph as an aid, tick the correct statement.
  - a) A reduction in the nominal money supply increases the equilibrium price level.
  - b) A reduction in real income increases the equilibrium price level.
  - c) An increase in the interest rate reduces the equilibrium price level.
  - d) A fall in nominal income increases the equilibrium interest rate.
  
4. In practice, few central banks set the supply of base money. More often (e.g. in the UK) the central bank sets the interest rate at which it supplies *any* amount of base money the market demands. Derive the LM curve in this case if the central bank sets the interest rate at  $i = \bar{i}$  (Hint: assume the interest rate and output are exogenous. The supply of money is now the endogenous variable that has to ensure money market equilibrium. Let output vary exogenously and trace the output-interest rate combinations for which the money market is in equilibrium).