

No.

Nome:

Macroeconomic Policies

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Exam (May 25, 2021)

I (4.5 val)

Define **three** of the following concepts (3-5 lines each):

- i) Gross Value Added

- ii) Theory of liquidity preference

- iii) Dynamic inconsistency (under discretion)

- iv) Taylor Principle (in the Taylor Rule)

- v) Rational expectations

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IV (1.5)

In the following questions, choose the only correct answer. Answering correctly yields 0.5 points, wrongly -0.5/4.

1. The monetary policy tool that automatically prevents money market interest rates from skyrocketing overnight is: (i) reserve requirements; (ii) deposit (standing) facility; (iii) asset purchases; (iv) none of the above.
2. In the Keynes model, the AD is vertical when (i) wages are sticky; (ii) the economy is in a liquidity trap; (iii) prices are sticky; (iv) all the above.
3. An inflation surprise will be less effective in expanding output: (i) when it is not anticipated; (ii) in Venezuela than in the Euro zone; (iii) expectations are backward looking; (iv) none of the above.

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II (14.0)

For this group, question (a), (d) and (f) are mandatory. Among the others 4, choose 2.

II.A Consider a closed economy where the labour supply is inelastic at $N^S = 100$. In this economy, the production function and aggregate demand are given, respectively, by $Q = zN$ with $z=1$, and $Q^d = (M/P)^2$.

- a) **(Classical vs Keynesian model)** Assume perfect competition. (a1) Find out the equilibrium real wage, W/P , and full employment output. (a2) Describe this economy in the AS-AD diagram, assuming that prices and wages are both flexible. In particular, analyse the effect of a monetary contraction from $M=10$ to $M=8$, on prices, output and wages. (a3) Describe this economy in the AS-AD diagram assuming that nominal wages are sticky at $\bar{W} = 1$. Analyse the effects of a monetary contraction from $M=10$ to $M=8$, on output and employment. Show in a graph the adjustment in the labour market. What is the name of the curve describing the demand for labour in this case?
- b) **(Transmission mechanism)** In this economy, the market for goods and services is described by: private savings $S^P = 0.25(Q - T) - 1/10r$, government savings, $S^G = T - G$, and investment, $I = 3/20r$. The money market equilibrium condition is $M/P = (Q/r)^{0.25}$. In the baseline case, consider $G=T=0$. (b1) Show that aggregate demand is indeed $Q^d = (M/P)^2$. (b2) Considering sticky prices ($P=1$), describe in the savings investment locus the implication of a monetary contraction from $M=10$ to $M=8$. Quantify.
- c) **(Imperfect competition)**: Assume now that firms have monopoly power and maximize profits. (c1) Find out the firm's optimal price as a function of the nominal wage, W . (c2) Referring to the (P, Q) diagram, examine the implications of a change in money supply from $M=10$ to $M=8$ under flexible wages prices and prices. (c3) Now assume that $M=8$ and $W=0.4$, but the output price is still at $P=1$. If changing P involved a cost $F=2$, would the new equilibrium look like? Explain, with the help of a graph.

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II.B (Money creation) Consider the following initial situation in a given banking system: $D = 1000$, $H = 300$, $\Sigma_B = 120$, $L_C^B = 180$. Along the exercise, assume that the capital adequacy ratio, \bar{k} , is 8%, and that there is a mandatory reserves ratio of 10%. In this economy, commercial banks give no credit to the government. In the initial equilibrium, bank' reserves are exactly equal to the mandatory.

- d) Find out: (d1) the liquidity preference coefficient (x); (d2) the credit granted by commercial banks to the private sector; (d3) the capital ratio.
- e) Suppose that the central bank decided to expand the credit granted to commercial banks to $L_C^B = 300$. (e1) Assuming that liquidity preference (x) remained unchanged and that demand for credit was enough, how much would credit to the private sector expand? (e2) Quantify the final balance sheet of commercial banks. (e3) Will base money and the money supply expand in the same proportion? Explain.

II.C (Aggregate demand and supply) Consider a closed economy described by the following equations: Phillips curve: $\pi = \pi_{t-1} + 0.001[q - 20]$; market of goods and services: $q = \bar{A} - 200r$, where initially $\bar{A} = 30$. Central bank: $i = \bar{i} + 2[\pi - \bar{\pi}]$. The mandate of the central banks is to target $\bar{\pi} = 0.02$.

- f) (f1) Interpret the Phillips curve; Find out: (f2) the consistent \bar{i} . (f3) the expression of aggregate demand. (f4) explain its slope.
- g) Departing from a long run equilibrium, suppose that a shock tilted autonomous spending by $\Delta \bar{A} = 6$. (g1) Assume that the shock lasted for one period, only. Use graphical analysis to describe the short-run and the long-run adjustment. (g2) Consider in alternative that the shock was permanent. What would happen if the central bank kept the monetary rule unchanged? What would be required policy action? Explain, with the help of a graph.