



1. Which option is **NOT** possible?
  - (a) Nominal GDP goes up, real GDP goes down, and GDP deflator changes.
  - (b) Nominal GDP goes up, real GDP goes up, and GDP deflator also goes up.
  - (c) Nominal GDP goes up, real GDP remains constant, and GDP deflator goes down.
  - (d) Nominal GDP, real GDP, and GDP deflator do not change.
  
2. Select the case in which at least two of the variables not underlined appear in the formula defining the variable underlined.
  - (a) Population, CPI inflation rate, real exchange rate, real GDP per capita.
  - (b) Cash in the hands of the public, M1, nominal interest rate, bank deposits.
  - (c) Domestic CPI, velocity of circulation of money, purchasing power parity exchange rate, M0.
  - (d) None of the above
  
3. What combination of policies could explain an increase in the interest rate and a decrease in the inflation rate?
  - (a) A contractionary open market operation with a supply-side policy
  - (b) An expansionary fiscal policy with a reduction in the reserve requirements
  - (c) There is no policy mix capable of raising the interest rate and, simultaneously, capable of lowering the inflation rate.
  - (d) None of the above
  
4. Identify the case in which at least two of the variables intervene directly in the money multiplier (or money creation) process.
  - (a) M1, growth rate of nominal GDP per capita, real interest rate, real exchange rate.
  - (b) Unemployment rate, net exports, public deficit, trade balance.
  - (c) Taxes, inflation rate of the rest of the world, bank loans, liquidity ratio.
  - (d) None of the above
  
5. Okun's law, the Phillips curve, the Fisher equation, and Taylor's rule have in common that
  - (a) they are all particular cases of Goodhart's law.
  - (b) at least three of them are particular cases of the savings identity.
  - (c) at least three of them are instances of supply-side policies and at least one is an example of an expansionary demand-side policy.
  - (d) None of the above
  
6. What could **NOT** explain a reduction in the money multiplier?
  - (a) That the liquidity ratio and the reserve ratio both diminish.
  - (b) That the liquidity ratio decreases at the same time as the reserve ratio increases.
  - (c) That the reserve ratio decreases at the same time as the liquidity ratio increases.
  - (d) None of the above

7. Which sentence is **NOT** false?
  - (a) The euro depreciates against the dollar when the exchange rate goes from 4 €//\$ to 2 €//\$.
  - (b) The crowding out effect of fiscal policy refers to the fact that unemployed workers are expelled from the labour market.
  - (c) The existence of a trade deficit does not imply that the government runs a budget deficit.
  - (d) A supply-side policy is a measure taken by the central bank to reduce the supply of euros in the currency market.
  
8. Which option includes at least two economic policy tools attributed to a central bank?
  - (a) Public expenditure, tax rates, trade surplus, real interest rate, aggregate demand function.
  - (b) Unemployment rate, GDP of the rest of the world, legal reserves, open market operations.
  - (c) M1, supply of dollars function, price of T-bills, aggregate supply function.
  - (d) None of the above
  
9. What sentence is **NOT** true?
  - (a) If financial asset A is more liquid and more profitable than financial asset B, then it is likely that B will be less risky than A, with the rest of characteristics of A and B being the same.
  - (b) The real exchange rate may have the same numerical value as the purchasing power parity exchange rate.
  - (c) It is not possible that an economy experiences simultaneously hyperinflation and deflation.
  - (d) The above three sentences are all false.
  
10. A depreciation of the dollar with respect to the euro **COULD NOT** be explained by
  - (a) a rise in the European GDP when, in addition, the European interest rate falls and the European inflation rate goes up.
  - (b) a rise in the European GDP when, in addition, the European interest rate and the European inflation rate both go up.
  - (c) a contraction in the European GDP when, in addition, the European interest rate and the European inflation rate both go up.
  - (d) a rise in the European GDP when, in addition, the European interest rate and the European inflation rate both go down.
  
11. It is **TRUE** that
  - (a) the interest rate real rises two percent points if the inflation rate falls two percent points as well and the interest rate nominal increases by four percent points.
  - (b) a real appreciation of the real exchange rate (rate expressed as foreign goods/domestic goods) improves the domestic competitiveness.
  - (c) in the aggregate supply and aggregate demand model, a shock causing a rise in the inflation rate and a decline in GDP can be neutralized exclusively by means of a shift of the aggregate demand function.
  - (d) the real interest rate can be negative.

**INSERT IN THE TABLE BELOW THE ANSWERS TO THE MULTIPLE CHOICE QUESTIONS ABOVE**

No answer: +0 · An incorrect answer takes 1/3 of the value of a correct answer · Score: 22%

1	2	3	4	5	6	7	8	9	10	11

DNI number \_\_\_\_\_ Surname(s) \_\_\_\_\_ Name \_\_\_\_\_

1. Write down the formulae that define the following concepts and enunciate the name of each variable in the formulae.

[1%] Real exchange rate	[1%] Quantity equation	[1,5%] Savings identity
[1%] GDP deflator	[1%] Fisher equation	[1%] Purchasing power parity exchange rate
[1%] Monetary base	[1%] M1	[1%] Money multiplier (formula without M0 nor M1)

2. What is ...

[1,5%] ... the crowding out effect of an expansionary fiscal policy?	[1,5%] ... the fiscal policy?
[3%] ... the bank money creation process by means of banks? Explain also how the process unfolds.	[1,5%] ... a contractionary open market operation?

3. State ...

[2%] ... two contractionary fiscal policy measures, two expansionary monetary policy measures and two supply-side policies.	PF	PM	PO
[1,5%] ... two variables that typically grow during the expansionary phase of the business cycle and two that grow during the contractionary phase.	Expansionary phase		Contractionary phase
[1%] ... both a nominal and a real macroeconomic variable that cannot take a negative value.	Nominal		Real
[1%] ... two functions of a central bank.			
[1%] ... two macroeconomic variable such that, in general, one increases when the other decreases.			

4. OPTIONAL [Our 3%] Encircle the names of states or territories that are at present members of the eurozone (an incorrect answer cancels out a correct answer).

- |         |                      |               |                |               |              |           |
|---------|----------------------|---------------|----------------|---------------|--------------|-----------|
| Andorra | Vatican City         | Liechtenstein | Monaco         | San Marino    | Poland       | Macedonia |
| Kosovo  | Republic of Kiribati | Sweden        | Hungary        | Cocos Islands | Ukraine      | Lithuania |
| Russia  | Czech Republic       | Romania       | Bulgaria       | Denmark       | Latvia       | Cyprus    |
| Norway  | Serbia               | Croatia       | United Kingdom | Wales         | Transnistria | Estonia   |

5. Use the information provided next regarding an economy and three periods to calculate the value of the variables indicated. If it is not possible to determine some value, tell which information is missing.

In period 1: real GDP is 100, the money multiplier is 3; the unemployment rate is 12%; cash in the hands of the public is 100; and reserves are 100. In period 2: real GDP is 50; the unemployment rate is 10%; the liquidity ratio is  $\frac{3}{4}$ ; CPI is 70; and the public deficit is 30. Nominal GDP is the same in periods 1 and 2. The nominal interest rate between periods 1 and 2 is 2%. From period 2 to 3: the amount of money has increased by 8%; the velocity of circulation of money has diminished by 2%; and the rate of the change of the rest of variables in the quantity equation is the same.

[2,5%] Calculate (providing details) the GDP deflator inflation rate justifiadamente the inflation rate between periods 1 and 2, and, using this rate, the real interest rate in the same interval.

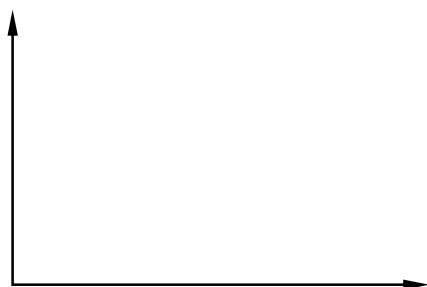
[2,5%] Calculate (providing details) the approximate value of the inflation rate between periods 2 and 3, and, using this rate, the real interest rate in the same interval.

[5%] Calculate (providing details) M0, M1, deposits, the liquidity ratio, and the reserve ratio in period 1.

6. [11%] According to EUROSTAT, Spain finished 2016 being the member state of the European Union with the highest public deficit and ranking the sixth in terms of public debt to GDP ratio (99.4%). According to data from the Bank of Spain published on the 17th of May, 2017, the Spanish public debt amounted to €1,129,378 million in March 2017, which represents more than a 100% of GDP (100.6% using the GDP from 2016). A report by *Fundación BBVA* and *IVIE (Instituto Valenciano de Investigaciones Económicas)*, dated the 24th of April, 2017, claims that the effort to keep under control the public deficit in Spain has reduced public investment by nearly 60% since 2009. <http://www.20minutos.es/noticia/3019233/0/deficit-publico-2016-eurostat-espana-pais-mas-elevado/>  
<http://www.20minutos.es/noticia/3039202/0/deuda-administraciones-publicas-marzo-2016/>

(i) Explain, and illustrate graphically your explanation by means of the aggregate supply and aggregate demand model, the effect on the GDP of the decision by a government running a budget deficit to lower the public debt by achieving a budget surplus.

(ii) Could that decision cause an increase in the public debt to GDP ratio?



7. [3%] Explain if a rise in the domestic interest rate tends to appreciate or depreciate the home currency.

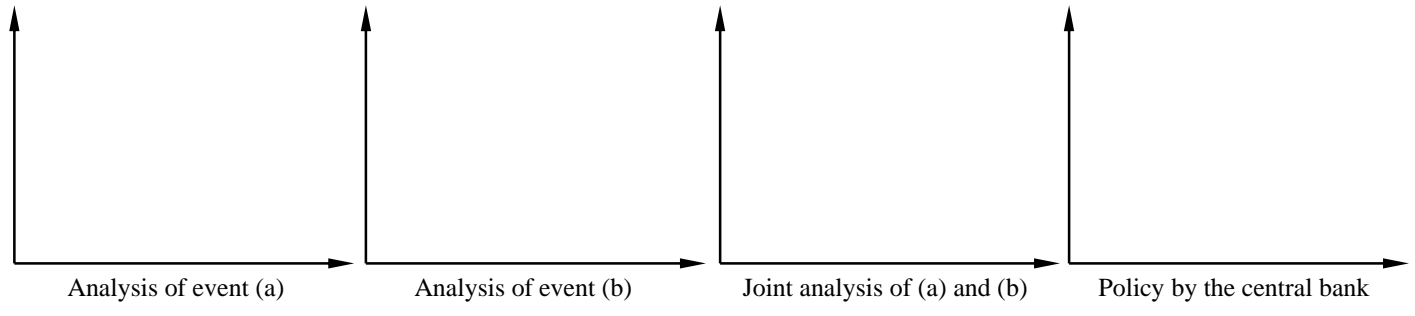
**8. [3%]** The US price level is 600, the eurozone price level is 200, the European interest rate is 3%, the American unemployment rate is 5%, and the exchange rate is such that one euro exchanges for six dollars. Find the real exchange rate and the purchasing power parity exchange rate. Explain if the nominal rate is overvalued with respect to its parity value.

**9. [3,5%]** There are only two economies, A and B. Exports from A are 4. Exports from B are 6. Public deficits (outlays minus receipts) in A and B are the same. In A, savings are 8 and investment is 1. Investment in B is 0. Calculate savings in B and the trade balance of B.

**10. [12%]** Imagine that everybody regards as excessive the volume of public debt accumulated by some government. Despite that, the government cannot prevent public debt from growing.

(i) Explain, and illustrate graphically your explanation by means of the liquidity market model, how the following two events would affect the interest rate: (a) the government issues T-bills to finance the increase in the public deficit; (b) expecting that the government will eventually raise taxes to repay the debt and that this decision will slow down economic activity, banks become more reluctant to furnish credit and provide loans to households and firms.

(ii) Suggest a policy measure by the central bank that could offset the effect on the interest rate found in part (i) and represent graphically, by means of the liquidity market model, how the measure neutralizes the change in the interest rate.



**11. [11%]** Imagine that American investors believe that Spain will be unable to pay back its public debt, that this default will destabilize the eurozone, and that this instability will be so severe that the euro will most probably collapse and disappear.

(i) Explain how this belief is likely to affect the exchange rate  $\$/\epsilon$  and illustrate graphically your explanation by means of the currency market model.

(ii) If the European Central Bank (ECB) aimed at neutralizing the effect on the exchange rate found in part (i), would the ECB have to purchase or sell dollars in the currency market? Which function will the ECB's intervention shift and in what direction?

(iii) If the US Federal Reserve ('the Fed') wanted to achieve the same goal as the ECB, would the Fed have to purchase or sell dollars?

