DNI Number _____ 1st Surname _____ Name _____

1. [3%] Indicate something that the fallacy of composition and the fallacy *post hoc, ergo propter hoc* have in common and something that differentiates them.

2. [3%] Explain briefly what Simpson's paradox is about and why it could be relevant for macroeconomic analysis.

3. [3%] Imagine a student that, when in doubt about the answer to some exercise, automatically presumes that the teacher's answer is the correct one. Of which concept explained in the course (paradox, effect, fallacy…) could this situation be considered an illustration? Justify the answer.

4. [3%] Define the reverse Tinkerbell effect and suggest an example.

5. [3%] Indicate a lesson of prisoner's dilemma type games relevant for macroeconomic analysis.

6. [3%] Define Goodhart's law and suggest an example.

7. [5%] CPI in period $t + 1$ is 120. CPI in period t is 150. Between t and $t + 1$ real GDP has fallen by 3%. The GDP deflator inflation rate between t and $t + 1$ is half the CPI inflation rate between t and $t + 1$. If possible, find by how much nominal GDP has changed between t and $t + 1$.

8. [3%] If possible, find the GDP deflator, and express it in base 100, if real GDP doubles nominal GDP. Interpret the result.

9. [3%] Give an example of a nominal flow variable and another of a real stock variable, none of which involving the term GDP.

10. [4%] Explain if it is possible to simultaneously have an unchanged real GDP per capita, an increase in nominal GDP, a fall in the GDP deflator, and a population rise.

11. [3%] Explain if it possible to have a period of inflation, followed by a period of reflation, followed by a period of deflation.

12. [3%] Explain if it possible to have, at the same time, a fall in the unemployment rate and a rise in the number of unemployed workers.

13. [3%] Define the concept of technological unemployment.

14. [3%] Does Say's law justify rather the existence or rather the non-existence of involuntary unemployment? Justify the answer.

15. [3%] Indicate something that Okun's law and the Phillips curve have in common and something that differentiates them.

16. [10%] Let u designate the unemployment rate, Δu the change in the unemployment rate, π the inflation rate, and $\hat{Y}$ the rate of change of real GDP. (i) Of which relationship is the equation $\pi = 10 - u$ an example? (ii) Of which relationship is the equation $\Delta u = 6 - 2 \cdot \hat{Y}$ an example? (iii) Combine the two equations to find a relationship involving real GDP and the inflation rate. What is the name of this relationship?

17. [4%] To what phenomenon is the wage efficiency hypothesis an explanation? How does the hypothesis explain it?

18. [17%] Consider the orthodox labour market model. The demand for labour function is $N^d = 12 - \omega$ ($N^d = 0$ if $\omega > 12$). The supply of labour function is $N^s = 2 \cdot \omega$. (i) Find the equilibrium wage rate and identify it in a graphical representation of the model. (ii) What is the amount of involuntary unemployment if $\omega = 3$? (iii) What is the amount of involuntary unemployment if $\omega = 5$?

19. [18%] Let the demand for labour function be $N^d = 12 - \omega$ (with $N^d = 0$ if $\omega > 12$). Let the supply of labour function be $N^s = 2 \cdot \omega$. Suppose that, at any wage rate ω, employers only consider worth hiring at ω half of the labour supplied at ω. This means that, for the employers perspective, the 'effective' supply of labour function is not $N^s = 2 \cdot \omega$. Find that 'effective' supply, the corresponding equilibrium, and whether there is involuntary unemployment at that equilibrium (if so, calculate its amount). Represent the three functions and the results grahically.

20. [4%] Net private savings have increased by 5% while net exports have decreased by 2%. Find the approximate change in government savings.

21. [4%] Private savings are 15. Investment is equal to taxes. Government purchases equal imports. Exports double transfers. Find, if possible, exports.

22. [4%] Explain if it is possible to simultaneously have the domestic private sector in surplus, the domestic public sector balanced, and the foreign sector in deficit.

23. [4%] Spain accumulates four years of current account surpluses. In all these years, the government budget has been running a deficit. What can be said about the balance of the domestic private sector in that period?

24. [12%] **Indonesia's tax amnesty.** "Indonesia's tax amnesty, which began in July 2016, ended on March 31st. More than 800,000 evaders declared 4,700trn rupiah ($350bn) in assets previously hidden from the authorities. That is a staggering sum, equivalent to 40% of Indonesia's GDP and 90% of the money supply (…) At around 10% of GDP, Indonesia's tax ratio is one of the lowest in South-East Asia and compares with an average of 34% among OECD countries. The government hopes that the amnesty will add new names to the tax register and thus bring about a steady increase in the numbers paying the tax they owe."
http://www.economist.com/news/finance-and-economics/21719822-it-brought-windfall-has-been-criticised-letting-evaders?zid=306&ah=1b164dbd43b0cb27ba0d4c3b12a5e227

Using the AS-AD model, analyze the effect of a tax amnesty on the macroeconomic equilibrium (provide a justification of the changes you claim that occur in the AS or AD functions).

25. [12%] **Political uncertainty.** On the 31st of March, 2017, the Spanish Minister of Economy, Industry, and Competitiveness, Luis de Guindos, declared that political uncertainty in 2016 prevented the Spanish economy from having reached a growth rate of 3.5% in 2016, instead of the actual rate of 3%. [A new government failed to be elected in 2016 for lack of parliamentary support. For that reason, Spain was rule in 2016 by an acting government, which is not a fully functioning government and must be devoted to carried out the bare essential governmental activity.]
http://cincodias.elpais.com/cincodias/2017/03/31/mercados/1490972420_364646.html

Using the AS-AD model, analyze the effect of political domestic uncertainty on the macroeconomic equilibrium (provide a justification of the changes you claim that occur in the AS or AD functions).

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26. [12%] **Drinking and blowing?** On the 31st of March, the Spanish minister of Economy, Industry, and Competitiveness, Luis de Guindos, seemed to implicitly invite Spanish firms to raise wages and salaries, since the Spanish economy is no longer on the verge of economic disaster. [The minister forgot to mention that the Spanish government has strongly contributed to remove from workers the bargaining power necessary to press for wage increases, so that it is entirely up to the employers' will to grant any pay rise.]
http://cincodias.elpais.com/cincodias/2017/03/31/mercados/1490972420_364646.html

Using the AS-AD model, analyze the effect of a wage increase on the macroeconomic equilibrium (provide a justification of the changes you claim that occur in the AS or AD functions).

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27. [12%] "The Indonesian government under the leadership of Joko Widodo has implemented several structural reforms that aim at long-term growth but cause some short-term pain. For example, the majority of fuel subsidies have been scrapped successfully, a remarkable accomplishment (as fuel subsidy cuts have always caused outrage among the population) aided by the globe's low crude oil prices. Moreover, the government places high priority on infrastructure development (evidenced by the sharply rising government infrastructure budget) and on investment (evidenced by deregulation and fiscal incentives that are offered to private investors)."
http://www.indonesia-investments.com/culture/economy/item177

Using the AS-AD model, justify the claim that the above measures cause long-term growth and short-term pain.

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28. [17%] "If Ecuador's opposition candidate Guillermo Lasso wins the April 2 runoff election (…), most Ecuadoreans will soon realize that outgoing President Rafael Correa's alleged 'economic miracle' of the past 10 years was a monumental sham. In fact, Correa's government should become a textbook case of economic mismanagement (…) Students should be asked to look at Ecuador's economic performance and its success in reducing poverty under Correa's populist 'revolution,' and compare it with neighboring Peru's. They would rapidly discover that, while both countries — like much of the rest of South America — in recent years benefited from the biggest boom in commodity prices in recent history, Peru did much better than Ecuador. (…) While Ecuador's economy grew by an annual average of 3.4 percent between the start of Correa's term in 2007 and 2014, Peru's economy grew by an annual average of 5.6 percent. Jose Hidalgo, director of Ecuador's CORDES economic research firm, says the biggest difference between the two countries is that while Peru has welcomed investments and saved for a rainy day, Correa's Ecuador went on a populist fiesta that left the country broke. Under

Correa, Ecuador was the South American country that most increased public spending during the oil boom years (…) Public spending grew from 25 percent of the gross domestic product to 44 percent (…) Correa hit private businesses with hundreds of regulations and more than 20 tax reforms, sowing growing confusion and scaring away private investments."
http://www.miamiherald.com/news/local/news-columns-blogs/andres-oppenheimer/article136054198.html

(i) Using the AS-AD model and justifying all the changes made in the AS or AD functions, represent how an economy can benefit from a boom in export prices.

(ii) Using the AS-AD model and justifying all the changes made in the AS or AD functions, explain why attracting foreign investment could lead to a higher GDP growth than increasing public expenditure at the expense of domestic private investment.

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29. [12%] The richest 1% in Ecuador apparently controls the 64% of drinking water. <u>A single mine could use in one day more water than a family in 22 years</u>. https://www.theguardian.com/global-development-professionals-network/2017/mar/01/crece-la-inestabilidad-en-latinoamerica-por-la-falta-del-agua

Using the AS-AD model, and justifying all the changes made in the AS or AD functions, analyze the effect on the macroeconomic equilibrium of a more egalitarian distribution of water in an economy like Ecuador.

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30. [15%] "As the national <u>water emergency</u> enters its fourth month [in Bolivia], drinking water is rationed to a few days a week in many cities, the country's reservoirs remain close to empty, and its second biggest lake has already dried up. As anger mounts, protests have been held across the country (…) [President Evo] Morales attributes Bolivia's drought to global warming. But, it is not as simple as that, says Pablo Solon, Bolivia's former ambassador to the UN in global climate change talks. (…) 'Cities are vulnerable to climate change but government policies are making climate change worse,' says Solon. 'There has been a huge development of extractive industries, like soya, mining and mega dams. There has also been a lot of <u>deforestation</u>. These have all worsened the water situation and made Bolivia, and other Latin American countries, more vulnerable to climate change.'"
https://www.theguardian.com/global-development-professionals-network/2017/mar/01/water-scarcity-latin-america-political-instability

Using the AS-AD model, and justifying all the changes made in the AS or AD functions, analyze the effect on the macroeconomic equilibrium of a water emergency combined with deforestation in a country strongly dependent on the exploitation of natural resources.

31. [12%] **Trade. "**Italy is hosting a Group of Seven summit in May in Sicily - the first involving U.S. President Donald Trump, who has pledged to fight trade practices that he says hurt American workers. Italian Prime Minister Paolo Gentiloni has said major powers should reject 'the temptation of protectionism' at the meeting (…) Gentiloni told Italian business leaders and industrialists that <u>free trade was 'the biggest growth engine in history</u>.'" http://www.reuters.com/article/us-italy-usa-trade-idUSKBN172193

Using the AS-AD model, justify the assertion that free trade between two economies is a growth engine. Alternatively, show the GDP losses that could be caused by two economies implementing protectionist measures (an increase in tariffs and other taxes on imports or, more radically, a ban on imports).

32. [16%] **Argentina.** "The economy declined in the fourth quarter of 2015, and fell into recession in the first half of last year. Some of Macri's <u>reforms aimed at cutting the deficit and encouraging investment</u>, including letting the peso currency float and <u>cutting subsidies</u>, deepened the recession by <u>gutting consumers' purchasing power</u>. Popular frustration over these policies has grown in recent months, with a poll this weekend showing more Argentines disapprove of Macri than approve for the first time since he took office. The country's largest labor union has called a <u>general strike for April 6</u>." http://www.reuters.com/article/argentina-economy-idUSL2N1GY1FV

Using the AS-AD model, and justifying all the changes made in the AS or AD functions, analyze the effect on the macroeconomic equilibrium of the measures and events described above.

33. [12%] **DJ Trump.** "Trump's decision to abandon America's hard-won gains in the TPP [Trans-Pacific Partnership] negotiations is especially puzzling (…) The TPP includes hundreds of practical and enforceable provisions that would increase trade and regulatory transparency, reduce market distortions, slash tariff and non-tariff barriers to American goods and services, and even reform NAFTA. And it would apply these reforms broadly, to countries accounting for 40 percent of global trade—a near-term result that would be impossible to duplicate by starting from scratch on one-off bilateral deals. Rather than abandoning the vital work of expanding global rules-based trade, the Administration should seek to reassert American leadership. (…) Presidential trade agendas have historically been forward-looking, with a strong focus on the opportunities that trade presents for America. Trump's agenda, in contrast, is inward-looking and reactive."
http://www.cnbc.com/2017/03/31/trumps-trade-agenda-will-hurt-us-economy-commentary.html

Using the AS-AD model, determine the impact on the macroeconomic equilibrium of adopting protectionist trading measures (like an increase in tariffs and other taxes on imports or, more radically, a ban on some imports).

HOW TRUMP'S TAX PLAN WORKS...

34. Optional. [9%] Justify or criticize what is expressed in the cartoon.
https://www.usnews.com/opinion
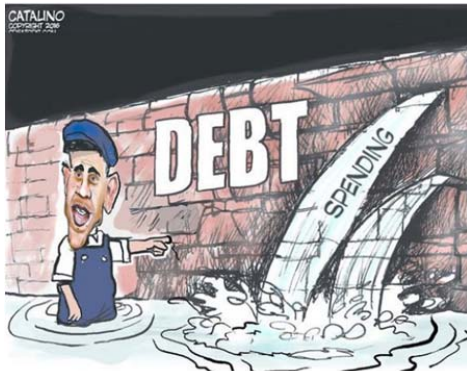
35. Optional. [9%] How do you interpret the cartoon on the left?
https://www.usnews.com/opinion

36. [12%] **Money.** Today, 4th of April, 2017, the European Central Bank issues the new €50 banknote. Imagine that the European Central Bank dictates that, by the end of 2017, old €50 banknotes cease to be legal tender (official money). Using the AS-AD model, analyze how this measure is likely to affect the macroeconomic equilibrium (justify the changes made in the AS or AD functions).

37. [13%] **Brexit.** Using the AS-AD model, analyze the effect on Spain's macroeconomic equilibrium of a reduction in the number of British tourists combined with a return of British firms, currently settled on Spanish soil, to UK.

38. [23%] **Model of the world economy.** Private savings are constant: $S = \bar{S}$. Investment is proportional to income: $I = a \cdot Y$, where $0 < a < 1$. Public purchases and transfers are constant: $G + TR = \bar{G} + \overline{TR}$. Finally, taxes are proportional to income: $T = t \cdot Y$, where $0 < t < 1$. Suppose $\bar{G} + \overline{TR} > \bar{S}$. (i) Represent this model graphically and identify the value of world income. Does this value correspond to a private surplus or a private deficit? (ii) Calculate world income if $\bar{S} = 10$, $\bar{G} + \overline{TR} = 20$, $a = 1/5$, and $t = 1/4$. Determine whether the government runs a budget deficit or a budget surplus. (iii) Answer (ii) if $a = 1/4$ and $t = 1/5$. Interpret the result. (iv) Find which change in the value of $\bar{G} + \overline{TR}$ in (ii) is necessary to reach a balanced government budget. (v) Find which change in the value of t in (ii) leads to a balanced government budget.

39. [23%] **Model of the world economy.** Invesment is constant: $I = \bar{I}$. Private savings are proportional to income: $S = s \cdot Y$, where $0 < s < 1$. Transfers are zero: $TR = 0$. Public purchases are proportional to income: $G = g \cdot Y$, where $0 < g < 1$. Lastly, taxes are constant: $T = \bar{T}$. Suppose $\bar{T} > \bar{I}$. (i) Represent this model graphically and identify the value of world income. Does this value correspond to a private surplus or a private deficit? (ii) Calculate world income if $\bar{I} = 12$, $\bar{T} = 24$, $s = 1/4$, and $g = 1/3$. Determine whether the government runs a budget deficit or a budget surplus. (iii) Answer (ii) if $g = 1/4$ and $s = 1/3$. Interpret the result. (iv) Find which change in the value of $\bar{T}$ in (ii) is necessary to reach a balanced government budget. (v) Find which change in the value of g in (ii) leads to a balanced government budget.

40. [18%] **Model of the world economy.** Invesment is constant: $I = \bar{I}$. Private savings are proportional to income: $S = s \cdot Y$, where $0 < s < 1$. Transfers are zero: $TR = 0$. Public purchases are constant: $G = \bar{G}$. Finally, taxes are proportional to income: $T = t \cdot Y$, where $0 < t < 1$. Suppose $\bar{G} = \bar{I}$ and $s = t$. (i) Represent this model graphically and determine the formula that establishes the value of world income. Does this value correspond to a private surplus or a private deficit? (ii) Calculate by how much world income changes if both s and t double. Determine whether the government runs a budget deficit or a budget surplus. (iii) Ascertain grahically the effect on world income of an increase in t. (iv) Starting with the change in world income obtained in (iii), assume that the aim is to neutralize the change in world income by just modifying I. Should I rise or fall? Illustrate the analysis graphically.

Consumer Confidence Index

The benchmark level of 100 is based on readings in 1985.

41. [12%] "The Trump administration has offered few details on its economic policies, but <u>both business and consumer confidence have surged</u> following the businessman-turned-politician's electoral victory last November."
http://in.reuters.com/article/us-usa-economy-gdp-idINKBN1711MX

"Consumer confidence soars in March to highest level since December 2000"
http://www.cnbc.com/2017/03/28/us-consumer-confidence-hits-1256-in-march-vs-estimate-of-114.html

Using the AS-AD model, analyze the effect on the macroeconomic equilibrium of an increase in both business and consumer confidence.

The hidden risk of holding cash

How £10,000 in 2007 is worth only £9,041 in 2017

Bank Rate (nominal) — Bank Rate (real)
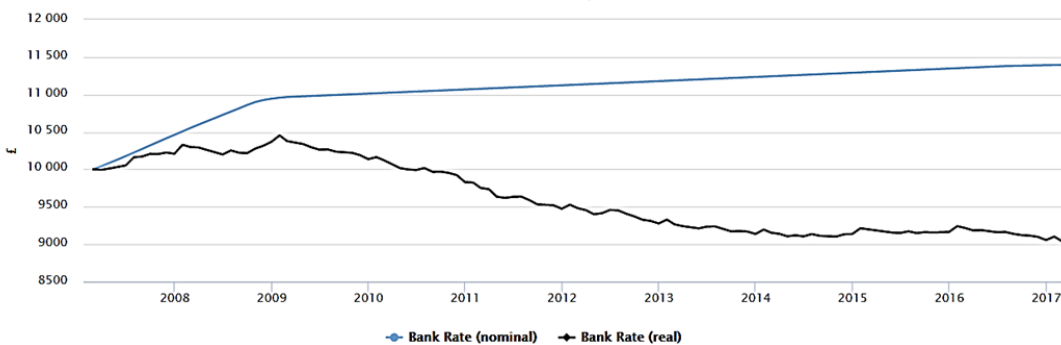
42. [8%] Interpret the chart on the left.
http://cloud.highcharts.com/show/imewody

43. [12%] "President Mauricio Macri's promises to end <u>trade restrictions</u> and open Argentine commerce to the world have fallen flat for many importers, who are going to court to free up goods trapped in the country's byzantine customs system. The delays have led companies to file an increasing number of injunctions asking judges to require the government to release their imports (…) 'Our level of activity fell by 25 percent, more than the decline in consumption, which was 15 percent,' said Jorge Sorabilla, president of the Pro-tejer Foundation, a lobby group for textile and clothing companies. 'That additional 10 percent is due to imports.'"
http://www.reuters.com/article/us-argentina-economy-trade-idUSKBN1712Y4

Using the AS-AD model, analyze the effect on the macroeconomic equilibrium of establishing import restrictions on both consumption and capital goods.

44. [12%] "Consumer prices in greater Buenos Aires rose 2.5 percent in February over the previous month, Argentina's official Indec statistics agency said on Thursday, above median expectations in a Reuters poll for a 2.1 percent rise. That was nearly double 1.3 percent inflation in January, driven by an <u>increase in electricity rates</u> after President Mauricio Macri <u>cut subsidies to consumers</u> as part of the center-right government's efforts to close a yawning fiscal deficit. The government will continue to raise electricity prices in March, while <u>gasoline prices are expected to increase</u> in April. Regulated price increases present a challenge to the central bank's goal of inflation between 12 and 17 percent in 2017."
http://www.cnbc.com/2017/03/09/reuters-america-update-2-argentina-inflation-spikes-in-february-due-to-electricity-rate-hikes.html

Using the AS-AD model, analyze the effect on the macroeconomic equilibrium of the events described above.

45. [12%] "The so-called <u>Mediterranean Railway Corridor</u>, a long-awaited piece of infrastructure which is set to transport freight and passengers non-stop from Gibraltar to Central Europe along the Mediterranean coastline, is one of the most representative examples of Spain's lack of investment in Catalonia. Despite being essential not only for the Spanish economy but for the entire European economy as well, its construction has been repeatedly delayed (…) <u>The delays in the construction of the Corridor are affecting private investment</u>, the Catalan Government has warned. According to Catalan Minister for Planning and Sustainability, Josep Rull, the pending business investments are worth €300 million, of which €20 million corresponds to an investment from the German multinational Basf, which announced it will expand one of its plants in Tarragona."
http://www.catalannewsagency.com/business/item/the-mediterranean-railway-corridor-a-key-long-awaited-infrastructure

Using the AS-AD model, analyze the effect on the macroeconomic equilibrium of building a transport infrastructure like the Railway Corridor. Compare the result with the one arising when the infrastructure is not built.