

Name: _____

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Principles of Macroeconomics — Practice Exam

Instructions: Section A: answer ALL 30 multiple-choice questions (2 points each). Each question has four options, A to D, of which exactly one is correct. Section B: answer ALL 4 questions (10 points each) and show your working. A calculator may be used. Time allowed: 90 minutes.

Time Limit: 90 minutes

Multiple Choice (30 questions)

- [2 points] 1. A small economy produces only wheat and cloth. Using all of its resources efficiently, it can produce any of the following combinations: 0 tonnes of wheat and 100 bolts of cloth; 10 tonnes and 95 bolts; 20 tonnes and 85 bolts; 30 tonnes and 70 bolts; 40 tonnes and 50 bolts. The opportunity cost of raising wheat output from 20 tonnes to 30 tonnes is:
- A. 15 bolts of cloth, or 1.5 bolts of cloth per tonne of wheat
 - B. 10 bolts of cloth, or 1 bolt of cloth per tonne of wheat
 - C. 70 bolts of cloth
 - D. 0.67 tonnes of wheat per bolt of cloth
- [2 points] 2. An economy is producing at a point inside its production possibilities frontier. The best explanation is that:
- A. it has chosen to produce more capital goods than consumer goods
 - B. it faces increasing opportunity costs
 - C. it does not have enough resources to reach the frontier
 - D. some of its labour or capital is unemployed or used inefficiently
- [2 points] 3. Which of the following transactions is included in this year's gross domestic product?
- A. A family buys a 15-year-old house for 300,000 dollars
 - B. A household sells its three-year-old car to a neighbour for 8,000 dollars
 - C. A homeowner pays a builder 20,000 dollars to add a new room to her house
 - D. A retired teacher receives a monthly state pension of 1,800 dollars

- [2 points]** 4. Last year an economy recorded the following, in billions of dollars: household consumption 1,250; gross private investment 310; government purchases of goods and services 420; government transfer payments 190; exports 280; imports 340; depreciation of the capital stock 150. Gross domestic product was:
- A. 2,110 billion dollars
 - B. 1,920 billion dollars
 - C. 1,770 billion dollars
 - D. 2,600 billion dollars
- [2 points]** 5. A farmer grows wheat and sells it to a miller for 200 dollars. The miller grinds it into flour and sells the flour to a baker for 350 dollars. The baker bakes bread and sells it to consumers for 800 dollars. The contribution of this chain of production to GDP is:
- A. 1,350 dollars
 - B. 600 dollars
 - C. 450 dollars
 - D. 800 dollars
- [2 points]** 6. Which of the following productive activities is NOT included in measured GDP?
- A. A nanny is paid 500 dollars a week to look after a family's children
 - B. A parent stays at home to look after their own children
 - C. A state school provides free primary education
 - D. A furniture maker adds 50 unsold tables to its inventory
- [2 points]** 7. In an economy, nominal GDP this year is 1,560 billion dollars and real GDP measured in base-year prices is 1,200 billion dollars. The GDP deflator for this year is:
- A. 77
 - B. 30
 - C. 130
 - D. 360
- [2 points]** 8. The consumer price index of a country is 240.0 in year 1, 252.0 in year 2 and 264.6 in year 3. The inflation rate in year 3 is:
- A. 5.0 percent
 - B. 5.25 percent
 - C. 10.25 percent
 - D. 12.6 percent
- [2 points]** 9. Over five years a worker's salary rises from 40,000 dollars to 44,000 dollars while the consumer price index rises from 200 to 220. In real terms, the worker's salary has:
- A. risen by 10 percent
 - B. stayed the same
 - C. fallen by 10 percent
 - D. risen by 20 percent

- [2 points]** 10. Which of the following is a reason why a consumer price index based on a fixed basket tends to OVERSTATE the rise in the cost of living?
- A. The CPI includes the prices of imported consumer goods, which the GDP deflator excludes
 - B. New products are added to the basket as soon as they appear on the market
 - C. The basket is fixed, so the index ignores consumers switching toward goods whose relative prices have fallen
 - D. The CPI excludes the prices of capital goods bought by firms
- [2 points]** 11. A country has a working-age population of 50 million. Of these, 28 million are employed, 2 million are without work and actively looked for a job in the past four weeks, and the rest are neither working nor looking for work. The unemployment rate and the labour force participation rate are:
- A. 4.0 percent and 60 percent
 - B. 6.7 percent and 56 percent
 - C. 7.1 percent and 60 percent
 - D. 6.7 percent and 60 percent
- [2 points]** 12. Which of the following is the best example of FRICTIONAL unemployment?
- A. A recent graduate spends two months searching for a first job that suits her degree
 - B. A ski instructor is out of work each summer when the resort closes
 - C. A bank cashier loses her job when the bank moves its services to a mobile app, and she lacks the skills for the vacancies in her town
 - D. A builder is laid off when a recession halts new construction projects
- [2 points]** 13. In an economy the frictional unemployment rate is 2.5 percent and the structural unemployment rate is 2.0 percent. The measured unemployment rate is 7.0 percent. The natural rate of unemployment and the cyclical unemployment rate are:
- A. natural rate 2.5 percent; cyclical unemployment 4.5 percent
 - B. natural rate 4.5 percent; cyclical unemployment 2.5 percent
 - C. natural rate 4.5 percent; cyclical unemployment 7.0 percent
 - D. natural rate 7.0 percent; cyclical unemployment 0 percent
- [2 points]** 14. A country's real GDP grows at 4.5 percent a year while its population grows at 1.0 percent a year. Using the rule of 70, real GDP per person will double in approximately:
- A. 16 years
 - B. 29 years
 - C. 20 years
 - D. 70 years
- [2 points]** 15. Pavia and Quill have the same saving rate and access to the same technology, but Pavia has far less capital per worker. According to the principle of diminishing returns to capital, over the next few decades:
- A. Quill will grow faster, because it has more capital per worker to begin with
 - B. both will grow at the same rate, because they have the same saving rate
 - C. Pavia will grow faster only if it expands its money supply faster
 - D. Pavia will grow faster, because an extra unit of capital raises output by more where capital is scarce

- [2 points]** 16. The government introduces a tax credit for firms that invest in new equipment, which raises the quantity of investment firms wish to undertake at every real interest rate. In the market for loanable funds, the most likely result is that:
- A. the demand for loanable funds increases, the real interest rate rises and the equilibrium quantity of loanable funds rises
 - B. the supply of loanable funds increases, the real interest rate falls and the equilibrium quantity rises
 - C. the demand for loanable funds increases, the real interest rate falls and the equilibrium quantity falls
 - D. the supply of loanable funds decreases, the real interest rate rises and the equilibrium quantity falls
- [2 points]** 17. In a closed economy, GDP is 2,000 billion dollars, consumption is 1,300 billion, government purchases are 400 billion and taxes net of transfers are 350 billion. Private saving, public saving and national saving are, in billions of dollars:
- A. private saving 700; public saving -50; national saving 650
 - B. private saving 350; public saving 50; national saving 400
 - C. private saving 350; public saving -50; national saving 300
 - D. private saving 350; public saving -50; national saving 400
- [2 points]** 18. Which of the following is the best example of money serving as a UNIT OF ACCOUNT?
- A. A worker is paid her monthly wages in dollars
 - B. A cafe lists the price of every item on its menu in dollars
 - C. A family keeps 2,000 dollars in a savings account for emergencies
 - D. A shop accepts dollars in payment for a coffee
- [2 points]** 19. A customer deposits 2,000 dollars of currency that she had kept at home into her bank account. The required reserve ratio is 20 percent, banks hold no excess reserves and all loans are redeposited in the banking system. The maximum increase in the money supply that can result from this deposit is:
- A. 10,000 dollars
 - B. 1,600 dollars
 - C. 400 dollars
 - D. 8,000 dollars
- [2 points]** 20. Which of the following is a contractionary MONETARY policy action?
- A. The central bank sells government securities in the open market
 - B. The government raises income tax rates
 - C. The central bank lowers the interest rate it pays banks on their reserves
 - D. The central bank reduces the required reserve ratio

- [2 points] 21. In an economy the money supply is 600 billion dollars and nominal GDP is 3,000 billion dollars. Over the next year the central bank lets the money supply grow by 7 percent, the velocity of money is constant and real GDP grows by 2 percent. According to the quantity theory of money, the inflation rate will be approximately:
- A. 7 percent
 - B. 5 percent
 - C. 9 percent
 - D. 3.5 percent
- [2 points] 22. Which of the following would shift the aggregate demand curve to the RIGHT?
- A. A fall in the general price level
 - B. An appreciation of the domestic currency
 - C. Households become more optimistic about their future incomes
 - D. The central bank raises its policy interest rate
- [2 points] 23. An economy is initially in long-run equilibrium at full employment. A boom in demand for its exports then shifts aggregate demand to the right. Which of the following correctly describes the short-run effect and the long-run adjustment if no policy action is taken?
- A. Short run: the price level and real output rise. Long run: aggregate demand shifts back to its original position and the price level returns to its initial level
 - B. Short run: real output rises and the price level is unchanged. Long run: long-run aggregate supply shifts right to the new level of output
 - C. Short run: the price level and real output rise. Long run: short-run aggregate supply shifts right as firms expand capacity, and the price level falls back
 - D. Short run: the price level and real output rise above potential. Long run: nominal wages rise, short-run aggregate supply shifts left, output returns to potential and the price level rises further
- [2 points] 24. In a closed economy with no income taxes, the marginal propensity to save is 0.25. Firms cut their investment spending by 30 billion dollars. Assuming the price level is constant, the equilibrium level of real GDP eventually falls by:
- A. 120 billion dollars
 - B. 90 billion dollars
 - C. 30 billion dollars
 - D. 7.5 billion dollars
- [2 points] 25. An economy experiences rising unemployment and rising inflation at the same time. Within the AD-AS model, the most likely cause is:
- A. a rightward shift of aggregate demand
 - B. a leftward shift of short-run aggregate supply, for example from a sharp rise in energy prices
 - C. a leftward shift of aggregate demand
 - D. a rightward shift of long-run aggregate supply

- [2 points]** 26. During a recession, income tax revenue falls and spending on unemployment benefits rises without any new legislation, so the government's budget deficit widens. This is an example of:
- A. discretionary fiscal policy
 - B. crowding out
 - C. automatic stabilizers
 - D. a structural budget deficit
- [2 points]** 27. At the start of a year a country's government debt is 1,200 billion dollars and its nominal GDP is 2,000 billion dollars. During the year the government runs a budget deficit of 80 billion dollars and nominal GDP grows to 2,200 billion dollars. By the end of the year the debt-to-GDP ratio has:
- A. risen from 60 percent to 64 percent
 - B. fallen from 60 percent to 54.5 percent
 - C. risen from 60 percent to 63.6 percent
 - D. fallen from 60 percent to about 58.2 percent
- [2 points]** 28. Workers and firms raise their expected rate of inflation from 2 percent to 5 percent. In the Phillips curve framework, this will:
- A. shift the short-run Phillips curve upward, so that inflation is about 3 points higher at every unemployment rate, while the long-run Phillips curve is unchanged
 - B. cause a movement along the short-run Phillips curve to lower unemployment and higher inflation
 - C. shift the long-run Phillips curve to the left, lowering the natural rate of unemployment
 - D. shift the short-run Phillips curve downward, because higher expected inflation makes workers accept lower real wages
- [2 points]** 29. In one hour a worker in Nordland can produce 8 kilograms of fish or 4 kilograms of cheese; a worker in Sudland can produce 6 kilograms of fish or 2 kilograms of cheese. Which of the following is correct?
- A. Nordland should export both goods, because it has an absolute advantage in both
 - B. Nordland should export cheese and import fish, because its opportunity cost of cheese is 2 kilograms of fish while Sudland's is 3 kilograms
 - C. Nordland should export fish and import cheese, because it produces more fish per hour than Sudland
 - D. There are no gains from trade, because Nordland is more productive in both goods
- [2 points]** 30. The exchange rate between the euro and the US dollar moves from 1 euro = 1.10 dollars to 1 euro = 1.25 dollars. A car made in Germany sells for 20,000 euros. As a result of the change in the exchange rate:
- A. the euro has depreciated; the car's dollar price falls, so US purchases of European cars rise
 - B. the dollar has appreciated; the car's dollar price rises from 22,000 to 25,000 dollars
 - C. the euro has appreciated; the car's dollar price falls from about 18,200 to 16,000 dollars
 - D. the euro has appreciated; the car's dollar price rises from 22,000 to 25,000 dollars, so US purchases of European cars fall

Short Answer (4 questions)

[10 points] 31. GDP accounting. The economy of Lindell produces only two goods, bread and bicycles. Year 1 is the base year. Output and prices in the two years were as follows. Year 1: bread 120,000 loaves at 2.00 dollars each; bicycles 1,800 at 200 dollars each. Year 2: bread 105,000 loaves at 2.40 dollars each; bicycles 2,100 at 210 dollars each.

[2 points] (a) Calculate nominal GDP in year 1 and in year 2. Show your working.

[3 points] (b) Calculate real GDP in year 1 and in year 2, measured in year-1 prices, and the growth rate of real GDP between the two years.

[3 points] (c) Calculate the GDP deflator for year 2 (year 1 = 100) and the rate of inflation between year 1 and year 2 as measured by the deflator.

- [2 points]** (d) A news report says that "Lindell's economy grew by 15.5 percent". Explain what is wrong with this claim, and state the approximate relationship between the growth of nominal GDP, the growth of real GDP and the rate of inflation.

- [10 points]** 32. Unemployment and the cost of living. The country of Marlowe has a working-age population of 40.0 million. Of these, 23.4 million are employed, 1.6 million are not working but actively searched for a job in the past four weeks, 0.5 million would like a job but have given up searching, and the rest are students, retirees or full-time carers. A student price index for Marlowe uses a fixed basket of 20 bus rides, 5 restaurant meals and 1 monthly phone plan. In the base year a bus ride cost 2.00 dollars, a meal 8.00 dollars and the phone plan 20.00 dollars; this year a bus ride costs 2.40 dollars, a meal 9.00 dollars and the phone plan 19.00 dollars.

- [3 points]** (a) Calculate the size of the labour force, the unemployment rate and the labour force participation rate. Show your working.

- [2 points]** (b) How are the 0.5 million people who have given up searching classified in the official statistics? Calculate what the unemployment rate would be if they were counted as unemployed, and explain what this implies about the official rate during a long downturn.

- [3 points]** (c) Calculate the cost of the basket in each year, the value of the student price index this year (base year = 100) and the rate of inflation it implies.

- [2 points]** (d) A student's part-time wage rose from 10.00 dollars an hour in the base year to 10.64 dollars an hour this year. Calculate the real wage this year in base-year dollars and the percentage change in the real wage. Is the student better or worse off?

- [10 points]** 33. Aggregate demand, aggregate supply and the multiplier. The economy of Corrin is initially in long-run equilibrium with real GDP equal to its potential output of 900 billion dollars. A sharp fall in house prices then reduces household wealth, and households cut their consumption spending. In the new short-run equilibrium, real GDP is 860 billion dollars. The marginal propensity to consume

is 0.8 and there are no income taxes. For the multiplier calculations in parts (c) and (d), assume the price level is constant.

[3 points]

- (a) Using the AD-AS model, explain the effect of the fall in household wealth on the price level and real GDP in the short run. Identify the size and type of the output gap, and state what happens to unemployment relative to its natural rate.

[2 points]

- (b) Suppose the government and the central bank take no action. Explain how the economy returns to potential output in the long run, and compare the long-run price level with the original one.

[3 points] (c) Calculate the spending multiplier. Then calculate the increase in government purchases that would close the output gap, and explain briefly why the required increase is smaller than the gap.

[2 points] (d) Alternatively, the government could cut lump-sum taxes. Calculate the tax cut needed to close the same gap and explain why it differs from the change in government purchases in part (c).

[10 points] 34. Money, banks and monetary policy. In the country of Avelon, commercial banks must hold reserves equal to 12.5 percent of their deposits. Assume at first that banks hold no excess reserves and that the public holds no additional currency, so every loan is redeposited in the banking system. The central bank of Avelon buys 3 billion dollars of government bonds from the commercial banks in an open-market operation.

[2 points] (a) Calculate the money multiplier and explain in one sentence what it measures.

- [3 points]** (b) Calculate the maximum change in the money supply that results from the open-market purchase, and explain the process that produces it. Why does the full 3 billion dollars count toward the money supply here, whereas a cash deposit of 3 billion dollars by the public would not?

- [3 points]** (c) Using the money market, explain how the open-market purchase affects the nominal interest rate, and trace the effect on investment, aggregate demand, real GDP and the price level in the short run.

- [2 points]** (d) In practice the money supply usually rises by less than the maximum you calculated in part (b). Give two reasons.