

ECON 201: Introduction to Macroeconomics
Professor Robert Gordon
Midterm Exam 2:
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NAME _____

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Directions: This test is in two parts, a multiple choice question part and a short-answer part. Use this answer packet to complete the exam. Calculators are permitted. Books, notes, reference materials, etc. are prohibited. Good luck!

Part 1: Referring to the multiple questions below, choose the one alternative that best completes the statement or answers the question. Each question is worth one point. There is no penalty to guessing, so be sure to answer all of them. Write your answers in the following table using capital letters. Circled answers outside of the table will not be considered.

1	6	11	16	21	26
2	7	12	17	22	27
3	8	13	18	23	28
4	9	14	19	24	29
5	10	15	20	25	30

1. National savings in a closed economy is all of the following EXCEPT:
 - A) the sum of private savings plus the government budget balance.
 - B) the total savings in the economy.
 - C) $GDP - C - G$.
 - D) government spending minus consumption.

2. An effective minimum wage can lead to:
 - A) frictional unemployment.
 - B) structural unemployment.
 - C) a decrease in wages.
 - D) a shortage of workers in that labor market.

3. Throughout the twentieth century, nations in Latin America had disappointing growth rates primarily due to:
 - A) low rates of national savings, political instability, and little emphasis on education.
 - B) low rates of investment in physical capital that offset a strong emphasis on education.
 - C) abundant natural resources, rapid technological progress, and political instability.
 - D) low rates of national savings, a scarcity of natural resources, and political instability.

4. A survey reveals that on a small island initially 1,000 people have jobs, 250 people are not working but are looking for jobs, and 450 people are neither working nor looking for work. Suppose that 150 of the 450 people who weren't looking for work now begin looking for work. There are now 400 people looking for work and 1,000 people working. The unemployment rate:
 - A) falls to 20%.
 - B) rises to 28.6%.
 - C) rises to 50%.
 - D) Nothing happens to the unemployment rate, because these people weren't working before and they aren't working now.

5. Baumol's cost disease refers to occupations in which:
 - A) prices are fixed yet wages fall.
 - B) productivity is fixed but wages rise
 - C) prices decline but wages are fixed
 - D) productivity rises but wages fall

6. The convergence hypothesis fits the data only when the factors that affect growth are held equal across countries. These factors include all of the following EXCEPT:
 - A) education.
 - B) infrastructure.
 - C) favorable policies and institutions.
 - D) GDP per capita.

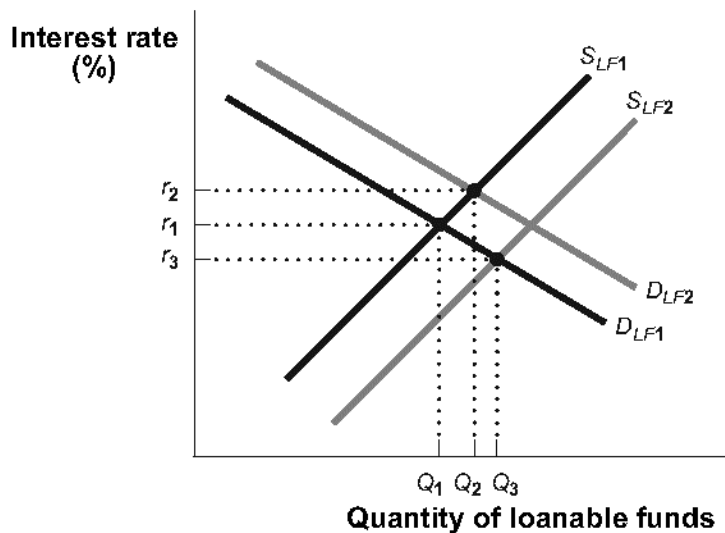
7. In the long run the overall price level is mainly determined by:
 - A) the business cycle.
 - B) the price of crude oil.
 - C) changes in the money supply.
 - D) the government's budgetary policies.

8. In the article on why investment is so low, called "Econundrum," which of the following is *not* given as a reason for low investment?
 - A) lack of profitable investment opportunities
 - B) tighter credit.
 - C) high interest rates.
 - D) weak demand for goods sold by firms.

9. Which of the following situations is likely to lead to an increase in discouraged workers?
 - A) The economy is expanding.
 - B) The availability of jobs falls.
 - C) The economy is undergoing inflation.
 - D) The economy is undergoing deflation.

Use the following to answer question 10:

Figure: Crowding Out



10. (Figure: Crowding Out) Look at the figure Crowding Out. The supply of loanable funds curve S_{LF1} shifts to S_{LF2} . This shift implies that:
- private savings has increased.
 - national investment has decreased.
 - private savings has decreased.
 - national savings has decreased.
11. Which of the following statements is CORRECT?
- Supply and demand cannot explain why a particular good or service becomes more expensive relative to other goods and services.
 - Inflation affects only the more advanced countries, whereas less advanced countries face deflation.
 - Prices of most goods and services remained stable during the Great Depression.
 - When the economy is in recession and jobs are hard to find, inflation tends to fall.
12. If the actual inflation rate is less than the expected inflation rate:
- lenders gain and borrowers lose.
 - borrowers gain and lenders lose.
 - everyone benefits.
 - everyone is worse off.
13. In the Chapter 6 reading on the enhanced measure of welfare, France has 67 percent of the US level in Real GDP per person but 92 percent of the US level in the enhanced welfare measure. This is because France ranks better than the US on all but which of the following?
- consumption per capita.
 - life expectancy.
 - leisure time.
 - inequality.
14. Which of the following assets is the MOST liquid?
- a house
 - 100 shares of Apple stock
 - money in a checking account
 - a life insurance policy

Use the following to answer question 15:

Table: Kenya's Economy in 2010

Aggregate output at the beginning of the year	\$31 billion
Population at the beginning of the year	40 million
Output growth	5.2%
Population growth	2.6%

15. (Table: Kenya's Economy in 2010) Look at the table Kenya's Economy in 2010. Aggregate output per capita at the end of 2010, assuming no changes in the price level, was:
- A) \$7,000.
 - B) \$7,005.
 - C) \$795.
 - D) \$7,490.
16. Historically, development of a new technology often:
- A) results in immediate increases in productivity.
 - B) leads to increases in productivity only once firms learn how to use it.
 - C) requires a complementary increase in physical and human capital.
 - D) has had no impact on changes in productivity.
17. In the circular-flow diagram, the value of household income—the sum of wages, dividends, interest, rental income, and transfer payments—equals the sum of:
- A) household tax payments.
 - B) consumer spending, private saving, and household tax payments.
 - C) the money supply.
 - D) transfer payments and household tax payments.
18. The money spent on domestically produced final goods and services:
- A) is equal to GDP.
 - B) is equal to exports minus imports.
 - C) is subtracted in the circular-flow model.
 - D) is equal to GDP, which is also equal to exports minus imports, and is subtracted in the circular-flow model.
19. The unemployment rate is calculated from a survey of:
- A) 300,000 business firms
 - B) 300,000 households
 - C) 60,000 business firms.
 - D) 60,000 households
20. A business will want a loan when:
- A) $\text{interest rate} < (\text{payout of project} - \text{cost of project}) / \text{cost of project} \times 100$.
 - B) $\text{rate of return} < \text{interest rate}$.
 - C) $\text{rate of return} - \text{interest rate} < 0$.
 - D) $\text{rate of return} > (\text{cost of project} - \text{interest rate}) / \text{interest rate} \times 100$.

21. In February 2012, the Bureau of Labor Statistics calculated the unemployment rate to be 8.3%. If frictional unemployment was 3.1% and structural unemployment was 3.2%, then the natural rate of unemployment was:
- A) 6.3%.
 - B) 2.0%.
 - C) 1%.
 - D) 5.5%.
22. Which of the following countries is described as being in the “Middle-Income Trap”?
- A) Ireland
 - B) Brazil.
 - C) United States.
 - D) South Korea.
23. The most diversified portfolio in terms of risk is \$100,000 worth of stock in:
- A) 10 companies in the same industry.
 - B) 10 companies in two industries.
 - C) 10 companies in five industries.
 - D) one company that sells 10 products.
24. When 2017 is compared with the year 2000, which of the following statements is true?
- A) the unemployment rate is higher now
 - B) the unemployment rate is lower now
 - C) the labor-force participation rate is higher now.
 - D) the employment-population ratio is higher now
25. Which of the following statements is TRUE?
- A) Long-run growth started during the Renaissance.
 - B) Long-run growth started in the early 1600s.
 - C) Peasants in eighteenth-century Europe had a standard of living more than 50 times that of the Egyptian peasants in the age of the pharaohs.
 - D) Long-run growth is a relatively modern phenomenon.
26. Which of the following is included in the calculation of GDP?
- A) expenditure on new construction
 - B) a retiree's monthly Social Security check
 - C) buying a house built 10 years ago
 - D) buying shares of Home Depot stock

27. The fundamental argument in the *Essay on the Principle of Population* was that improvements in technology or increases in physical capital would lead to only temporary improvements in productivity because they would always be offset by:
- A) rising human capital demands.
 - B) falling land values.
 - C) the pressure of rising population and more workers on the supply of land.
 - D) falling birthrates.
28. If both aggregate output and the aggregate price level increase:
- A) real GDP will increase faster than nominal GDP.
 - B) nominal GDP will increase faster than real GDP.
 - C) it makes no difference to real or nominal GDP.
 - D) real GDP and nominal GDP will increase faster than the price level.
29. Which of the following is greater in Germany than in the US?
- A) trade deficit
 - B) government deficit.
 - C) young people in vocational training.
 - D) net capital inflows.
30. A rubbernecking traffic jam is an example of:
- A) microeconomics in action.
 - B) individual behavior that has a large aggregate impact.
 - C) the paradox of thrift.
 - D) an outcome smaller than the sum of its parts.

Part 2: Solve the following problems in the provided space. *Show all your work clearly.*

Problem 1 (8 points)

Complete the blanks using the following table. **Round all values to the nearest two decimal places, including percentages. That is, answers should look like 13,300.72 or 29.87%.**

(Parts 1-13: 0.5 points per blank + 0.5 bonus for no mistakes)

	2015		2016		Annual Percentage Change between 2015-2016 (LN formula)
	Price	Quantity	Price	Quantity	
Chair	6	6	5	5	
Desk	8	8	12	12	

Nominal GDP	100	169	%52.47
Real GDP in 2015 prices	100	126	%23.11
Real GDP in 2016 prices	126	169	%29.36
GDP Deflator with base year 2015	100	134.13	%29.36
GDP Deflator with base year 2016	79.37	100	%23.10

14. What is the percentage growth rate in chain-weighted GDP deflator? _____ (1 point)

%26.23

Problem 2 (10 points)

Consider several countries:

	GDP 2017	Annual Growth Rate
Country A	200	4.00%
Country B	500	3.00%
Country C	1000	1.00%

Round all values to the nearest two decimal places, including percentages. Use the LN formulas shown in class.

1. In how many years GDP of **Country A** will **double**? _____ (1 point)

$70/4 = 17.5$, 17 or 18 years is acceptable.

2. In how many years GDP of **Country A** will reach **1000**? _____ (1 point)

$s = 100 * \log(1000/200)/4 = 40.24$, in 40 years.

3. In **50 years**, which country will be the richest? _____ (3 points)

$g = 100 * \log(\text{GDP}_{\text{new}}/\text{GDP}_{\text{old}})/50$, so $\text{GDP}_{\text{new}} = \text{GDP}_{\text{old}} * \exp(g/2)$.

For A: $\text{GDP}_{\text{new}} = 1477.81$

For B: $\text{GDP}_{\text{new}} = 2240.83$

For C: $\text{GDP}_{\text{new}} = 1648.72$

Therefore, B is the richest.

4. In how many years **Country A** will catch up with **Country B**? What will be their GDP at this moment? _____ (3 points)

By inverting the formula, $\log \text{GDP}_{\text{new}} = \log \text{GDP}_{\text{old}} + (g*s/100)$. Therefore:

$\log 200 + (4*s)/100 = \log 500 + (3*s)/100$, $s = 100 * \log(2.5) = 91.63$, in 92 years.

$\text{GDP}_{\text{new}} = 200 * \exp(0.04 * 91.63) = 7812.79$

5. Suppose there is **Country D** with current GDP of 800. Suppose it catches up with **Country B** in 50 years. What is **Country D's** annual growth rate? _____ (2 points)

*In 50 years, GDP of B is 2240.83 (see Part 3). Therefore the annual growth rate of country D is $\log(2240.83/800)*100/50=2.06\%$*

Problem 3 (8 points)

The following table shows the population of a fictional country by age and employment status. The units are in '000s of people.

Age	Full-time workers	Part-time workers	Don't have a job but are looking for one	Want a job but aren't searching because believe jobs are hard to find	Don't want a job now	Total
<16	0	0	0	0	250	250
16-24	95	72	18	2	155	342
25-54	300	37	33	4	235	609
>55	290	15	50	2	480	837
Total	695	124	101	8	1120	2038

1. Calculate the **Labor Force Participation Rate** for this economy. *Report as a percentage to two decimal places.* _____ (1 point)

920/1788=51.45%

2. Calculate the **Unemployment Rate** for this economy. *Report as a percentage to two decimal places.* _____ (1 point)

101/920=10.98%

3. What is the **Employment to Working-Age Population Ratio**? *Report as a percentage to two decimal places.* _____ (1 point)

$$819/1788=45.8\%$$

4. What is the **Unemployment Rate for People Aged 16-24**? Report as a percentage to two decimal places. _____ (1 point)

$$18/185=9.73\%$$

5. The economy is hit by a recession and people become more pessimistic. 15 thousand full-time workers are forced to switch to a part time job. 20 thousand full-time workers and 12 thousand part-time workers become unemployed, and all of them start looking for new jobs. 10 thousand people that were previously unemployed and looking for a job stop looking for it because of poor employment prospects.

What is the new unemployment rate? _____ (4 points)

$$123 / 910 = 13.52\%$$

Problem 4 (4 points)

You have the following information:

Consumption	\$148 million
Gross Domestic Product	\$160 million
Investment	\$15 million
Total tax revenues	\$20 million
Transfers	\$4 million
Net capital inflow	\$10 million

- Net exports are _____ (1 point) $X - M = -NCI = -\$10 \text{ million}$
- Government spending is _____ (2 points)
Can solve for G = \$7 million
- Private saving is _____ (1 point)
 $S_{\text{private}} = Y - C - (T - TR) = -\4 million

MC Answer Key

1. D
2. B
3. A
4. B
5. B
6. D
7. C
8. C
9. B
10. A
11. D
12. A
13. A
14. C
15. C
16. B
17. B
18. A
19. D
20. A
21. A
22. B
23. C
24. A
25. D
26. A
27. C
28. B
29. C
30. B