Department of Economics
Johns Hopkins University
Econ 180.101.11

Midterm Exam
June 17
Summer 2019

Name: _____

Section I: Concepts (20 points)

Fill in the item from the list below that is most closely associated with each of the twenty phrases that appear immediately after the list. Note: Some of the items listed do not correspond to any of the phrases.

Adam Smith
Business Cycles
Closed Economy
Complements
Deflation
Disinflation
Economic Model
Elastic Demand
Factor Income Method
Frictional Unemployment
GDP Deflator
Great Depression
Great Moderation
Gross Domestic Product
Gross National Product
Growth Model
Hyperinflation
Inelastic Demand
J. K. Galbraith
John Maynard Keynes
John R. Hicks
Normative Analysis
Opportunity Cost
Positive Analysis
Recession
Seasonal Adjustment
Sticky Wages
Structural Unemployment
Substitutes
Value Added Method

1. _____Closed Economy_____ An economy that does not trade with other economies.

2. _Frictional Unemployment_ Unemployment resulting from individuals who are taking some time between jobs while they search for a new one.

3. _____Deflation_____ A circumstance in which the overall price level is falling.

4. _____Complements_____ When the price of item A jumps up, you consume less of item B. What are these items?

5. _____Economic Model_____ A simplified version of reality used to analyze real-world economic questions.

6. ___Seasonal Adjustment____ A statistical technique used to allow economists to compare December retail sales and January retail sales.

7. __ John Maynard Keynes___ Economist who posited in the 1930s that sometimes free markets fail, and government intervention is needed to restore economic health.

8. _____GDP Deflator_____ The price index used to calculate real GDP from nominal GDP.

9. _____Business Cycles_____ The macroeconomic pattern of economic recovery/expansion/recession that is a recurring feature of economies around the world and throughout history.

10. _____Recession_____ Two or more consecutive quarters of negative growth of real GDP.

11. _____Positive Analysis____ Economic analysis that is concerned with the world as it is, not focused on the world as some would like it to be.

12. _____Great Depression_____ The name for the period of deep economic decline experienced in the 1930s.

13. _____Inelastic Demand____ The concept that a large change in price will result in a very small change in the quantity purchased.

14. ____Opportunity Cost_____ The highest valued alternative that must be given up to gain another activity.

15. _____John R. Hicks_____ Economist who argued that the differences in interest rates can be explained by differences in duration and default.

16. _____Hyperinflation_____ Best describes the type of inflation experienced by Germany in 1918-1923.

17. ___Value Added Method___ A technique for calculating GDP that adds up the market value that firms add to a product.

18. _____Sticky Wages_____ A phenomenon that many think explains the recurring pattern of labor markets failing to achieve equilibrium in recessions.

19. _____Adam Smith_____ Economist who talked of an 'invisible hand' guiding the economy.

20. __ Gross National Product __ The market value of final goods and services produced by U.S. citizens and U.S. corporations.

Section II: Comparative Advantage (10 points)

The following kingdoms have the same resources. Their production possibilities frontier (PPF) schedules are given below.

Weekly Production	**Dorne**	**Winterfell**	**Iron Islands**
Armor	50	10	20
Beer (liters)	10	20	20

1. **(2 points)** Define absolute advantage and identify which country has an absolute advantage in armor production?

Absolute advantage: Ability to produce more of a good than the competitors using the same level of inputs.

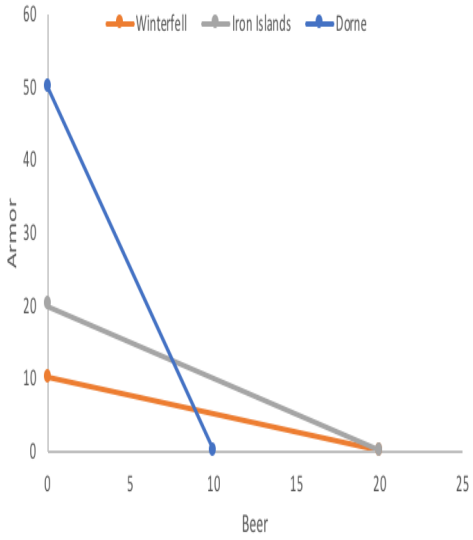
Dorne.

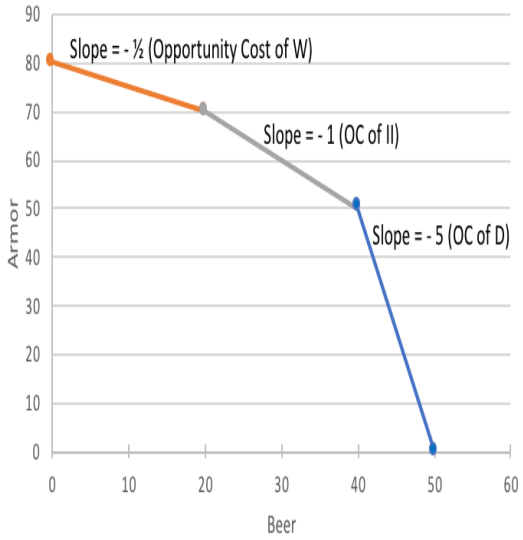
2. **(2 points)** Define comparative advantage and identify which country has a comparative advantage in beer production?

Comparative advantage: Ability to produce a good at a lower opportunity cost than the competitors.

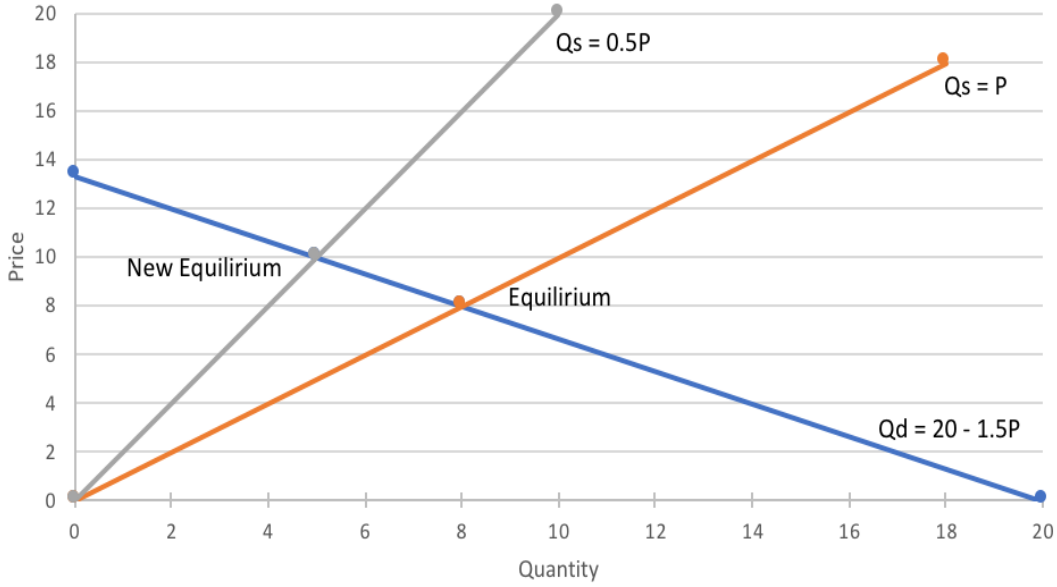
Winterfell.

3. **(6 points)** Draw the PPF for each kingdom separately (you can draw them separately on the same graph). Then draw the combined PPF on a different graph. Indicate the values at the corner and kink points.





Section III: Supply and Demand (15 points)



Consider the U.S. market for cocaine before Pablo Escobar's death. The demand is given by $\boldsymbol{Q_D = 20 - 1.5P}$ and the supply by $\boldsymbol{Q_S = P}$ both in millions of dollars.

1. **(2 points)** Label the chart provided and draw the supply and demand curves.

2. **(3 points)** What are the equilibrium price and quantity? Show your work.

$$Q_s = Q_d$$
$$P = 20 - 1.5P$$
$$2.5\,P = 20$$
$$P^* = 8 \Rightarrow Q^* = 8$$

3. **(3 points)** Suppose after Escobar's death, the U.S. government can detect the drug smuggling channels more easily, causing suppliers to charge twice as much for any given quantity. Which curve does this shift? Draw the new curve on the graph above.

Supply curve

Since suppliers charge twice as much for any given quantity: $2Q_s = P$ or $Q_s = 0.5P$.

4. **(4 points)** Solve the new equilibrium level algebraically.

$$Q_s = Q_d$$
$$0.5P = 20 - 1.5P$$
$$2\,P = 20$$
$$P^* = 10 \Rightarrow Q^* = 5$$

5. **(3 points)** Has the new curve become more elastic or more inelastic? Briefly explain.

More inelastic.

For a given rise in price, it generates a smaller increase in quantity supplied.

Section IV: Unemployment (15 points)

	In Millions
Adult Population	250
No. of non-working adults not looking for work	75
No. of adults working part-time that would welcome a full-time job	17.5
Employed workers	140

1. **(2 points)** How many individuals are there in the labor force?

Adult population – No. of non-working adults not looking for work

250 – 75 = 175 million

2. **(3 points)** What is the labor force participation rate?

$$\frac{Labor\ force}{Adult\ population} \times 100 = \frac{175}{250} \times 100 = 70\%$$

3. **(2 points)** How many individuals are unemployed?

Labor force – Employed = Unemployed

175 – 140 = 35 million

4. **(3 points)** What is the unemployment rate?

$$\frac{Unemployed}{Labor\ force} \times 100 = \frac{35}{175} \times 100 = 20\%$$

5. **(5 points)** What is the U6 unemployment rate?

$$\frac{Unemployed + No.of\ adults\ working\ part\ time}{Labor\ force} \times 100$$

$$\frac{35 + 17.5}{175} \times 100 = \frac{35}{175} \times 100 + \frac{17.5}{175} \times 100 = 20\% + 10\% = 30\%$$

Section V (15 points)

Use the table below to answer the following 4 questions.

% Change	Q1:2017	Q2:2017	Q3:2017	Q4:2017	Q1:2018
CPI (YoY)	2.2%	2.3%	2.7%	2.9%	1%
Core CPI (YoY)	2.9%	3.2%	4%	4.75%	2%
Employment (annualized)	1.32%	1.3%	0.9%	0.75%	0.9%
GDP (current $, annualized)	??	4.3%	3.9%	4.25%	3.5%
Real GDP (annualized)	1.2%	2%	1.2%	1.35%	2.5%
Real Consumption (annualized)	1.3%	2.6%	3.5%	1.8%	1.25%
Real NX (Constant $, billions)	-400	-405	-475	-450	-355

1. **(3 points)** Over the four quarters of 2017, (choose 1):
   a. **Inflation rose despite plunging food and energy prices**
   b. Inflation held steady despite surging food and energy prices
   c. A mild disinflation unfolded
   d. Inflation rose mainly due to surging food and energy prices

2. **(4 points)** Given the information in the table, what is your best guess for the quarterly annualized growth rate for nominal GDP in Q1:2017? Show your work.

Percentage change in real GDP + Inflation = Percentage change in nominal GDP
1.2% + 2.2% = 3.4%

3. **(4 points)** Use the information on prices to calculate the quarterly annualized rate of change for food and energy prices for the first quarter of 2018. Hint: You can assume that core goods constitute 80% of the CPI goods basket.

CPI = (0.8 x Core) + (0.2 x F&E)
1% = (0.8 x 2%) + (0.2 x F&E) = 1.6% + (0.2 x F&E)
F&E = – 0.6%/0.2 = – 3%

4. **(4 points)** In the first quarter of 2018, real GDP growth rose at a 2.5% annualized rate. Yet real consumption, around 70% of GDP, rose at a 1.25% annualized rate. Use a piece of data provided to explain how a quarter GDP growth can be 2.5% despite such weak growth in real consumer spending?

Trade deficit (Exports – Imports) fell sharply. It contributed 95 billion to GDP.
–355 – (–450) = 95

Section VI: GDP (15 points)

Consider the following data for Macroeconia, a nation with two products.

	Backpacks		iPads	
	Price	Quantity	Price	Quantity
2015:Q4	$25	10	$100	20
2016:Q2	$40	12	$90	30
2019:Q4	$60	12	$60	38

1. **(4 points)** What is the annualized nominal GDP in 2015:Q4 and 2019:Q4?

2015:Q4 4 x [$25 x 10 + $100 x 20] = 4 x $2,250 = $9,000

2019:Q4 4 x [$60 x 12 + $60 x 38] = 4 x $3,000 = $12,000

2. **(4 points)** Calculate the annualized real GDP for both 2015:Q4 and 2019:Q4. Use 2015:Q4 as the base year.

2015:Q4 Same as above $9,000

2019:Q4 4 x [$25 x 12 + $100 x 38] = 4 x [$300 + $3,800]

= 4 x $4,100 = $16,400

3. **(3 points)** Write the equation to calculate the annualized growth rate of nominal GDP between 2015:Q4 to 2019:Q4? (Only write it, don't solve it)

$$\left[\left(\frac{Nominal\ GDP\ 2019{:}\ Q4}{Nominal\ GDP\ 2015{:}\ Q4}\right)^{\frac{1}{4}} - 1\right] \times 100$$

The ratio could instead be: $12,000/$9,000 OR $3,000/$2,250

4. **(2 points)** From 2015:Q4 to 2019:Q4 which grew more quickly, real GDP or nominal GDP?

Real GDP

5. **(2 points)** Based upon your previous answer, from 2015:Q4 to 2019:Q4 the economy experienced:

a. Rising inflation b. Disinflation **c. Deflation**

Section VII: Financial Markets (10 Points)

Consider the price and yield data on 10-year U.S. T-bond and TIPS bond:

10-year U.S. T-bond price is 100 and yield is 4%.
10-year U.S. TIPS bond is 100 and yield is 1%.

1. **(3 points)** What do market participants, on average, expect annual inflation to be over the next 10 years? Show your work.

T-bond yield – TIPS yield = Expected (break-even) inflation

4% - 1% = 3%

2. **(3 points)** You expect inflation to be 1% for the next 10 years. Should you buy a 10-year U.S. T-bond or a 10-Year TIPS bond? Why?

Expected real return on T-bond = 4% - 1% = 3%

Expected real return on TIPS = 1%

You should buy a 10-year T-bond since its real return is higher.

Suppose you and your best friend are stranded on a desert island. You salvaged a newspaper from the day you were shipwrecked, and it contained the financial products table on the previous page. After two years on the island, one page of a newspaper drifts to shore. The ink is smudged so that you can only read two lines of the newspaper:

10-year Ford bond 12%
10-year U.S. T-bond 3%

3. **(4 points)** As far as you remember, these rates were 6% and 4%, respectively. What is an economic story you could tell your friend that would explain the interest rate changes?

A loss in confidence increased supply of loanable funds to the government and reduced it for corporations (the graphs below show a possible scenario).
The economy likely weakened or is in recession.