

Midterm Exam

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

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

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

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

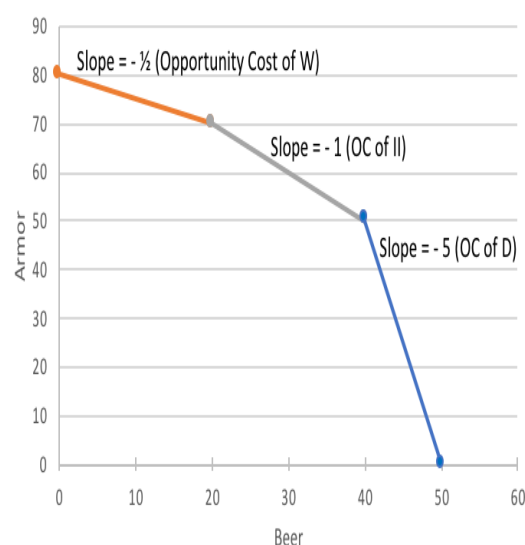
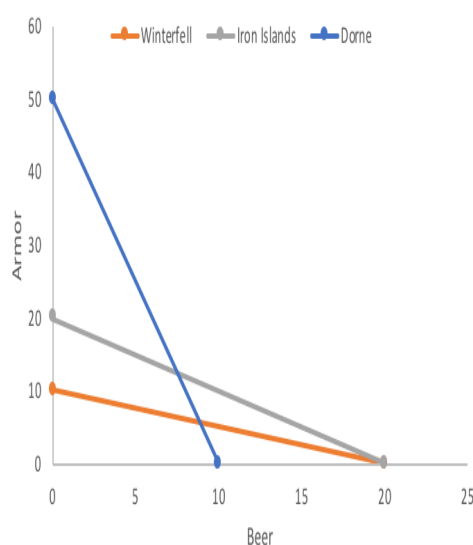
Dorne.

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

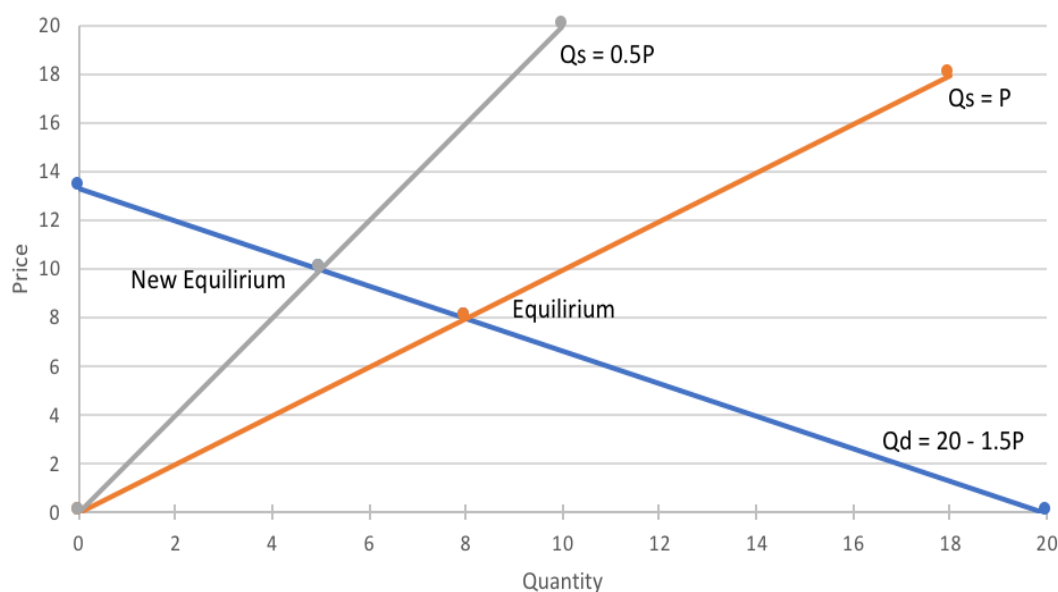
Comparative advantage: Ability to produce a good at a lower opportunity cost than the competitors.

Winterfell.

3. 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. **(6 points)**



Section III: Supply and Demand (10 points)



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

1. Label the chart provided and draw the supply and demand curves. **(2 points)**
2. What is the equilibrium price and quantity? Show your work. **(2 points)**

$$\begin{aligned}
 Q_s &= Q_d \\
 P &= 20 - 1.5P \\
 2.5P &= 20 \\
 P^* &= 8 \Rightarrow Q^* = 8
 \end{aligned}$$

3. 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. **(2 points)**

Supply curve

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

4. Solve the new equilibrium level algebraically. **(2 points)**

$$\begin{aligned}
 Q_s &= Q_d \\
 0.5P &= 20 - 1.5P \\
 2P &= 20 \\
 P^* &= 10 \Rightarrow Q^* = 5
 \end{aligned}$$

5. Has the new curve become more elastic or more inelastic? Briefly explain. **(2 points)**

More inelastic.

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

Section IV: Unemployment (10 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. How many individuals are there in the labor force? (2 points)

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

$$250 - 75 = 175 \text{ million}$$

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

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

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

Labor force – Employed = Unemployed

$$175 - 140 = 35 \text{ million}$$

4. What is the unemployment rate? (2 points)

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

5. What is the U6 unemployment rate? (2 points)

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

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

Section V (20 points)

Use the table below to answer the following 4 questions.

% Change	Q1:2016	Q2:2016	Q3:2016	Q4:2016	Q1:2017
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. Over the four quarters of 2016, (choose 1): **(5 points)**

- 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. Given the information in the table, what is your best guess for the quarterly annualized growth rate for nominal GDP in Q1:2016? Show your work. **(5 points)**

$$\text{Percentage change in real GDP} + \text{Inflation} = \text{Percentage change in nominal GDP}$$

$$1.2\% + 2.2\% = 3.4\%$$

3. Use the information on prices to calculate the quarterly annualized rate of change for food and energy prices for the first quarter of 2017. Hint: You can assume that core goods constitute 80% of the CPI goods basket. **(5 points)**

$$\text{CPI} = (0.8 \times \text{Core}) + (0.2 \times \text{F\&E})$$

$$1\% = (0.8 \times 2\%) + (0.2 \times \text{F\&E}) = 1.6\% + (0.2 \times \text{F\&E})$$

$$\text{F\&E} = -0.6\% / 0.2 = -3\%$$

4. In the first quarter of 2017, 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? **(5 points)**

$$\text{Trade deficit (Exports} - \text{Imports) fell sharply. It contributed 95 billion to GDP.}$$

$$-355 - (-450) = 95$$

Section VI: GDP (20 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. What is the annualized nominal GDP in 2015:Q4 and 2019:Q4? **(4 points)**

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

$$2019:Q4 \quad 4 \times [\$60 \times 12 + \$60 \times 38] = 4 \times \$3,000 = \$12,000$$

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

$$2015:Q4 \quad \text{Same as above } \$9,000$$

$$2019:Q4 \quad 4 \times [\$25 \times 12 + \$100 \times 38] = 4 \times [\$300 + \$3,800] \\ = 4 \times \$4,100 = \$16,400$$

3. 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) **(4 points)**

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

$$\text{The ratio could instead be: } \$12,000/\$9,000 \quad \text{OR} \quad \$3,000/\$2,250$$

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

Real GDP

5. Based upon your previous answer, from 2015:Q4 to 2019:Q4 the economy experienced: **(4 points)**

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

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

$$4\% - 1\% = 3\%$$

2. 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? **(3 points)**

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

Expected real return on TIPS = 1%

You should buy a 10-year T-bond.

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. 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? **(4 points)**

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.

