This examination is 100 points and will count 20% of your final grade. Please read the exam over before starting. You will have 1 hour to complete the exam. Please note the point values for each question. No books, notes, or any source of outside help is permitted. You are to answer all questions. You may only use the calculators supplied.

PLEASE LABEL ALL CURVES AND THE AXES ON ALL GRAPHS.

Note: *taken from Study Guide.
For Problems 1-3, please show the shift or shifts in supply and demand in the graphs below. Indicate in the space provided what will happen to supply, demand, price and quantity. (8 points each)

Label the curves and axes and show any shifts.

1. Milk is used to make cheese. What will happen in the market for cheese as the price of milk increases?

   - Supply \( \downarrow \)
   - Price \( \uparrow \)
   - Quantity \( \uparrow \)
   - Elasticity \( \downarrow \)

2. Let us suppose that farmers in the South can grow either corn or cotton. Show the effect of an increase in the price of corn on the market for cotton.

   - Supply \( \downarrow \)
   - Price \( \uparrow \)
   - Quantity \( \uparrow \)

3. What will be the effect of a decrease in the price of Cable TV Services on the market for Satellite TV Dishes?

   - Supply \( \uparrow \)
   - Price \( \downarrow \)
   - Quantity \( \uparrow \)
4. (16 points) Suppose you are given the following information about the price of widgets and the associated quantities of widgets and ratchets at the widget prices.

<table>
<thead>
<tr>
<th>P widgets</th>
<th>Q widgets</th>
<th>Q ratchets</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20</td>
<td>60</td>
<td>200</td>
</tr>
<tr>
<td>$24</td>
<td>54</td>
<td>160</td>
</tr>
</tbody>
</table>

a) Please calculate the elasticity (responsiveness) of demand for widgets.

\[
e_{\text{elastic}} = \frac{\% \Delta Q}{\% \Delta P} = \frac{\frac{\Delta Q}{Q_1}}{\frac{\Delta P}{P_1}} = \frac{\frac{54 - 60}{60}}{\frac{24 - 20}{20}} = \frac{-6}{4} = -1.5
\]

b) Is the demand for widgets elastic (responsive)? How can you tell?

Yes, the demand is inelastic (responsiveness < 1).

c) What is the total revenue of widget sales when the price of widgets is $24?

\[24 \times 54 = 1296\]

d) Please calculate the cross-elasticity of demand for ratchets with respect to widgets.

\[e_{\text{cross}} = \frac{\frac{\Delta Q_r}{Q_r}}{\frac{\Delta P}{P}} = \frac{\frac{\Delta Q_r}{Q_r}}{\frac{\Delta P}{P}} = \frac{\frac{-40}{200}}{\frac{-20}{20}} = 1\]

From \(p = 20\) and \(p = 24\),

\[\frac{\Delta Q_r}{\Delta P} = \frac{20}{24 - 20} = 5\]

e) Are widgets and ratchets substitutes, complements or unrelated goods?

Complements
5. (16 points) The following table provides information about the production possibilities frontier of Athletic Country.

<table>
<thead>
<tr>
<th>Bats</th>
<th>Rackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>420</td>
</tr>
<tr>
<td>200</td>
<td>360</td>
</tr>
<tr>
<td>400</td>
<td>200</td>
</tr>
<tr>
<td>500</td>
<td>0</td>
</tr>
</tbody>
</table>

a. In Exhibit 2, plot and connect these points to create Athletic Country’s production possibilities frontier.

b. If the Athletic Country currently produces 100 bats and 400 rackets, what is the opportunity cost of an additional 100 bats?

\[ 40 \text{ Rackets} \]

c. If Athletic Country currently produces 300 bats and 300 rackets, what is the opportunity cost of an additional 100 bats?

\[ 100 \text{ Rackets} \]

d. Why does the additional production of 100 bats in part (c) cause a greater tradeoff than the additional production of 100 bats in part (b)?

"You use the most productive resources at producing bats first."

e. Is the production of 200 bats and 200 rackets efficient? Explain.

"No within the frontier."
<table>
<thead>
<tr>
<th></th>
<th>Hours needed to make one unit of:</th>
<th>Amount produced in 1 year:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cars</td>
<td>Airplanes</td>
</tr>
<tr>
<td>U.S.</td>
<td>40</td>
<td>160</td>
</tr>
<tr>
<td>Japan</td>
<td>50</td>
<td>150</td>
</tr>
</tbody>
</table>

6. (10 points)

a. According to the tables shown, the opportunity cost of 1 car for Japan is

\[
\text{48 cars} \rightarrow \frac{1}{16} \text{ airplane}
\]

So \(1 \text{ car} = \frac{16}{48} \text{ airplane} = \frac{1}{3} \text{ airplane}\)

b. According to the tables shown, the opportunity cost of 1 car for the United States is

\[
\text{60 cars} \rightarrow 15 \text{ airplane}
\]

So \(1 \text{ car} = \frac{15}{60} \text{ airplane} = \frac{1}{4} \text{ airplane}\)

c. According to the table shown, Japan has a comparative advantage in

\(a.\) airplanes and the United States has an absolute advantage in cars.
\(b.\) cars and the United States has an absolute advantage in airplanes.
\(c.\) cars and the United States has an absolute advantage in neither good.
\(d.\) airplanes and the United States has an absolute advantage in both goods.

d. According to the table shown, Japan has an advantage in

\[
\text{Airplanes (more than U.S.)}
\]

e. According to the table shown, the United States and Japan could benefit by the United States specializing in

\(a.\) airplanes and Japan specializing in airplanes.
\(b.\) cars and Japan specializing in airplanes.
\(c.\) airplanes and Japan specializing in cars.
\(d.\) neither good and Japan specializing in cars.
7. (12 points) Suppose the market for CDs is given in the graph to the right.

a) If the government passes a law stating that firms cannot charge more than $20 per CD, what will be the price charged?

\[ \text{Price Ceiling} = \$20 \]

b) If the government passes a law stating that firms cannot charge more than $10 per CD, what will be the price charged?

\[ \text{Price Ceiling} = \$10 \]

c) If such a law as described in part (b) was passed, what would be the quantity sold?

\[ 175 \text{ (approx.)} \]

d) What would be the quantity consumers wish to buy at $10?

\[ 400 \text{ (approx.)} \]

e) What would the price of $10 be called?

\[ \text{Price Ceiling} \]

f) In light of your answers in parts c & d, cite two things that might happen?

- Shortage
- Black market
Multiple Choice (2 points each)

*8 Suppose you find $20. If you choose to use the $20 to go to the football game, your opportunity cost of going to the game is
   a. nothing, because you found the money.
   b. $20 (because you could have used the $20 to buy other things).
   * c. $20 (because you could have used the $20 to buy other things) plus the value of your time spent at the game.
   d. $20 (because you could have used the $20 to buy other things) plus the value of your time spent at the game, plus the cost of the dinner you purchased at the game.
   e. none of the above.

*9 Which of the following statements is normative?
   a. Printing too much money causes inflation.
   b. People work harder if the wage is higher.
   c. The unemployment rate should be lower.
   d. Large government deficits cause an economy to grow more slowly.

10. Suppose there is an increase in both the supply and demand for personal computers. In the market for personal computers, we would expect
   a. the equilibrium quantity to rise and the equilibrium price to rise.
   b. the equilibrium quantity to rise and the equilibrium price to fall.
   c. the equilibrium quantity to rise and the equilibrium price to remain constant.
   d. the equilibrium quantity to rise and the change in the equilibrium price to be ambiguous.
   e. the change in the equilibrium quantity to be ambiguous and the equilibrium price to rise.

An inferior good is one for which an increase in income causes
   a. an increase in supply.
   b. a decrease in supply.
   c. an increase in demand.
   d. a decrease in demand.

12. If a fisherman must sell all of his daily catch before it spoils for whatever price he is offered, once the fish are caught the fisherman’s price elasticity of supply for fresh fish is
   a. zero.
   b. one.
   c. infinite.
   d. unable to be determined from this information.

13. Which side of the market is more likely to lobby government for a price floor?
   a. Neither buyers or sellers desire a price floor.
   b. Both buyers and sellers desire a price floor.
   * c. the sellers
   d. the buyers
4. When a society cannot produce all the goods and services people wish to have it is said that the economy is experiencing
   a. scarcity.
   b. communism.
   c. externalities.
   d. market failure.

15. In the simple circular-flow diagram, the decisionmakers consist of
   a. firms and government.
   b. households and firms.
   c. households and government.
   d. households, firms, and government.

16. Ryan tells you that he thinks the price of potato chips, his favorite food, will decrease in the near future. He will probably respond by
   a. buying less now at any price.  
   b. not changing his current demand for chips.
   c. increasing his current demand for chips.
   d. currently refusing to buy anymore chips.

7. If the demand for donuts is elastic, a decrease in the price of donuts will
   a. increase total revenue of donut sellers.
   b. decrease total revenue of donut sellers.
   c. not change total revenue of donut sellers.
   d. There is not enough information to answer this question.

18. When OPEC raised the price of crude oil in the 1970s, it caused the
   a. demand for gasoline to increase.
   b. demand for gasoline to decrease.
   c. supply of gasoline to increase.
   d. supply of gasoline to decrease.

Extra Credit. Only for those that qualify. 2 Points.

Please show the shift or shifts in supply and demand in the graph to the right. Indicate in the space provided what will happen to supply, demand, price and quantity.

Based on what was said in class, what will happen in the world market for petroleum due to the recent changes in China?

Label the curves and axes and show any shifts.

Supply  
Price  
Demand  
Quantity  

Petroleum