On the following pages, please show all of your work.  
If you need more space, use the back of the pages. Clearly state where your work/answers are.  
Clearly highlight/circle solutions.  
Fully label all graphs.  
Read each question carefully and be sure to answer all parts of every question.
Multiple Choice (2 Pts Each, 30 Pts Total)

Choose the Best Answer among the Choices

1.) Economics can be defined as the study of:
   (A) For whom resources are allocated to increase efficiency.
   (B) How society spends the income of individuals.
   (C) How scarce resources are allocated to fulfill society’s goals.
   (D) What scarce resources are used to produce goods and services.

2.) Opportunity Cost is:
   (A) Only measured in dollar and cents
   (B) The dollar cost to society for producing the goods.
   (C) The difficulty associated with using one good in place of another
   (D) The alternative that must be given up in order to get something else.

3.) Which of the following best describes the origin of the economic problem of scarcity?
   (A) Humans have limited wants for goods and services and resources are also limited.
   (B) Humans have unlimited wants for goods and services and resources are also unlimited.
   (C) Humans have unlimited wants for goods and services but resources are limited
   (D) Humans have limited wants for goods and services and resources are unlimited.

4.) Economic models
   (A) Seldom incorporate equations or diagrams.
   (B) Were once thought to be useful but is no longer true.
   (C) Must incorporate all aspects of the economy if they are to be useful.
   (D) can be useful, even if they are not particularly realistic.

5.) Jimmy bought an MP3 player that came with a $10 rebate. Jimmy should fill out and mail in the rebate form if:
   (A) $10 is more than 10% of the price of the MP3 player.
   (B) the opportunity cost of the time and trouble of sending in the rebate is less than $10.
   (C) the opportunity cost of the time and trouble of sending in the rebate is more than $10
   (D) no condition because he would not have bought the MP3 player without the rebate.
6.) Which of the following is an example of a normative, as opposed to a positive, statement?
   (A) Universal health care would be good for U.S. citizens.
   (B) An increase in the cigarette tax would cause a decrease in the number of smokers.
   (C) A decrease in the minimum wage would decrease unemployment.
   (D) A law requiring the federal government to balance its budget would increase economic growth.

7.) Suppose roses are currently selling for $20 per dozen, but the equilibrium price of roses is $30 per dozen. We would expect a
   (A) Shortage to exist and the market price of roses to increase.
   (B) Shortage to exist and the market price of roses to decrease.
   (C) Surplus to exist and the market price of roses to increase.
   (D) Surplus to exist and the market price of roses to decreases.

8.) According to the law of supply, a supply curve is:
   (A) Downward sloping from left to right.
   (B) Upward sloping from left to right.
   (C) Says that prices decrease as quantity increases.
   (D) Exceeds the economy’s ability to demand.

9.) Which of the following events will definitely cause equilibrium price to rise?
   (A) Demand increases and supply decreases.
   (B) Demand and supply both decreases.
   (C) Demand decreases and supply increases.
   (D) Demand and supply both increases.

10.) A city’s decision to control apartment rents is an example of:
     (A) The invisible hand at work.
     (B) Government intervention by setting a price floor.
     (C) A market failure caused by the market mechanism.
     (D) Government intervention by setting a price ceiling.

11.) A tax imposed on the buyers of a good will
     (A) Raise both the price buyers pay and the effective price sellers receive.
     (B) Raise the price buyers pay and lower the effective price sellers receive.
     (C) Lower the price buyers pay and raise the effective price sellers receive.
     (D) Lower both the price buyers pay and the effective price sellers receive.
12.) Which of the following statements is NOT correct about a market in equilibrium?

(A) The price determines which buyers and which sellers participate in the market.
(B) Those buyers who value the food more than the price choose to buy the good.
(C) Those sellers whose costs are less than the price choose to produce and sell the good.
(D) Consumer surplus will be equal to producer surplus.

13.) If the government removes a binding price ceiling from a market, then the price paid by buyers will

(A) Increase and the quantity sold in the market will increase.
(B) Increase and the quantity sold in the market will decrease.
(C) Decrease and the quantity sold in the market will increase.
(D) Decrease and the quantity sold in the market will decrease.

Use the following information to answer questions #14 and #15.

Suppose you are an Independent System Operator (ISO) and receive the following bids for electricity.

<table>
<thead>
<tr>
<th>Bidder Name</th>
<th>Bid (Offer to sell in $)</th>
<th>Quantity Offered (MHh)</th>
<th>Market Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Nukes, Inc</td>
<td>$20</td>
<td>110</td>
<td>310</td>
</tr>
<tr>
<td>Power Generation</td>
<td>$24</td>
<td>220</td>
<td>310</td>
</tr>
<tr>
<td>Smelly Coal Plant</td>
<td>$28</td>
<td>65</td>
<td>310</td>
</tr>
<tr>
<td>Old Tyme Electric</td>
<td>$40</td>
<td>50</td>
<td>310</td>
</tr>
</tbody>
</table>

14.) What is the system price?

(A) $10
(B) $24
(C) $28
(D) $40

15.) Suppose the chart above is from market demand at 3am. Which of the following is true for a corresponding chart at 11am?

(A) No change in the market’s production costs.
(B) Firms with lower production costs are brought into the market.
(C) Firms with higher production costs are brought into the market.
(D) None of the above.
Supply and Demand (20 Pts Total)

For each of the following questions explain

1.) Which curve is affected. (If more than one effect then do this for each affect.)
2.) Which direction does the curve shift and explain the reason for the change.
3.) How does the change affect equilibrium price and quantity.

State any assumptions that you need to make.

**Problem 1.** The impact on the market for beer if the price of barley increases? (Barley is used to make beer)

**Problem 2.** The impact on the market for popcorn when the price of a movie theater ticket increases?

**Problem 3.** The impact on the market for auto repair services when power tools are introduced to all mechanics.
Problem 4. The impact on the market for SUVs if a new technology is discovered which makes SUVs easier to produce AND the price of gasoline decreases.

Problem 5. The impact on the market for apartments for rent in Seattle if the average price for houses in Seattle decreases AND a large storm destroys many apartment buildings in Seattle.
Elasticities (20 Pts Total)

Use the following information to answer the questions below.

You are told that if Coke costs $1 per can, then 300 cans of Dr. Rocket are demanded and if Coke costs $0.50 per can, 100 cans of Dr. Rocket are demanded. When Dr. Rocket costs $0.50 per can 250 cans are demanded, and when Dr. Rocket costs $1.00 per can, 100 cans are demanded. When average income is $50,000, 600 cans of coke are demanded (given a certain price) and 275 cans of Dr. Rocket are demanded (given a certain price); when average income is $40,000, 450 cans of coke are demanded and 350 cans of Dr. Rocket are demanded.

Problem 6. Calculate the Price-Elasticity of Demand of Dr. Rocket. (If you can’t calculate then explain why?)

Problem 7. Answer each of the following using your answer in Problem 6:

   (a) Your boss just told you that he needs to increase Total Revenue from the sale of Dr. Rocket, what would you advise him to do? Explain.

   (b) Would you consider Dr. Rocket to be a necessity or a luxury? Explain.

   (c) Do you believe that Dr. Rocket has many close substitutes? Explain.

Problem 8. Calculate the Price-Elasticity of Demand of Coke. (If you can’t calculate then explain why?)
Problem 9. Calculate the Cross Price-Elasticity of Demand of Coke and Dr. Rocket. (If you can’t calculate then explain why?)

Problem 10. Given the information in Problem 9, how are Coke and Dr. Rocket related. Explain.

Problem 11. Calculate the Income Elasticity of Demand for one of the goods. (If you can’t calculate then explain why?)

Problem 12. Given the information in Problem 11, what kind of good do we have. Explain.

For each of the following questions answer True or False. If you answer false then explain why.

Problem 13. The price elasticity of demand (PED) for gasoline over a 1 year period is less than the PED over 10 year period.

Problem 14. You would expect the Price Elasticity of Demand to be elastic for Gap Jeans.
Taxes and Subsidies (30 Pts Total)

Consider the Market for Cell Phones. Using the information below answer the following questions. MUST SHOW WORK TO RECEIVE FULL CREDIT.

Let the demand for Cell Phones be given by $P_D(Q) = 330 - 2Q$, and the supply for Cell Phones is given by the equation $P_S(Q) = 30 + 4Q$. Drawing a picture may be helpful but is not necessary to receive full credit.

**Problem 15.** Find the equilibrium price and quantity for this market.

\[
P^* = \quad \text{Quantity} \quad Q^* = \quad \text{Quantity}
\]

**Problem 16.** Suppose that the government imposes a $12 Tax. Find the after-tax equilibrium quantity

\[
Q^{\text{TAX}} = \quad \text{Quantity}
\]
Problem 17. Calculate the after-tax Consumer Surplus, Producer Surplus, Government Revenue, and Deadweight Loss.

\[
\begin{align*}
\text{CS} &= \_\_\_\_\_\_ \\
\text{PS} &= \_\_\_\_\_\_ \\
\text{Gov. Rev} &= \_\_\_\_\_\_ \\
\text{DWL} &= \_\_\_\_\_\_ \\
\end{align*}
\]

Problem 18. Who pays the larger burden of the tax the Consumer or the Producer, and how much is that burden?
Now suppose that the government decides to subsidize Cell Phones by some amount $x$ per unit. Use this information to answer the following:

**Problem 19.** Graphically illustrate the market after the subsidy, and indicate all surpluses before and after the subsidy is imposed by using a table. Draw the graph below and we are still using the Demand and Supply Curve for the beginning of this section. (This is exactly what we did in class.)

<table>
<thead>
<tr>
<th></th>
<th>Before Subsidy</th>
<th>After Subsidy</th>
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<tbody>
<tr>
<td>CS</td>
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<tr>
<td>PS</td>
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<tr>
<td>Gov Rev</td>
<td></td>
<td></td>
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<tr>
<td>TS</td>
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</tbody>
</table>

**Problem 20.** Who receives more of the benefits of the subsidy? Explain