There are two parts to this exam. Part I is made up of multiple choice problems, and is worth 60 points. Part II is made up of short answer problems, and is worth 40 points.

Be sure to read each question carefully before answering. Do not use any books or notes. You have 65 minutes to complete the full 100 point exam. Be sure to budget your time.

Good Luck!

NAME: _______________________________________________

PART I - MULTIPLE CHOICE PROBLEMS

Read each of the following questions carefully and circle the letter of the one best answer. There are 20 questions in this section, each of which is worth 3 points. Note that diagrams are often helpful in determining the correct answer.

1. If a price floor is imposed above the current market equilibrium price, then
   a) there will be a shortage
   b) there will be a surplus
   c) there will be a new equilibrium at a higher price and lower quantity
   d) there will be no effect

2. Suppose that hot dogs and hamburgers are substitutes (in consumption), hot dogs and beans are complements and hot dogs are an inferior good. Then demand for hot dogs will shift in
   a) when the price of hamburgers decreases
   b) when the price of beans decreases
   c) when income decreases
   d) all of the above

3. If the unemployment rate increases from 5% to 7%, the
   a) economy will move closer to the production possibility frontier
   b) economy will move farther away from the production possibility frontier
   c) economy will move up along its production possibility frontier
   d) economy’s production possibility frontier will shift in

4. Eat’za Pizza restaurant had to increase the price of its pizzas due to increased costs of tomato sauce and discovered that the number of pizzas sold slightly increased. You explain to the owner that the following is most likely true
   a) demand for pizza is inelastic
   b) demand for pizza is elastic
   c) demand for pizza shifted out after a study found that tomato sauce prevents prostate cancer
   d) pizza violates the laws of supply and demand

5. When the price of a normal good increases, then quantity demanded
   a) falls, because both the income and substitution effect work in the same direction
   b) falls, because the substitution effect outweighs the income effect
   c) falls, because the income effect outweighs the substitution effect
   d) rises, because the income effect outweighs the substitution effect
6. If milk and cookies are complements in consumption and milk and cream are complements in production, then the equilibrium quantity of milk will definitely decrease if
   a) the price of cookies falls and the price of cream falls
   b) the price of cookies rises and the price of cream rises
   c) the price of cookies falls and the price of cream rises
   d) the price of cookies rises and the price of cream falls

7. The Minnesota Twins baseball team has one of the lowest payrolls in the league, and has relatively low attendance at the Metrodome. If the Twins want to increase revenue, they
   a) should increase prices, no matter what the elasticity of demand for baseball is
   b) should increase prices only if demand for baseball is relatively inelastic
   c) should increase prices only if demand for baseball is relatively elastic
   d) should decrease prices only if demand for baseball is relatively inelastic

8. Every day on the way home from school, Chris stops at the 7-Eleven to buy a Snickers bar. On Tuesdays, all candy is on sale. We can be sure that Chris’s consumer surplus is
   a) higher on Tuesdays, as long as Chris buys more Snickers bars
   b) higher on Tuesdays, even if Chris still buys just one Snickers bar
   c) the same every day, as long as Chris is maximizing utility
   d) lower on Tuesdays, if Chris still buys just one Snickers bar

9. Ron had 4 gyros and 2 slices of pizza this week and is now indifferent between gyros and pizza. If gyros cost $4 and pizza costs $2, then we can be sure that right now
   a) Ron’s marginal utility of gyros is double that of pizza
   b) Ron’s total utility of gyros is equal to that of pizza
   c) Ron’s total utility of gyros is double that of pizza
   d) Ron’s marginal utility of gyros is equal to that of pizza

10. The Ex-Files (a document shredding company) is operating at the output level where marginal cost intersects average variable cost. We can infer that
    a) average variable cost is rising
    b) average variable cost is falling
    c) average total cost is falling
    d) average total cost is rising

11. If the income elasticity of demand for salmon is 1.2, then if you get a 10% raise,
    a) the quantity demanded of salmon will increase by 2%
    b) the quantity demanded of salmon will increase by 12%
    c) the quantity demanded of salmon will decrease by 2%
    d) the quantity demanded of salmon will decrease by 12%

12. If all prices double and income is cut in half, the budget constraint
    a) will double
    b) will move inward
    c) will move outward by 50%
    d) will not shift position

13. Assuming consumption today is a normal good, if the income effect is greater than the substitution effect, then after a decrease in the interest rate
    a) savings will definitely increase
    b) savings will definitely decrease
    c) savings will definitely stay the same
    d) savings will either increase, decrease or stay the same - we can’t be sure
14. Wool sweaters and wool pants are substitutes in production. If there is an increase in the price of wool sweaters, we would predict that in the market for wool pants
   a) equilibrium price will increase and quantity will decrease
   b) equilibrium price will fall but quantity will increase
   c) both equilibrium price and quantity will fall
   d) both equilibrium price and quantity will increase

15. Monica’s Brew 'n' Ski (a slope-side, après-ski bar) has total fixed costs of $12,000. If the average variable cost per beer is $1 and the average total cost is $5, then we know Monica's Brew 'n' Ski is currently serving
   a) 2,000 beers
   b) 3,000 beers
   c) 12,000 beers
   d) not enough information

16. A rightward movement along the supply curve for ice cream might be caused by
   a) a decrease in the price of the milk used to make ice cream
   b) an increase in the price of the milk used to make ice cream
   c) an increase in temperature, causing people to desire more ice cream
   d) a decrease in temperature, causing people to desire less ice cream

17. If marginal product is greater than average product, then
   a) average product must be decreasing
   b) marginal product must be decreasing
   c) marginal product must be increasing
   d) marginal product could either be increasing or decreasing

18. A downward-sloping production possibility frontier that is a straight line implies
   a) increasing opportunity cost
   b) declining opportunity cost
   c) constant opportunity cost
   d) zero opportunity cost

19. The short-run supply curve for a perfectly competitive firm is upward sloping because, as production increases
   a) the firm must pay higher hourly wages to its workers
   b) total fixed costs increase
   c) the firm is able to assign its work force to specialized tasks
   d) the marginal productivity of additional workers decreases

20. Homer thinks glazed donuts are just as good as jelly donuts (i.e. perfect substitutes). Right now the price is equal and he buys some of each. If the price of jelly donuts increases, then
   a) Homer buys fewer jelly donuts and more glazed donuts, but still buys some of each
   b) Homer buys fewer jelly donuts and fewer glazed donuts
   c) Homer buys only glazed donuts
   d) Homer buys more jelly donuts and fewer glazed donuts

PART II - SHORT ANSWER QUESTIONS

Answer each of the following questions. When explanations are required, try to be brief, but clear. Note the different point values indicated for each of the 3 questions.
1. (10 pts) Suppose we have the following information about a firm’s cost curves:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Average Fixed Cost</th>
<th>Total Variable Cost</th>
<th>Average Total Cost</th>
<th>Marginal Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>xxx</td>
<td>0</td>
<td>xxx</td>
<td>xxx</td>
<td>a)</td>
</tr>
<tr>
<td>1</td>
<td>b)</td>
<td>c)</td>
<td>d)</td>
<td>20</td>
<td>e)</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>32</td>
<td>f)</td>
<td>g)</td>
<td>44</td>
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<tr>
<td>3</td>
<td>4</td>
<td>h)</td>
<td>20</td>
<td>16</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>i)</td>
<td>68</td>
<td>20</td>
<td>j)</td>
<td>80</td>
</tr>
</tbody>
</table>

For each of a) through j), fill in the correct cost in the above table. Below, briefly indicate how you obtained each cost. Note that it may not be possible to fill in the blanks in order.

a) 

b) 

c) 

d) 

e) 

f) 

g) 

h) 

i) 

j) 

2. (14 pts) Suppose that the following graph shows demand for gasoline in 1990.

![Graph showing demand for gasoline in 1990.](https://via.placeholder.com/150)

a) Suppose that at a price of $0.00, no gas will be supplied, but for every $0.25 increase in the price, an additional 1 million gallons will be supplied. Using the gridlines, add the supply curve to
the diagram. If the market is in equilibrium, what is the price? How many millions of gallons of gas are sold? Briefly explain how you obtained your answers.

b) Throughout the 1990’s, sales of sport utility vehicles (SUV’s) has sky-rocketed. SUV’s get worse gas mileage than passenger cars. Suppose that with more SUV’s, demand shifts out parallel to the current demand, and in the new equilibrium 2 million more gallons of gas are sold than before. Using the gridlines, draw in this new demand curve. What is the new equilibrium price? At any given price, how many millions of gallons gas more or demanded? Briefly explain how you obtained your answers.

c) Despite the increase in SUV’s, gas prices have stayed about the same during the 1990’s. A shift in the supply curve caused by cheaper oil has been pointed to as an explanation. Assuming that for every $0.25 increase in the price, an additional 1 million gallons will still be supplied (i.e. there is a parallel shift), use the gridlines to draw in a new supply curve that implies an equilibrium price identical to that in part a). Now how many millions of gallons are sold? Briefly explain how you obtained your answers.

3. (16 pts) Suppose the graph below represents an average American’s monthly leisure activities budget, and their preferences between visiting a fancy fitness club or buying other goods.

a) How many times will this person visit the fitness club? What is the per visit price? Briefly explain how you obtained your answers.

b) Suppose concern over Americans’ expanding girth leads Congress to pass a bill subsidizing visits to fitness centers, leading to a price of $10 per visit. Using the gridlines, add the new budget line to the graph. How many visits take place now? Briefly explain your answers.
c) Because this program turns out to be very costly, Congress decides to levy a lump-sum tax to help pay for it. Because Americans hate taxes, the amount of the tax will be set such that an individual is just as well off with the fitness subsidy and lump-sum tax as they were before this program was initiated. They settle on a tax of $150. Using the gridlines, draw in the budget line with the subsidy and $150 lump-sum tax in place. Now how many visits take place? Briefly explain how you obtained your answers.

d) Congressman Bernie Sanders (I - VT) voted against the tax, arguing that it would just leave us back where we started. Properly using the concepts of income and substitution effects, briefly explain to Bernie why he turned out to be wrong.