DO NOT BEGIN WORKING
UNTIL THE INSTRUCTOR TELLS YOU TO DO SO.
READ THESE INSTRUCTIONS FIRST.

1. Please read and sign the following statement: "In keeping with the Georgetown Honor System, I assure that this exam is the product of my own work, that I will not make use of unauthorized resources or collaborate with any other student."

   (signature) __________________________________________

2. Please write your name and GU ID carefully and legibly at the top of this page.

3. You have 2 hours to complete the exam. All answers are to be recorded on the ParScore sheet. No work in this booklet will be assessed.

4. You may refer to one 3x5 card with your written notes and use a calculator, but you may not use any other notes or references.

5. If you have a question during the exam, stay seated and raise your hand.

6. When you are done: If there are fewer than 10 minutes left in the exam period, please wait patiently and quietly until the exam period is over. If you have finished more than 10 minutes early, you may quietly bring this exam booklet and the ScanTron sheet to the place indicated by the instructors.

Read the questions carefully. I have tried to be clear. Good luck.
BONUS: 5 easy extra points.

Make sure you have completed the following completely, legibly, and accurately.

1) Write your GU ID number on the ParScore sheet.
2) Shade in the circles corresponding to your GU ID number.
3) Write your name in the correct spaces on the ParScore sheet.
4) Shade in the circles corresponding to the letters of your name.
5) Under “TEST FORM” shade in the letter corresponding to the Version at the top right of this page: "A", "B", "C", or "D".
6) Under “SUBJ Score” fill in the number at the top left of the front page of this booklet.

***ANSWER THESE QUESTIONS ON YOUR PARSCORE SHEET***

1. Moving from point B to point A, right and down the (curved) demand curve shown on the right, the price elasticity of demand...
   a. increases.
   b. decreases.
   c. remains constant.
   d. cannot be discerned from the information given.

2. The figure at right depicts three demand curves, which are parallel straight lines. At quantity Q₀, which demand curve has the highest price elasticity of demand?
   a. Demand curve A.
   b. Demand curve B.
   c. Demand curve C.
   d. They all have the same elasticity at Q₀.
   e. It is impossible to tell, given the information here.
3. Consider two sources of pollution: Source 1 and Source 2. (Think of two countries emitting greenhouse gases, or two neighboring electric power plants emitting sulfur.)

Both sources are currently emitting 10,000 tons of pollution. The marginal abatement costs for each source are as follows:

\[
\begin{align*}
\text{MAC1} &= \frac{1}{3} \times A1 \\
\text{MAC2} &= \frac{2}{3} \times A2
\end{align*}
\]

Suppose we issue each plant permits of 9100 tons. Each would have to abate by 900 tons to meet their allotted permits. But suppose we also allow them to buy and sell permits from each other ("cap and trade").

In the efficient outcome, which source buys permits from the other?

a. Source 1 buys permits from Source 2.
b. Source 2 buys permits from Source 1.
c. Neither, they both emit 9100 tons.

4. In the scenario above, where the two sources trade permits, what is the marginal abatement cost for Source 1? (MAC1 = ____?)

a. $300  
b. $400  
c. $450  
d. $500  
e. $900

5. In the scenario above, what would be the deadweight loss from not allowing the firms to trade permits, requiring each to abate by 900 tons?

a. $15,000  
b. $20,000  
c. $30,000  
d. $40,000  
e. $45,000

6. Economists primary objection to monopolies is that....

a. monopoly profits go to rich people.  
b. monopolies overproduce to maximize profits.  
c. monopolies have no supply curve.  
d. monopolies underproduce to maximize profits.
7. The figure at right depicts the market for sun screen in Malta, when there is no international trade (a situation called “autarky”). The world price of sun screen is 8. Under free trade (compared with autarky), which of the following statements concerning the Malta sun screen market is correct?

a. Consumer surplus is lower, producer surplus is higher, and the sum of consumer and producer surplus is lower.
b. Consumer surplus is higher, producer surplus is lower, and the sum of consumer and producer surplus is lower.
c. Consumer surplus is lower, producer surplus is higher, and the sum of consumer and producer surplus is lower.
d. Consumer surplus is higher, producer surplus is lower, and the sum of consumer and producer surplus is higher.

8. A government wishes to raise $1 million in tax revenue with the smallest deadweight loss, by taxing books or pencils. The government will put a tax on books if:

a. the price elasticity of demand for books is higher than the price elasticity of demand for pencils.
b. the price elasticity of demand for books is lower than the price elasticity of demand for pencils.
c. the income elasticity of demand for pencils is higher than the income elasticity of demand for books.
d. the income elasticity of demand for books is higher than the income elasticity of demand for pencils.

9. If total revenue rises when a monopolist raises her price, demand is

a. inelastic.
b. unit-elastic.
c. elastic.
d. none of the above

10. A firm will shut down in the short run if:

a. total costs exceed total revenues.
b. average costs exceed average revenues.
c. variable costs exceed fixed costs.
d. variable costs exceed total revenues.
11. Suppose a monopolist produces a good with an externality. Let \( Q_M \) denote the monopolist’s output, and \( Q_E \) denote the socially efficient output. Which of the following is most likely true?

   a. \( Q_M < Q_E \) if the externality is beneficial.
   b. \( Q_M < Q_E \) if the externality is harmful.
   c. \( Q_M > Q_E \) if the externality is beneficial.
   d. \( Q_M > Q_E \) if the externality is harmful.
   e. \( Q_M = Q_E \)

12. If a firm’s demand curve is horizontal, the firm’s marginal revenue:

   a. is less than the price of the product.
   b. is equal to the price of the product.
   c. is greater than the price of the product.
   d. cannot be determined from the information given.

13. Consider a consumer choosing between two goods, \( X \) and \( Y \). As depicted in the graph at right, the price of \( X \) falls, and the consumer decides to purchase more of the good. Which of the following statements is necessarily correct?

   a. \( X \) is a normal good.
   b. \( X \) is inferior.
   c. It is not possible to tell whether \( X \) is normal or inferior.

14. As a firm’s output increases:

   a. average variable cost approaches average total cost.
   b. average fixed cost increases.
   c. marginal cost reaches a maximum, and then decreases.
   d. average variable cost reaches a maximum, and then decreases.

15. Which of the following best describes a move from a point inside the production possibilities frontier (PPF) to a point on the frontier?

   a. an increase in the amount of labor available.
   b. technological progress.
   c. the employment of previously unemployed resources.
   d. a reallocation of resources from the production of good \( X \) to the production of \( Y \).
16. The table below shows the number of DVD players and bicycles that can be produced with one unit of labor (the only input) in India and China.

<table>
<thead>
<tr>
<th></th>
<th>India</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD players</td>
<td>75</td>
<td>10</td>
</tr>
<tr>
<td>Bicycles</td>
<td>150</td>
<td>30</td>
</tr>
</tbody>
</table>

Which of the following statements is true?

a. China has an absolute advantage in the production of DVD players.
b. China has an absolute advantage in the production of bicycles.
c. China has a comparative advantage in the production of DVD players.
d. China has a comparative advantage in the production of bicycles.
e. None of the above statements is true.

17. Given the table above, what will be the pattern of trade? (Assume China and India are the only two countries in the world.)

a. No trade will occur between the countries; each country will produce both goods.
b. No trade will occur between the countries; each country will produce only the good for which it has a comparative advantage.
c. India will ship DVD players and bicycles to China.
d. China will ship DVD players to India, and India will ship bicycles to China.
e. China will ship bicycles to India, and India will ship DVD players to China.

18. The figure at right depicts Steve's budget between potato pancakes and apple sauce. It also labels two particular combinations of those goods (A and B). Which of the following statements must be true, given the picture?

a. Steve prefers point A to point B.
b. Steve prefers point B to point A.
c. Steve prefers potato pancakes to apple sauce.
d. Steve prefers apple sauce to potato pancakes.
e. There is no way to tell whether Steve prefers point A or point B.
19. Along the demand curve at right, the **slope** is the same at points A and B, as indicated by the dotted lines. Moving from point A to point B, right and down the (curved) demand curve, the price elasticity of demand...

   a. increases.
   b. decreases.
   c. remains constant.
   d. cannot be discerned from the information.

20. Consider the market for used yachts. Each seller either has a "plum" (high quality) or a "lemon" (low quality). Suppose that only sellers know whether a yacht is a lemon or a plum. Buyers are willing to pay $10,000 for a plum, and $6000 for a lemon. What is the expected value of the yacht to buyers if they believe 50% of yachts for sale are lemons, but do not know which ones?

   a. $6000
   b. $7000
   c. $8000
   d. $9000
   e. $10,000

21. See above. Suppose that sellers have the same valuation as buyers (willing to sell lemons for $6000 and plums for $10,000). What will be the equilibrium price of yachts that sell?

   a. $6000
   b. $7000
   c. $8000
   d. $9000
   e. $10,000

22. For many agricultural products, in years with large harvests farmers bring in less revenue than in years when harvests are small. This ironic outcome is explained by . . .

   a. bad weather is good for some crops.
   b. not all regions have bumper harvests in the same year.
   c. demand for these products is elastic.
   d. demand for these products is inelastic.

23. When a consumer’s income falls, she consumes more bananas and less milk. This implies that

   a. bananas and milk are complements.
   b. bananas and milk are substitutes.
   c. bananas are a necessity and milk is a normal good.
   d. bananas are an inferior good and milk is a normal good.
   e. bananas are a luxury good and milk is a necessity.
24. Which of the following phrases best describes Economists' definition of "economic efficiency," otherwise know as "Pareto efficiency?"

a. You cannot make anybody better off without making somebody else worse off.
b. You get the maximum possible output per unit of input.
c. You cannot produce any more of one good without producing less of another good or using more inputs.
d. You produce at the minimum efficient scale.
e. All of the above.

25. Domestic supply of honey in the U.S. is given by \( Q^S = 2P \). Domestic demand is given by \( Q^D = 15 - P \). If the world price of honey is $2 (meaning that the U.S. can import all of the honey that it wants at a price of $2), which of the following is closest to the smallest level of a tariff that would cut off all imports of honey?

a. $2.
b. $3.
c. $5.
d. $13.
e. $15.

26. In an otherwise perfectly competitive market, negative externalities result in an equilibrium output

a. that is socially optimal.
b. smaller than is socially optimal.
c. larger than is socially optimal.
d. that maximizes total surplus.

27. In the market for health insurance, a market failure arises because the healthiest people will find the insurance priced at the average risk to be too costly, and opt out, leaving behind only those with high expected health costs. This market failure is called ...

a. signaling
b. adverse selection
c. moral hazard
d. uncertainty
e. screening

28. An individual firm in a cartel has an incentive to cheat on the cartel by

a. charging a slightly higher price.
b. charging a much higher price.
c. producing more than its quota.
d. producing less than its quota.
29. The table below depicts a game for two players. Player 1's strategies are "left" or "right." Player 2's strategies are "up" or "down." The four possible sets of strategies (outcomes) are labeled (A) through (D). Which cell, or cells, contain the Nash equilibrium, or equilibria?

a. (A) and (D)

b. (B)

c. (C)

d. (C) and (B)

e. There are no Nash Equilibria.

30. Paul operates one of many small competing paper plants. Paul's marginal costs can be written

\[ MC = 5 + 3Q \]

where Q is the quantity of paper Paul produces. Paul's factor generates pollution externalities, and the marginal external cost can be written

\[ MEC = Q \]

The market price for paper is 25.

What is the tax per unit of paper that will get Paul to produce the efficient quantity?

a. 2

b. 3

c. 4

d. 5

e. 6

31. The figure at right depicts a natural monopoly.

Suppose that you are the regulator, and that although you want to grant consumers large benefits, you wish to ensure that the monopolist earns zero profits. Which price-quantity combination would be best?

a. P0, Q0

b. P1, Q1

c. P2, Q2

d. P3, Q3
32. The figure at right depicts the domestic market for a good in a small country. The good sells on the world market for price $P_W$. Which of the following statements is most accurate?

- a. The country will import d-b
- b. The country will import b
- c. The country will import d-c
- d. The country will export d-c
- e. The country will export d-b

33. The figure at right depicts Lorenz curves for two economies: A and B. Which economy has the higher Gini coefficient?

- a. Economy A
- b. Economy B
- c. A and B have equal Gini coefficients.
- d. One cannot tell the relative size of the Gini coefficients from the figure.

34. The demand curve for apartments in Georgetown is $P = 5000 - 2Q$ and the supply curve is $P = 500 + 4Q$ (where $P$ is the monthly rent in dollars and $Q$ is the quantity of apartments). If a price ceiling of $1000 is imposed, what will be the level of excess demand?

- a. 0.
- b. 125.
- c. 750.
- d. 1375.
- e. 1875.
35. If the cross-price elasticity of demand between two goods is 1.35, the two goods are

a. substitutes.
b. complements.
c. normal.
d. inferior.
e. luxuries.

36. Suppose Eric consumes two goods, widgets and gadgets. When the price of widgets is low and gadgets are expensive, he chooses to consume combination A, depicted in the graph below. When Eric’s income does not change, but the price of widgets increases and the price of gadgets decreases, he chooses B. Which of the following statements about Eric’s preferences is true?

a. Eric prefers widgets to gadgets.
b. Eric prefers gadgets to widgets.
c. Gadgets are normal.
d. Gadgets are luxuries.
e. Eric’s preferences violate our standard assumptions about consumer behavior.

37. Suppose a society has four individuals. Each earns an annual income of $75,000.

What is the Gini coefficient for this society?

a. 0.00  
b. 0.25  
c. 0.33  
d. 0.67  
e. 1.00

38. An industry contains five (5) firms, each with identical market shares.

What is the value of the Herfindahl index?

a. 1.0  
b. 0.40  
c. 0.80  
d. 2000  
e. 4000
39. If the market interest rate is 5 percent, what is the present discounted value of a perpetuity paying $50 per year, every year, with the first payment coming one year from today?

   a. $1000  
   b. $47.62  
   c. $950  
   d. $97.62

40. If the market interest rate is 5 percent, what is the present discounted value of a perpetuity paying $50 per year, every year, with the first payment coming 12 years from today?

   a. $557  
   b. $530  
   c. $555  
   d. $585

41. If the market interest rate is 5 percent, what is the present discounted value of a financial instrument that pays you $50 per year, forever, starting next year, with the exception of year 17. I.e. it pays you $50 every year except for the payment 17 years from today, which is zero.

   a. $977  
   b. $978  
   c. $564  
   d. $542

42. An allocation of goods and services is not efficient if

   a. Trades are possible that make both parties better off.  
   b. Consumer surplus is below its maximum possible level.  
   c. The distribution of goods is highly unequal.  
   d. The demand for an important consumer product is highly inelastic.

43. Imagine the city of Washington DC decides to increase the gasoline tax. Who will bear most of the economic incidence of this tax increase?

   a. Consumers, because demand for gasoline is elastic.  
   b. Suppliers, because consumers do not have good substitutes for gasoline.  
   c. Consumers, because demand for gasoline is inelastic.  
   d. Suppliers, because it is easy to obtain gasoline supplies from outside DC.
44. The figure at right depicts Harold's choices between goods X and Y. He tells you that when his budget is B1 he would choose combination A, and when his budget is B2 he would choose combination B.

What can you tell for sure about Harold's preferences?

a) X and Y are substitutes.
b) X and Y are complements.
c) X and Y are both normal.
d) X is normal; Y is inferior.
e) X is inferior; Y is normal.

45. When the price of ice cream rose 25%, the quantity of ice cream sold fell 10%, and the sale of chocolate syrup also fell 15%. This set of facts indicates that:

a) The demand for ice cream is price elastic.
b) The demand for chocolate syrup is price elastic.
c) The cross-price elasticity between ice cream and chocolate syrup is negative, so the two are complements.
d) The cross-price elasticity between ice cream and chocolate syrup is positive, so the two are substitutes.

If there are fewer than 10 minutes left in the exam period, please wait patiently and quietly until the exam period is over. If you have finished more than 10 minutes early, you may quietly bring your coding sheet and this exam booklet to the place indicated by the instructors.