The market demand for glue is \( Q_D = 240 - 6P \) and the market supply curve is \( Q_S = -60 + 6P \). (Please note there is a negative sign in front of the 60 in the supply curve.)

a. Please calculate the equilibrium price and quantity.

\[
\begin{align*}
Q_D &= 240 - 6P = -60 + 6P = Q_S \\
700 &= 12P \\
P &= 25 \\
Q_D &= 240 - (6 \times 25) = 240 - 150 = 90 \\
Q_S &= 90
\end{align*}
\]

b. What price would consumers pay if $4 per unit excise tax were placed on the glue?

\[
P = \left( \frac{Q_S}{6} + 10 \right) + (4 \text{ more } 60) \\
P = \frac{Q_S}{6} + 14 \\
6P - 64 = Q_S \\
6P - 64 = 240 - 6P \\
P = 41
\]

c. What price would firms receive if there was a $4 per unit excise tax?

\[
\begin{align*}
\text{2.7 \ charged to consumer} \\
\text{4 \ paid} \\
\text{23 \ firms \ $60}
\end{align*}
\]

d. What would the quantity sold be with the imposition of the tax?

\[
78
\]

e. What share of the tax is paid by the consumers? (percentage please)

\[
\text{Firms } \text{pay } 22 \text{ (lower price)} \quad \text{Consumers } \text{pay } 32 \text{ more}
\]

f. Suppose the demand was \( Q_D = 240 - 2P \). Without redoing parts b-d, would your answer in part e be higher or lower? Explain why.

\[
\begin{align*}
\text{Or. D: } Q_D &= 240 - 6P \\
\text{New D: } Q_D &= 240 - 2P \\
40 - 1.67Q_D &= P \\
120 - 5Q_D &= P \quad \text{more elastic} \\
\text{So } \frac{dP}{dQ}\text{ greater in } Q_2
\end{align*}
\]
2. The tax rates for single filers for 2008 are given below.

- 10% on income between $0 and $8,025
- 15% on the income between $8,025 and $32,550; plus $802.50
- 25% on the income between $32,550 and $78,850; plus $4,481.25
- 28% on the income between $78,850 and $164,550; plus $16,056.25
- 33% on the income between $164,550 and $357,700; plus $40,052.25
- 35% on the income over $357,700; plus $103,791.75

The standard deduction is $5,450 for a single person and the personal exemption is $3500.

Let us assume that Magglio is a single person with Adjusted Gross Income of $100,000. He has done many things with his money this year, including giving $3,000 to charity, paying rent of $5,500, $75 of interest on a flat screen TV he bought at Best Buy and $117 in parking fines in the City of Delaware.

choice

a. Should he take the standard deduction? Explain.

Only deduction he has is $3,000 to charity. The standard deduction of $5,450 is greater. He should take that instead of itemizing.

b. Calculate how much tax he owes. Show all your work to facilitate the awarding of partial credit should you make an error.

\[
\text{TAX} = \left( 16,056.25 \right) \times 0.25 \left( 91,050 - 75,050 \right) \\
= 16,056.25 \times 3.416 = 19,472.25
\]

c. What is his average tax rate (effective incidence)?

\[
\frac{TAX}{AGI} = \frac{19,472.25}{100,000} = 0.1947225
\]

d. What is his marginal tax rate?

\[28\%]
3. a. Currently, what is the highest bracket under the United States Corporate Income Tax?

b. Let us assume that the Four Quarts are a singing group. They have no equipment and are incorporated as the Four Quarts Corporation. The Four Quarts Corporation had expenses of $100,000 last year and revenues of $150,000. For the rest of this problem let us assume that the Corporate Income Tax has a flat rate of 25%. How much tax do they owe under the Corporate Income Tax?

\[
\begin{align*}
\text{Rev} & = 150,000 \\
\text{Cost} & = 100,000 \\
\text{Profit} & = 50,000 \times 0.25 \\
\text{Corporate Income Tax} & = 12,500
\end{align*}
\]

c. Suppose that the corporation bought a van for $30,000 to help them get to singing engagements. Their expenses this year were then $130,000. If they were allowed to expense the van, what would their tax liability be?

\[
\begin{align*}
\text{Rev} & = 150,000 \\
\text{Cost with van} & = 130,000 + 30,000 \\
\text{Profit} & = 20,000 \div 0.25 \\
\text{Corporate Income Tax} & = 5,000
\end{align*}
\]

d. Suppose that instead of expensing the van, they were allowed to depreciate it over six years, the expected actual life of the van. Using straight line depreciation, please calculate their tax liability.

\[
\begin{align*}
\text{Depreciation charge each year} & = \frac{150,000 \times 6}{30} \\
\text{Corporate Income Tax} & = \frac{5,000 \times 6}{2} \\
\text{Corporate Income Tax} & = 11,250
\end{align*}
\]

e. Under current tax law in the United States, why might their tax liability be less than the number you stated in part d. (Please discuss in terms of depreciation.)

f. Suppose all of their stock is owned by Scrooge McDuck. Explain the concept of double taxation in terms of this example.
4.a. Suppose that currently the government provides everyone with a guaranteed income of $6,000 per year, but this benefit level is reduced by $2 for each $3 of work income. Assume that Sally can work up to 2,000 hours per year at $8 per hour. Carefully draw her budget line with leisure on the horizontal axis and income on the vertical.

b. The government is considering changing this policy so that the benefit level is reduced by $1 for every $3 of work income. Can we state whether this would increase or decrease the number of hours Sally would work? If so, what effect will it have? Explain your answer using budget lines, indifference curves and a few sentences.
5. Andrew, Beth, and Cathy live in Worthington. Andrew's demand for bike paths, a public good, is given by \( Q = 12 - 2P \). Beth's demand is \( Q = 18 - P \), and Cathy's is \( Q = 8 - P/3 \). (Assume \( Q \) is measured in miles.) The marginal cost of building a bike path is \( MC = 6 \).

a. As individuals, how many miles of bike path would each want?

Andrew: \( Q = 12 - 2P \)

\[ Q = 12 - 2(6) = 0 \]

Beth: \( Q = 18 - P \)

\[ Q = 18 - 6 = 12 \]

Cathy: \( Q = 8 - P/3 \)

\[ Q = 8 - 2 \]

b. What would be the socially optimal number of miles of bike path?

\[ Q = 12 - 2P \]

\[ G - 0.5Q = P \]

Add up \( (G - 0.5Q) + (18 - Q) + (24 - 3Q) = 48 - 4.5Q \Rightarrow Q = 6 \)

\[ Q = 9.33 \]

c. Please carefully define a public good.

[Some authors say it, some say both]

Non-excludable. The non-payer cannot be excluded from having the good.

Non-rival. One person's use of the good does not interfere with another's.

d. Do you think bike paths are a public good? Defend your answer.

Answers will vary

(1)

e. What is the Coase Theorem?

If transaction costs are low and property rights are assigned, people can work out an arrangement for public goods or externalities without the government.

f. Is the Coase Theorem applicable here? Explain.

(2) Answers will vary
Multiple Choice. Two points each.

6. If SUVs produce a negative externality, taxing the buyers of SUVs would do which of the following?
   a. Shift the private demand curve to the left
   b. Shift the private demand curve to the right
   c. Shift the private supply curve to the right
   d. Shift the private supply curve to the left
   e. None of the above

7. The damage one does to oneself through adverse health (or other) behavior is referred to as which of the following?
   a. Actuarial adjustment
   b. Compensating differential
   c. Commitment device
   d. Internality
   e. Self-control problem

8. Suppose that in response to government giving grants to local medical research projects, you reduce your annual gift. This is an example of which of the following problems with the public provision of a public good?
   a. measuring preferences for the public good
   b. crowding-out of private provision
   c. measuring the costs and benefits of public goods
   d. all of the above
   e. both a and c

9. Which of the following suggests that education has a positive externality?
   a. More educated people may be less likely to commit crimes.
   b. More educated people are more productive and receive higher wages.
   c. More educated people are more informed and active voters, which enhances the quality of the democratic process.
   d. Both a and c are correct.
   e. Both b and c are correct.

10. Which person has the highest Social Security Wealth on average?
    a. a woman born in 1920
    b. a man born in 1920
    c. a woman born in 1950
    d. a man born in 1950
    e. a woman born in 2005
11. Medicare Part A (hospitalization) is financed by which of the following?

a. general income tax revenues
b. revenues from federal excise taxes on cigarettes and alcohol
   - a payroll tax levied on both employees and employers
   d. a payroll tax levied only on employers
e. a tax on Social Security benefits

12. The unwillingness to move to a better job for fear of losing health insurance is referred to as
   - job lock and results from being through one's employer
   a. a moral hazard; insured through the private market
   b. job lock; insured through one's employer
   c. job lock; uninsured
   d. first-dollar coverage; insured through one's employer
   e. first-dollar coverage; uninsured

13. Medicaid is administered by the _____ and is financed by _____ revenue

a. states; general revenues
b. states; a payroll tax levied on employees and employers
   - federal government; general revenues
   d. federal government; a payroll tax levied on employers
   e. federal government; a payroll tax levied on employees

14. A tax system in which the average tax rates fall as income rises is a ______ tax system; the way in which the average tax rate changes as income rises is a measure of ______ equity.

a. regressive; vertical
b. regressive; horizontal
   - progressive; vertical
   d. progressive; horizontal
   e. proportional; horizontal

15. There are two individuals in society. There is a 50% income tax. Both individuals have pre-tax incomes of $50,000. In period 1, there is no tax deduction, and Harry gives $5,000 to charity while Sally gives $8,000 to charity. In period 2, the government makes charitable donations tax deductible and Harry gives $6,000 and Sally gives $12,000. The marginal impact of the tax break was _______; the inframarginal impact of the tax break was _______.

   a. $2,500; $13,000
   b. $2,500; $6,500
   c. $5,000; $13,000
   d. $5,000; $6,500
   e. unable to be determined with given information; unable to be determined with given information

Inframarginal - They originally gave
   tax break for behavior already performing

$17,000

They tax break is $12,000

to do what already doing
16. Which of the following is an example of a tax on consumption?

a. a capital gains tax
b. a individual income tax
c. a property tax
d. both a and b
e. none of the above

17. All things equal, producers bear more of a tax when supply is ______. All things equal, consumers bear more of a tax when demand is ______.

a. unit elastic; unit elastic
b. elastic; elastic
C. inelastic; inelastic
d. elastic; inelastic
e. inelastic; elastic

18. Which of the following statements about the Laffer curve is true?

a. It is possible to be at a point where reducing tax rates increases tax revenues.
b. It is possible to be at a point where increasing tax rates increases tax revenues.
c. Government can always increase tax revenues by adjusting tax rates.
d. All of the above statements are true.
e. Both a and b are true.

19. Which of the following statements is true when a good is taxed?

a. The deadweight loss is greater when the tax is levied on consumers than when it is levied on producers.
b. The deadweight loss is greater when the tax is levied on producers than when it is levied on consumers.
c. The marginal benefit to the consumer of the last unit produced exceeds the marginal cost to the producer of producing the unit.
d. Both a and c are true.
e. Both b and c are true.

20. Which of the following statements about transfer taxes in the United States is true?

a. The estate tax is very progressive.
b. Gifts up to approximately $100,000 per person per year are not taxed.
c. Gifts up to approximately $12,000 per person per year are not taxed.
d. Both a and b are true.
e. Both a and c are true.
21. Which of the following statements is always true in the standard model of labor supply?

a. If the income effect dominates the substitution effect, higher wages will lead to less labor supply. *Buy more leisure*
b. If the substitution effect dominates the income effect, higher wages will lead to less labor supply.
c. Higher wages always will lead to less labor supply.
d. All of the above statements are true.
e. None of the above statements is true.

22. Does the Corporate Income Tax influence corporation's decisions to use either debt or equity financing? Explain.

*Causes corporations to use debt financing. The interest payments are considered an expense.*

23. Give an example of a good that is subject to an excise tax. We stated in class there are three reasons why a good is subject to an excise tax. State the primary reason why the good you selected is subject to the excise.

<table>
<thead>
<tr>
<th>Excise Tax</th>
<th>User Fee</th>
<th>Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Sin tax</em></td>
<td><em>Gun</em></td>
<td><em>Telephone</em></td>
</tr>
<tr>
<td><em>liquor</em></td>
<td><em>Bows &amp; arrows</em></td>
<td></td>
</tr>
<tr>
<td><em>beer</em></td>
<td><em>Gasoline</em></td>
<td></td>
</tr>
<tr>
<td><em>wine</em></td>
<td><em>Airline tickets</em></td>
<td></td>
</tr>
<tr>
<td><em>cigarettes</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

24. Give an example of an actual property not subject to the property tax.

*Churches, government buildings.*
Essay. 20 points. Please think about your answer before writing. Use the yellow paper you are given to make a draft of your answer. Since I will have to read these, legibility counts. If I have difficulty reading your writing, I will reduce your grade. The following page is blank so feel free to carry your answer on to the next page. Please note there is a question following the blank page.

Please describe the Flat Tax as described by Slemrod and Bakija. Would you recommend that President-Elect Obama attempt to adopt such a few years from now when the economy has recovered? Please discuss both efficiency and equity aspects in your answer and compare the Flat Tax to the current method of raising revenue by the government.