Microeconomics, sales taxes, final exam practice problems

(The attached PDF file has better formatting.)

*Question 1.1: Social Gain

Suppose the government levies a sales tax on a good. With the sales tax, the consumers' surplus is 800, the producers' surplus is 500, and the tax is 400. What is the total social gain from trade to all parties (consumers, producers, and beneficiaries of government largess)?

A. 800
B. 900
C. 1,000
D. 1,300
E. 1,700

Answer 1.1: E

Social gain = consumers' surplus + producers' surplus + tax revenue

Jacob: If there is a tax, there is a dead weight loss; why do we speak of a social gain?

Rachel: The dead weight loss is the optimal gains from trade minus the gain in this case.

*Question 1.2: Sales Tax and Dead Weight Loss

The table below shows the equilibrium quantity, consumers' surplus, and producers' surplus in a *competitive* industry before and after a sales tax of $2 a unit. What is the dead weight loss from the sales tax?

	Before Tax	After Tax
Quantity	200	100
Consumers' Surplus	1500	1200
Producers' Surplus	1500	1200
Tax Revenue	0	200

A. 200
B. 300
C. 400
D. 500
E. 600

Answer 1.2: C

The reduction in consumers' plus producers' surplus is (1,500 + 1,500) – (1,200 + 1,200) = 600. The tax revenue is 100 × 2 = 200. The dead weight loss is 600 – 200 = 400.

Do not forget the tax revenue. In a competitive market, social welfare is consumers' surplus plus producers' surplus. If the government imposes taxes, subsidies, or other impediments, we add the tax revenue or subtract the subsidy.

*Question 1.3: Sales Tax and Dead Weight Loss

The government imposes a sales tax of $10 for each unit bought. In which scenario below is the dead weight loss the greatest?

A. The demand curve is elastic and the supply curve is inelastic.
B. The demand curve is inelastic and the supply curve is elastic.
C. The supply and demand curves are both elastic.
D. The supply and demand curves are both inelastic.
E. A constant dollar sales tax does not create a dead weight loss.

Answer 1.3: C

When the supply and demand curves are both elastic, the quantity reduction is the greatest.

*Question 1.4: Sales Tax and Excise Tax

Suppose a good is has a highly sloped (inelastic) demand curve, and the consumers are primarily poor persons. The good has a highly elastic (flat) supply curve, and the producers are large corporations. The government wishes to tax the product with two goals: to raise much tax revenue and to collect the greater part from producers, not consumers. It is deciding between a $1 per unit sales tax levied on consumers and a $1 per unit excise tax levied on producers. Which of the following is true?

A. The sales tax raises greater revenue, and most of it comes from consumers.
B. The sales tax raises greater revenue, and most of it comes from producers.
C. The excise tax raises greater revenue, and most of it comes from consumers.
D. The excise tax raises greater revenue, and most of it comes from producers.
E. The sales tax and excise tax raise equal revenue.

Answer 1.4: E

*Question 1.5: Sales and Excise Taxes

All but which of the following are true regarding sales and excise taxes?

A. The legal incidence of an excise tax is on the sellers: that is, the excise tax is paid to the government by sellers.
B. The economic incidence of a sales tax is usually shared by the buyers and sellers: that is, the after-tax cost to the buyers is higher and the after-tax revenue to the sellers is lower.

C. If the demand curve is vertical, the economic incidence of an sales tax is completely on the buyers: that is, the after-tax cost to the buyers is higher but the after-tax revenue to the sellers is *not* lower.
D. If the demand curve is vertical, the economic incidence of an excise tax is completely on the sellers: that is, the after-tax revenue to the sellers is lower, but the after-tax cost to the buyers is *not* higher.
E. The economic incidence of a sales tax and an excise tax are the same.

Answer 1.5: D

Statement A: By Landsburg's convention, an excise tax is paid by producers to the government.

Statement B: If the supply and demand curves are neither vertical nor horizontal, both sellers and buyers pay part of the sales tax or excise tax. The sharing of the tax is the economic incidence, not the legal incidence. The after-tax cost to the buyers is higher, and the after-tax revenue to the sellers is lower.

Statement C: If the demand curve is vertical, shifting the demand curve down does not change the equilibrium price or quantity.

*Question 1.6: Sales Tax

A competitive constant-cost industry has a *flat long-run* supply curve and an *upward sloping short run* supply curve. Which of the following describes the economic incidence of a sales tax levied on a competitive constant-cost industry if the market demand curve is downward sloping?

A. The economic incidence falls entirely on firms in both the short run and the long run.
B. The economic incidence falls entirely on consumers in both the short and long run.
C. The economic incidence is split between firms and consumers in the short run, but it falls entirely on consumers in the long run.
D. The economic incidence is split between firms and consumers in both the short run and the long run, but it falls heavier on consumers in the long run.
E. The economic incidence is split between firms and consumers in both the short run and the long run, but it falls heavier on firms in the long run.

Answer 1.6: C

*Question 1.7: Dead Weight Loss

The table below shows five scenarios of a sales tax or subsidy. For each scenario, the table shows

● The equilibrium price without the tax or subsidy (100 in each scenario).
● The price paid to producers with the tax or subsidy.
● The price paid by consumers with the tax or subsidy.
● The tax or subsidy per item.

Which scenario has the smallest dead weight loss?

		Price		
Scenario	No Tax/Subsidy	To Producers	By Consumers	Tax/Subsidy
A	100	100	110	10
B	100	95	105	10
C	100	97	103	6
D	100	105	95	10
E	100	103	97	6

Answer 1.7: A

The demand curve is inelastic, so quantity doesn't change and the dead weight loss is the smallest.