Guide to Midterm 1 (Version A)
Econ 1101 Fall 2017

1. This is the form ID question. For Form A, the answer is A.

2. A subsidy on SUVs will lower the price consumers pay for SUVs. As SUVs and oil are complements, demand for oil shifts up and to the right, so $Q^{oil} \uparrow$ and $P^{oil} \uparrow$, answer A.

3. Saudi Arabia is a major source of oil. The earthquake shutting down oil production shift supply up and to the left, so $Q^{oil} \downarrow$ and $P^{oil} \uparrow$, answer B

4. Oil is a normal good. An increase in income in China shifts world demand for oil up and to the right, so $Q^{oil} \uparrow$ and $P^{oil} \uparrow$, answer A.

5. The new technology shifts supply down and to the right, so $Q^{oil} \uparrow$ and $P^{oil} \downarrow$, answer C.

6. Here we are combining the two shifts taking place in questions (4) and (5), both shifts cause $Q^{oil} \uparrow$, so when we combine them we get $Q^{oil} \uparrow$. However in one case $P^{oil} \uparrow$ and the other $P^{oil} \downarrow$, so we can't tell what happens to P^{oil}. This is answer A.

7. When demand is perfectly inelastic, buyers bear the entire burden of a tax. Also, quantity will not change. Therefore B is the correct answer.

8. The allocation described is most definitely not a Pareto efficient allocation, so the correct answer is B, "No." In the allocation, the gains from trade are exactly zero in every transaction, so total surplus is zero. Of course, the free market allocation does much better than that.

9. The correct answer is A. In the given allocation, S8, whose cost is $8, does not produce while S10, with a cost of $10, does produce. If S10 outsources the work to S8 for $8.50, both are better off. This proves that the allocation is not efficient. Let's look at the other answers. B isn't correct because the efficient quantity is 5. Answer C is tricky because it is true that S7 might benefit from outsourcing to S2. However, the $1 widget price stated in the answer it below S2's cost, and so she is not better off with the proposed deal. Answer D is also wrong because if D3 has a widget and D8 does not, there is no way they can both gain from D3 selling his widget to D8 (any price D8 would accept is lower than what it is worth do D3).

10. The First Welfare Theorem is stated in Lecture 4(i). It assumes the market structure is perfect competition ((2) in the list) and that there are no externalities ((4) in the list). Therefore, the correct answer is B.

11. Since the advent of the smiget decreases the widget price, widgets and smigets must be substitutes and not complements. Since the quantity of widgets is unchanges, the supply curve for widgets must be perfectly inelastic. Thus D is correct.

12. In Lecture 4(iii) we show that the dead weight loss of a tax, per dollar collected by the tax, tends to be large when taxes are large. Also, when supply is perfectly inelastic, the deadweight loss of a tax is zero. Therefore, C is correct.

13. When the subsidy is \$10, the $p^S = 10$ and $p^D = 0$, and quantity demanded and supplied is Q=10, answer A

14. At $p^S = 10$, and Q = 10, PS = 10*10/2 = 50, answer C.

15. With the free market and no subsidy, CS = 12.5, PS = 12.5, and GS =0. Adding this up yields total surplus of TS = 25. With the subsidy, as already noted, PS = 50 and a similar calculation yields CS = 50. However, the government pays \$10 for each 10 widgets produced, for a total expenditure of \$100. Total surplus is then TS = 50 + 50 - 100 = 0. Thus the change in TS equals 0 – 25 = -25. The correct answer is E.

16. A price ceiling of \$2 is binding and the quantity will be 2 units. PS = 2*2/2 = 2, or answer D.

17. With a price ceiling of \$2 the quantity produces is 2 and the demand is 8. With perfectly inefficient ration, these go to the last 2 units of demand, willing to pay \$2. CS will be 2*2/2 = 2. The correct answer is D.

18. If there is a quota of 2, we figure out the quota price by first drawing a vertical line at Q = 2. It hits the demand curve at $p^{Widget} = \$8$. It hits the supply curve at cost of the last producer in at \$2. The difference \$6 = \$8 - \$2 is the equilibrium price for quota at the quota exchange. The correct answer is A.

19. The total market value of quota equals the quantity of quota times the price of quota. To figure out which maximizes the total value of quota, we need to go through each case. In question 18, we figure out that when the quota = 2 units, the price of quota equals \$6. Hence, the total market value of quota equals \$6*2 = \$12. If the quota equals Q = 1, you can check that the quota price per unit is \$8. The total market value of quota equls \$8*1 = \$8, which is less than the \$12 when quota is set at 2. At a quota of 4, the price of quota equals \$2, and the market value is \$2*4 = \$8, which again is less than when the quota is set at 2. For quota equal 5 or 6, the market value of quota is actually 0. Hence, the correct answer is A.

20. To answer this question, first sort the offers to buy from highest to lowest, and the offers to sell from lowest to highest as follows

Buyers	Bid (Offer to buy in $)
Petyr	38
Bronn	30
Gregor	28
Tyrion	14
Jon	10

Sellers	Bid (Offer to sell in $)
Cersei	8
Arya	12
Gilly	12
Daenerys	14
Sansa	34

To “clear the market,” the quantity supplied and quantity demanded must be the same. This happens at a price of 14. The answer is B.

21. Cersei, Arya, Gilly, and Daenerys all bid less than or equal to the market clearing price of 14 and they all sell. The answer is B.

22. Recall from our reading that the system operator had projected demand for given times. At 3 p.m. there tends to be more usage of energy due to commercial activity and more people being awake than at 3 a.m which means there is a higher projected demand at 3 p.m. than at 3 a.m. Holding the supply of electricity constant, a higher projected demand corresponds to a higher price. Thus, the answer is B.

23. In this example income rises by a lot in percentage terms, and demand increase, but only by a small amount in percentage terms. Thus the income elasticity is between 0 and 1, meaning the good is income inelastic. We call such goods a necessity. Since quantity demanded increased with income, the good is normal. Thus D is the correct answer.

24. Scenario (i) is a short-run situation (time period one year) compared to scenario (ii) which is a long –run situation (more than 30 years). As emphasized in Reading 2, the long-run demand for gasoline is more elastic than the short-run demand. Answer D is the only case listed where the elasticity in the long run is greater than the short run, and this makes it the correct answer.

25. From the previous question, the estimated elasticity of demand in scenario (i) is 0.2. Since this is less than one, demand is inelastic. This means that when price goes down, the percentage decrease in price is larger than the percentage increase in quantity. Also, when a tax is decreased, obviously, the percentage decrease in the tax will be larger than the percentage decrease in the overall consumer price. Therefore, the percentage decrease in the tax is bigger than the percentage increase in quantity, and tax revenue decreases. Thus the answer is C.

26. Answer D is a statement about what producers can do, and is therefore related to **supply**. All the other answers are about how giving consumers extra time makes it easier for consumers to substitute away from gasoline. Therefore, the correct answer is D.

27. If there is a price floor, at B, demand will be at C, and supply will be at E, yielding excess demand equal to CE (answer A).

28. All consumers who want to buy at B will be able to purchase the good. We use the normal rule for calculating consumer surplus, which is the area under the demand curve and above the price line. This is ACB (answer C).

29. If the lowest cost producers produce, then producer surplus equals RBCL (answer D).

30. If there is a price ceiling, there is excess demand, so we don't necessarily know who will consume. But every supplier who wants to sell will sell, meaning the lowest cost producers will producer. Therefore B is an exception to the statement, and is the correct answer.

31. As discussed in Reading 2, on average, public transit tends to be better in Norway than in the U.S. (which is answer A), and gas prices are substantially higher (which is answer B). Thus answer E (which is both A and B) is correct.

32. To estimate the long run demand elasticity of gasoline, we must make sure that the other factors that may affect changes in the quantity demanded (income, price of substitutes, etc) are constant or fixed. For one, public transit is better in Norway in comparison to the USA, thus providing public alternatives to driving. Since public transportation is a substitute then we need to consider its effects on the quantity demanded. This means that when calculating the long run demand elasticity of gasoline, we are giving too much credit to the effect of the price of gasoline on the quantity demanded of gasoline. In other words, the change in the demand of gasoline is not only affected by the change in the price of gasoline but also by the price of public transportation. As we are not controlling for the price of public transportation, then our estimate of the long run elasticity of demand includes both the effect of the price of gasoline and also the price of the public transportation. Hence, we are over estimating the demand elasticity of gasoline. The answer is B.