Instructions: This is a closed-book, closed-notes exam. No calculators or electronic devices are allowed. Please turn off and put away all phones and other electronic devices. There are 8 multiple-choice questions and two free-response questions. Answer as many as you can in the time allowed. I do not expect everyone to be able to answer all questions. If you get stuck on something, I suggest moving on and coming back later when/if you have time. If you have a question, please raise your hand. Good luck!

Multiple choice – 25 out of 50 pts. (8 qns., 3 pts. each + 1)

Answer these questions on your Scantron. Your score will only be based on the marks on your Scantron. You will not receive any credit for anything written on your exam paper. You will receive 1 extra point for correctly writing your name, perm number, version (A,B,C, or D), and TA’s name on your Scantron.

1. Miguel likes to collect staplers. His inverse demand for staplers is \( P(q) = 20 - 4q \). If the price of staplers is $8, what are Miguel’s total expenditures on staplers and what is his consumer surplus?
   (a) $24 and $12
   (b) $18 and $18
   (c) $24 and $18
   (d) $12 and $24

2. Sheila’s demand for coffee is \( q(p) = 10 - 2p + m/5 \). If \( p = 4 \) and \( m = 50 \), what is her price-elasticity of demand?
   (a) \(-2/3\)
   (b) \(1/5\)
   (c) \(5/6\)
   (d) \(-2\)

3. You’ve produced your first album and would like to sell it over the internet. You estimate that demand for your album is \( D(p) = 2000 - 100p \). Selling online is costless, so you just want to maximize revenue. What price should you charge?
   (a) $5
   (b) $15
   (c) $10
   (d) $20

4. Jack’s surf shop sells surfboards to customers from Santa Barbara and Goleta. Santa Barbara customers have demand given by \( P(q) = 20 - q/3 \) and Goleta customers have demand \( P(q) = 40 - q \). What price does Jack have to charge to sell a total of \( q = 60 \)?
   (a) 60
   (b) 10
   (c) 15
   (d) 30

5. Demand for bagels is \( D(p) = 10 - p/2 \). How much consumer surplus is lost if the price of bagels increases from 2 to 4?
6. In Goleta, the demand for fancy pants is \( D(p) = 550 - \frac{p^2}{2} \) and the (inverse) supply is \( P = 100 + 3q \). What is the market equilibrium quantity of fancy pants?

(a) 300
(b) 500
(c) 400
(d) 200

7. Demand for figs is \( p = 48 - 2q \) and supply is \( p = 4q \). A new tax of $6 per fig is imposed. What is the new (after tax) equilibrium quantity and what is the buyers’ price after the tax?

(a) \( q = 8 \) and \( p_d = 32 \)
(b) \( q = 6 \) and \( p_d = 36 \)
(c) \( q = 5 \) and \( p_d = 38 \)
(d) \( q = 7 \) and \( p_d = 34 \)

8. What is the deadweight loss from the tax on figs (from the previous question)?

(a) 12
(b) 3
(c) 6
(d) 9
1. Ying-Ru is beginning her senior year of college soccer and is deciding whether or not to buy insurance in case she is injured. There is a 50% chance she will not be injured and a 50% chance she will be. If she is not injured, she will receive a $400 contract to play professionally. If she is injured, she will receive a $100 contract to carry water bottles.

(a) Ying-Ru’s utility from her consumption is given by $u(c) = \sqrt{c}$. What is her expected utility if she does not buy insurance?

(b) Insurance policy A will pay Ying-Ru $300 if she gets injured, so that she will always have a total wealth of $400 - p$, where $p$ is the price of the policy. What is the largest price $p$ that Ying-Ru would be willing to pay for this policy?

(c) Policy B offers Ying-Ru the option of buying as many dollars of insurance as she would like, at the price of $p = 2/3$ for $1 of insurance. Let $c_{ni}$ be Ying-Ru’s consumption when there is no injury and $c_i$ be her consumption when she is injured. Write Ying-Ru’s state-contingent budget constraint. (Write your answer as the equation of a line, with $c_{ni}$ isolated on the left, written as a function of $c_i$.)

(d) Write Ying-Ru’s Marginal Rate of Substitution (MRS)

(e) If policy B were the only option available, what would be the optimal amount of insurance for Ying-Ru to buy?

(f) Which policy is better for Ying-Ru—policy B or policy A with $p = 160$?

2. The demand for stuffed gauchos is $D(p) = 80 - 2p$ and the supply is $S(p) = 2p - 20$.

(a) What is the equilibrium price and quantity?

(b) What is the resulting consumer surplus, producer surplus, and total welfare?

(c) The government decides to introduce a subsidy of $10 per stuffed gaucho. What is the new equilibrium quantity, $q^*$ and the new price that the buyers end up paying, $p_d^*$?

(d) What is the resulting consumer surplus, producer surplus, and total welfare?

(e) You showed above that buyers only have to pay $p_d^*$ after the subsidy. Now consider another policy that will yield the same low price for the buyers—a price ceiling. If the government makes it illegal to make buyers pay anything more than (the number that you found for) $p_d^*$, what is the resulting quantity ($q^c$), consumer surplus, and producer surplus?

(f) Compare the deadweight loss caused by the subsidy to the DWL of the price ceiling. Which policy is preferred?