ECON 203
Final Exam

Be sure to show your work for all answers, even if the work is simple.

This exam will begin at 9:10 and end at 10:50

1. *(19 points)* **Honor Statement:** Please read and sign the following statement:

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   Name and Surname: _
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   _

2. *(14 points total)* Consider an exchange economy, person one has the utility function: $U_1(C_1, F_1) = C_1^3 F_1^2$, person two has linear preferences with the utility function: $U_2(C_2, F_2) = C_2 + 2F_2$. Person one has the initial endowment $(C_1^e, F_1^e) = (2, 11)$ and person two has the initial endowment $(C_2^e, F_2^e) = (9, 0)$. You may assume throughout that both people will consume a positive amount of both goods.

   (a) *(4 points)* Find the Contract Curve, or the set of Pareto Efficient allocations.

   (b) *(4 points)* Find the prices in all competitive equilibria.

(c) *(6 points)* Find the allocation, or the quantities of food and clothing that person one will consume.

3. *(14 points)* What two facts do we know about the relationship between the long run average costs and short run average costs? How do we know these things? If the short run average costs are:

$$C^{SR}(w, r, K, q) = \min_{L} wL + rK - \mu\left(f(L, K) - Q\right)$$

what is $\partial C^{SR}/\partial K$ equal to and how do we know this?

4. *(8 points)* Define *Pareto efficiency.* Are suicide bombings Pareto efficient? Explain why or why not.

5. *(12 points)* What is the difference between a fixed start up cost and a fixed sunk cost? Give an example of each. If two firms are identical except that one of them has strictly higher fixed sunk costs, what is the most likely explanation of this?

6. *(4 points)* Define *Pareto dominance.*

7. *(10 points)* Explain why in the long run we know that for a typical firm, $p = AC(q) = MC(q)$. This firm is making zero economic profits, will their accounting profits be zero? Why or why not?

8. *(20 points total)* Robinson Crusoe has the utility function $U(F, C) = F^3C$ and a production possibilities set of $C + 6F \leq 8$.

   (a) *(6 points)* Find the amount of food and clothing he will consume and produce.

   (b) *(2 points)* Find the implicit prices of food and clothing in this equilibrium, one of the prices can be normalized to one.

   (c) *(12 points total)* Robinson Crusoe has now realized he can trade with the Native Americans on the next island. In their economy $p_c = \frac{1}{12}$ and $p_f = 1$.

      i. *(3 points)* How much food and clothing will he produce? **Hint:** He will either produce all food or all clothing.

ii. *(6 points)* Find out how much he will consume of food and clothing. Is he better off? Is he worse off? How do you know?

iii. *(3 points)* Under what conditions on the prices (p_c, p_f) do you know he will be better off?

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2. *(14 points total)* Consider an exchange economy, person one has the utility function: $U_1(C_1, F_1) = C_1 F_1^6$, person two has linear preferences with the utility function: $U_2(C_2, F_2) = C_2 + 3F_2$. Person one has the initial endowment $(C_1^e, F_1^e) = (6, 10)$ and person two has the initial endowment $(C_2^e, F_2^e) = (5, 1)$. You may assume throughout that both people will consume a positive amount of both goods.

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$$C^{SR}(w, r, K, q) = \min_{L} wL + rK - \mu\left(f(L, K) - Q\right)$$

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6. *(12 points)* What is the difference between a fixed start up cost and a fixed sunk cost? Give an example of each. If two firms are identical except that

one of them has strictly higher fixed sunk costs, what is the most likely explanation of this?

7. *(8 points)* Define *Pareto efficiency*. Are suicide bombings Pareto efficient? Explain why or why not.

8. *(20 points total)* Robinson Crusoe has the utility function $U(F, C) = FC^3$ and a production possibilities set of $9C + F \leq 12$.

   (a) *(6 points)* Find the amount of food and clothing he will consume and produce.

   (b) *(2 points)* Find the implicit prices of food and clothing in this equilibrium, one of the prices can be normalized to one.

   (c) *(12 points total)* Robinson Crusoe has now realized he can trade with the Native Americans on the next island. In their economy $p_c = 1$ and $p_f = \frac{1}{3}$.

      i. *(3 points)* How much food and clothing will he produce? **Hint:** He will either produce all food or all clothing.

ii. *(6 points)* Find out how much he will consume of food and clothing. Is he better off? Is he worse off? How do you know?

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2. *(14 points total)* Consider an exchange economy, person one has the utility function: $U_1(C_1, F_1) = C_1^8 F_1$, person two has linear preferences with the utility function: $U_2(C_2, F_2) = 4C_2 + F_2$. Person one has the initial endowment $(C_1^e, F_1^e) = (4, 8)$ and person two has the initial endowment $(C_2^e, F_2^e) = (7, 3)$. You may assume throughout that both people will consume a positive amount of both goods.

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8. *(20 points total)* Robinson Crusoe has the utility function $U(F, C) = FC$ and a production possibilities set of $2C + 3F \leq 12$.

   (a) *(6 points)* Find the amount of food and clothing he will consume and produce.

   (b) *(2 points)* Find the implicit prices of food and clothing in this equilibrium, one of the prices can be normalized to one.

   (c) *(12 points total)* Robinson Crusoe has now realized he can trade with the Native Americans on the next island. In their economy $p_c = \frac{1}{3}$ and $p_f = 1$.

      i. *(3 points)* How much food and clothing will he produce? **Hint:** He will either produce all food or all clothing.

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