1
Which of the following preferences are transitive?

Transitive Yes	No	
___	___	A B B C A C
___	___	A B A C B C
___	___	C B A B A C
___	___	B C A B C A
___	___	A C B A C B

2
If the utility number associated with consumption bundle A is exactly twice the utility number associated with bundle B, then bundle A is twice as desirable as bundle B. True or false? Why?

3
Beth consumes two goods, x_1 and x_2, and her income is \$120. The price of x_1 is \$10, and the price of x_2 is \$5. The opportunity cost of one unit of x_2 is:

4
Beth faces the same income and prices as question 3. If her utility function is $U(x_1,x_2)= x_1 + x_2$, her utility maximizing bundle is $(x_1,x_2)=$

(A) (12,0).

(B) (0,24).

(C) (8,8).

(D) (7,10).

5
As my income increased over the last year, I found myself spending more books. You can conclude that for me books are (circle one)

an inferior good a normal good a luxury.

My income increased from $1000 to $1100 last year. My spending on books increased from $100 to $150.

Compute the income elasticity of demand *based on initial* income and demand.

For me, books are (circle the best answer):

an inferior good a normal good a luxury good.

6

Irrespective of the amount of cheese doodles and pretzels that Sam consumes, his marginal rate of substitution of cheese doodles for pretzels is 0.5. Also, irrespective of the amount of cheese doodles and pretzels Sally consumes, her marginal rate of substitution of cheese doodles for pretzels is 3.

The initial allocation of cheese doodles is (select one): Pareto optimal / not Pareto optimal.

In the Pareto optimal allocation,

Sam should have more cheese doodles, and Sally less cheese doodles.

Sam should have less cheese doodles, and Sam more cheese doodles.

Both should have more of both.

Both should have more of less.

7

Why does perfect competition guarantee a Pareto optimal distribution of goods between two people? Under perfect competition,

(A) everyone achieves the same utility.

(B) everyone faces the same prices.

(C) everyone consumes the same quantity of both goods.

(D) individuals bargain over the price of goods until they get a fair price.

PROBLEMS

1

Consider a utility maximizing agent, with convex, continuous, complete, and (two and three term) consistent preferences. There are two goods, x_1, whose price, p_1=\$4, and x_2, whose price p_2=\$4. Her budget is \$64.

(A) Draw the budget line. Label the line and at least two points (2 points).

(B) Argue that the point z=(10,10) cannot be a utility maximizing point (2 points).

(C) You are now told the agent's preferences are given by $U(x_1,x_2)=x_1x_2$, and the associated marginal rate of substitution of x_2 for x_1 is given by MRS= $-x_2/x_1$. Assuming

an interior solution and the exogenous variables as given above, find the demanded bundle. (Hint: Remember what condition holds at a utility maximizing bundle at an interior solution. This gives you one condition. A second condition which will always be satisfied at an optimum is the budget line. Now solve.) (6 points)

Answer: $x_1^* =$	$x_2^* =$

(D) Now suppose that the price of good 2 changes to $p_2' = 16$; all other exogenous variables remain the same. Find the new demand for x_1 and x_2. (4 points)

Answer: $x_1^{*}' =$	$x_2^{*}' =$

(E) Compute the price elasticity of demand of good 2 across the two points, both using the original (from C) and final point (from D). (6 points)

Answer: Elasticity at original point=	Elasticity at the final point=

(F) We want to decompose the change in demand into its income and substitution effects. You are told that the compensated income for this price change is $128. Compute the new demands at this compensated budget and at the new prices. Confirm that the individual achieves the same level of utility at the demanded bundle you just computed and the demand you computed in (C). State the decomposition of the income and substitution effect as follows: (Initial bundle)→(bundle at compensated income)→(bundle at new income and new prices). Finally: is good 1 a normal good? Is good 2 a normal good?

Answer: Demand at compensated income: $x_1^{*}'' =$	$x_2^{*}'' =$

Answer (show at least one intermediate step):
$U(x_1^{*}'', x_2^{*}'') =$
$U(x_1^*, x_2^*) =$

Answer: The decomposition is

Answer: Good 1 is:_____. Good 2 is:_____

2 (30 points: 15 minutes)
The world coffee production from 1985-1986 is the following (Source: CRB Commodity Year Book):

	Production (millions of 132 pound bags)	Price ($ per pound)
1985	96	1.42
1986	80	2.01

For simplification, assume that production equals the quantity demanded around the world, that changes in the production purely reflect changes in demand, and that the coffee demand curve is linear and did not change over time.

(10 points: 5 minutes)
A. Calculate the price elasticity of demand for coffee in 1985.

(20 points: 10 minutes)
B. Assume that the prices above are nominal. If the consumer price index (CPI) was 107.6 in 1985 and the average growth in inflation was 3.2% per year since then, what is the 1985 price (per pound) of coffee in 1998 dollars? What is the CPI in 1998?

3
Below is a market-type bargaining game. The buyer and seller are bargaining over the price of a single good. The buyer can insist on a low price, or a accept a high price. Likewise, the seller can insist on a high price, or accept a low price. The payoffs to each combination of actions is given in the box below.

Payoff=(Buyer,Seller)		Seller	
		Low	High
Buyer	Low	3,0	1,1
	High	2,2	0,3

In this case the payoff is a good thing (more is preferred to less).

A. What is the Nash Equilibrium of this game. Justify your answer by using the definition of a Nash Equilibrium.

B. Is the equilibrium Pareto optimal?

C. How does this mechanism differ from a market? State your reason(s) in point form.