Concordia University
Department of Economics

Econ 301 **Ivan Tchinkov**
Intermediate Micro I **Winter 2018**

Problem set # 1

Due on Monday, Feb. 5 in class

FIRST NAME: _____ **LAST NAME:**_____

STUDENT NUMBER: _____

In order to get full credit, please, show the necessary calculations in obtaining your answer. (2 marks each)

1. There are 3 goods. The price of good 1 is -1, the price of good 2 is $+1$, and the price of good 3 is $+2$. It is physically possible for a consumer to consume any commodity bundle with non-negative amounts of each good. A consumer who has an income of 10 could afford to consume some commodity bundles that include 5 units of good 1 and 6 units of good 2.

   True, it is possible for a consumer to consume a commodity bundle with non-negative amounts of each good. If we plug the values into the equation, it will prove that a consumer who has an income of 10 could afford to consume the commodity bundle that includes 5 units of good 1 and 6 units of good 2.

2. Harold lives on Doritos and seafood salads. The price of Doritos is 1 dollar per bag and the price of seafood salads is 2 dollars each. Harold allows himself to spend no more than 11 dollars a day on food. He also restricts his consumption to 6,500 calories per day. There are 1,500 calories in a bag of Doritos and 500 calories in a seafood salad. If he spends his entire money bud get each day and consumes no more calories than his calorie limit, he can consume up to

   (a) 3 bags of Doritos per day but no more.

   (b) 1 bag of Doritos per day but no more.

   (c) 4 seafood salads per day but no more.

   (d) 4 bags of Doritos per day but no more.

3. If someone has the utility function $U = 1,000 + 2min\{x, y\}$, then x and y are perfect complements for that person.

   True, the utility function given above takes the form of a complementary function: U = min(ax1,y1). The relationship shows that as a bundle, x and y complement each other to create added value for the products. x and y are complements and can be shown by the graph.

4. Professor Ivan The Great gives 3 midterm exams. He drops the lowest score and gives each student her average score on the other two exams. Polly Sigh is taking his course and has a 60 on her first exam. Let x_2 be her score on the second exam and x_3 be her score on the third exam. If we draw her indifference curves for scores on the second and third exams with x_2 represented by the horizontal axis and x_3 represented by the vertical axis, then her indifference curve through the point (x_2, x_3) = (50, 70) is

   (a) L-shaped with a kink where $x_2 = x_3$.

   (b) three line segments, one vertical, one horizontal, and one running from (70, 60) to (60, 70).

   (c) a straight line, running from (0, 120) to (120, 0).

   (d) three line segments, one vertical, one horizontal, and one running from (70, 50) to (50, 70).

5. A person with the utility function $U(x, y) = x^2 + y$ has convex preferences.

   False, The utility funtion above does not have convex preferences. To be convex would mean for the utility to be beneficial as a mixture of bundles compared to just themselves.

6. Joe Bob's cousin Leonard consumes goods 1 and 2. Leonard thinks that 2 units of good 1 is always a perfect substitute for 3 units of good 2. Which of the following utility functions is the only one that would not represent Leonard's preferences?

   (a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1,000$.

   (b) $U(x_1, x_2) = 9x_1^2 + 12x_1x_2 + 4x_2^2$.

   (c) $U(x_1, x_2) = min\{3x_1, 2x_2\}$.

   (d) $U(x_1, x_2) = 30x_1 + 20x_2 - 10,000$.

   Letter c) is the only equation that would not represent Leonard's preferences.
   This equation is the only utility function to not represent a perfect subsitution as it is in the form of a perfect complement.