Microeconomics HU WS 2006/2007, Exercises 3 (two pages)

Exercises for Chapter 5

13. Derive graphically an uncompensated demand curve for a Giffen-good from an indifference curve diagram.

14. A demand function takes the form $x = p_x^a \bullet p_y^b \bullet I^c$

    a. What are the income and price elasticities of demand for x?

    b. What relationship between parameters needs to hold in order to rule out money illusion?

    c. If money illusion is ruled out, the same equation can be written as $x = (p_y/p_x)^d \cdot (I/p_x)^e$

    What is the relationship between a, b and c on the one hand and d and e on the other hand?

15. Do rich households consume only luxuries?

16. What do you think about the following statement: Poor people can make only little use of additional income, because they spend a high share of their income on food products which have very low income elasticities.

17. Would you assume total demand for food in developing countries to be more or less price elastic than in industrialized countries? Why?

18. Which of the following combinations of signs (Vorzeichen) of uncompensated own price elasticity ($\mathcal{E}_{x,\,p}$), compensated own price elasticity ($\mathcal{E}^c_{x,\,p}$) and income elasticity ($\mathcal{E}_{x,\,I}$) of demand for X are possible? What kinds of goods are depicted?

	$\mathcal{E}_{x,\,p}$	$\mathcal{E}^c_{x,\,p}$	$\mathcal{E}_{x,\,I}$
1	+	+	+
2	-	+	+
3	+	-	+
4	-	-	+
5	-	-	-
6	+	-	-

19.

a. Derive the compensated demand curves for the utility function in exercise no. 11 on exercises sheet 2.

b. Check whether the slope of the compensated demand curve derived in a is identical with the substitution effect which can be derived directly from the demand function calculated in exercise 11.c on sheet 2.

20. A consumer has the utility function $U = x_1^{0.006} \bullet x_2^{0.594}$ with x_1 being her consumption of beef and x_2 her consumption of all other goods. Her yearly income is € 40,000 per year and the price for beef is €20 per kg. The price of x_2 is defined as €1 per unit.

a. Derive the normal demand function for beef and calculate the quantity consumed.

b. Derive the compensated demand function and determine its slope.

c. Agricultural policy is liberalized and the beef prices falls to €10 per kg. calculate the change in "consumer cost" (the compensating variation) which results from this price change.

d. Compare the compensating variation calculated in c. to the following approximations of the welfare change resulting from the price reduction:

i. Assume that the compensated demand curve is linear and has the slope derived in b.

ii. Calculate the quantities of beef for the prices of €10 and €20 with the compensated demand curve and assume that the compensated demand curve is a linear between these points.

iii. Calculate the welfare change as the change in consumer surplus as an integral under the normal demand curve (hint: the integral of (1/x)dx is ln x).