

HUL212 – MICROECONOMICS,
MINOR I EXAMINATION (August 29, 2013),
IIT DELHI, Semester I AY 2013-14,
Time Allowed: 1 Hour

$$\frac{\partial u_2}{\partial m_1} = -\frac{u_{12}}{u_{11}}$$

[~ Writing in exam paper is an art: make your answer script as clean as possible ~]

MAXIMUM MARKS - 30

ANSWER ALL

Q1. [10 marks] QUIZ questions (True/False: no explanations are needed):

- (1) If preferences are transitive, more is always preferred to less. (2) Ann and Bob consume clothes (C) and food (F) only. Ann's utility function is $U_A(C, F) = \theta_A \ln C + \alpha_A \ln F$; and Bob's utility function is $U_B(C, F) = \theta_B \ln C + \alpha_B \ln F$; with $\theta_A, \alpha_A, \theta_B, \alpha_B > 0$. The price of per unit cloth is P_C and the price of per unit food is P_F . Then Ann and Bob must have the same Marginal Rate of Substitution (MRS) of cloths for food at the optimal level of consumption. (3) The marginal rate of substitution measures the distance between one indifference curve and the next one. (4) You only consume two goods: X and Y. If X is a Giffen good for you, then Y must be a normal good for you. (5) Quasilinear preferences are homothetic. (6) If two goods are substitutes, then an increase in the price of one of them will increase the demand for the other. (7) If preferences are homothetic, then the slope of the Engel curve for any good will decrease as income increases. (8) If the Engel curve slopes up, then the demand curve slopes down. (9) If all goods, including leisure, are normal goods, then an increase in the wage rate will necessarily make people want to work more hours. (10) If the interest rate is less than the inflation rate, a rational person will never save money.

$$\frac{\partial u_2}{\partial m_1} = \frac{u_{12}}{u_{11}}$$

Essay type questions:

- Q2. [10 marks]** In a certain kingdom, people are poor and consume only two goods – food (F) and clothing (C). Their utility function is given by $U = \frac{2}{3} \ln F + \frac{1}{3} \ln C$. They have income $M=300$ and $P_F=20$, $P_C=1$ where these are per-unit prices for food and clothing respectively. (Let food unit is in kg.)
- What will be the level of food and clothing consumption by the people? (2 marks)
 - Govt of the kingdom thinks that people are consuming insufficient amount of food. They introduced a food bill that gives the poor 35 kg. of food for free. Food cannot be resold in the market for money. Can you draw the new budget line? Show the new consumption point and the indifference curve passing through that point. (1+1+1)
 - Now imagine that Govt can give cash transfer of the same amount as in part b. What would have been the consumption of food and clothing in this case? Are people better off now compared to part b? Show in graph. (1+1)
 - Now imagine there are leakages in the cash transfer system so that for every R rupee sent from the Govt, only $(1-t)R$ reaches to the people where $t \in (0,1)$. At what value of t , people of this kingdom will be indifferent between cash versus food transfer? (3)

Q3. [6 marks] Assume that Mr. H lives for two periods. He earns Rs. ω_1 in period 1 and ω_2 in period 2. The interest rate is r and prices in both periods are all equal to one. His utility is: $U = \rho \ln C_1 + (1-\rho) \ln C_2$; $\rho \in (0,1)$ where C_1 is the consumption made in period 1 (=1, 2). Can you solve the expression of his savings made in period 1 [Hints: savings = $\omega_1 - C_1$]? Draw his savings (in vertical axis) as a function of r (in horizontal axis) assuming savings are positive. Can you interpret the slope of this curve? (3+2+1)

Q4. [4 marks] Write a short note on backward bending labour supply curve.

END OF PAPER

$$M + SX^A$$

$$300 = 100p + 100r$$

$$\frac{300}{100} = \frac{100p}{100} + \frac{100r}{100}$$

$$3 = p + r$$

$$\frac{\partial U}{\partial m_1} = \frac{u_{12}}{u_{11}}$$

$$\frac{\partial U}{\partial m_2} = \frac{u_{22}}{u_{21}}$$

$$\frac{\partial U}{\partial m_3} = \frac{u_{32}}{u_{31}}$$

$$\frac{\partial U}{\partial m_4} = \frac{u_{42}}{u_{41}}$$