RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College under University of Calcutta)

B.A./B.SC. FOURTH SEMESTER EXAMINATION, MAY-JUNE 2013

SECOND YEAR

Date : 20/05/2013 **Economics (Honours)**

Time : 11am – 3pm Paper : IV Full Marks : 100

[Use separate answer books for each group]

Group - A

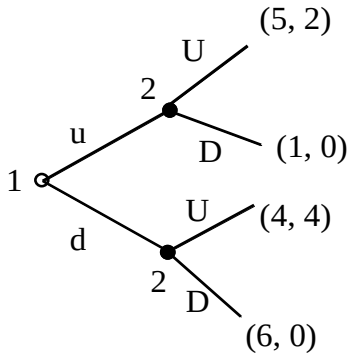
1. Answer **any four** questions of the following : [4 × 5]

   a) Consider the indirect utility function given by $\upsilon(p_1,p_2,m)=\frac{m}{p_1+p_2}$. What are the demand functions? What is the expenditure function? What is the direct utility function?

   b) A consumer's utility function for a two-period horizon is $u = c_1c_2^{.6}$ and his income stream is $y_1 = 1000$, $y_2 = 648$ while the market rate of interest is (.08). Determine Values for c_1 and c_2 that maximize his utility. Is he a borrower or lender?

   c) A firm has the following (long-run) production function
   $X = aA^{.5}B^{.5}C^{.25}$, $a>0$
   A, B, C are the amounts of three inputs and X is output. The price of A is Rs. 1, the price of B is Rs 9 and the price of C is Rs 8. Derive the firm's long-run total cost function (i.e. cost in terms of X).

   d) Find out the equilibrium of the following game using the method of backward induction:



   e) A publisher pays the author of a book a royalty of 15% demand for the book is $x = 200 - 5p$ and the production cost in $c = 10 + 2x + 4x^2$. Find the optimal sales from both the author's and the publisher's perspective.

   f) An individual spends all his income on two goods X and Y. He spends one fourth of his income on good X, and the income elasticity for this good is 5. Is good Y an inferior good to him?

   g) Prove that (8, 0) is optimal solution for the programme:
   Max $3x_1 + 2x_2$
   s.t $-2x_1 + x_2 \le 2$
   $x_1 + 2x_2 \le 8$
   $x_1, x_2 \ge 0$

2. Answer **any two** questions of the following : [2 × 15]

   a) i) Derive the Hawkin's-Simon's condition in the two sector Leontieff model which produces two goods X_1 and X_2 using the factor labour. Appropriately specify the model before deriving. (5)

   ii) Derive the Slutsky equation using the expenditure function. (5)

   iii) Prove that the ordinary demand curve will have a greater demand elasticity than the compensated demand curve. (5)

b) Assume that the costs functions of two firms producing same commodity are:
$C_1 = .1q_1^2 + 5q_1 - .1q_2^2$
$C_2 = .2q_2^2 + 7q_2 + .025q_1^2$
Determine the output levels of the firms on the assumption that each equates its private MC to a fixed market price of 15. Next, determine the output levels on the assumption that each equals its social MC to the market price. (4+4)
Determine taxes and subsidies that will lead the firms described in the problem to their Pareto-optimal output levels (but leave their profits unchanged). Find the lump-sum taxes imposed on the firms, L_1 and L_2, to keep profits at earlier levels. (4+3)

c) i) Suppose that a person has the utility function U = LY where L is the number of leisure hours he enjoys and Y is his income from work. What will be the shape of his labour supply function? How will your answer change if the utility function is changed to $U = LY - 0.1L^2 - 0.1Y^2$. (4+4)

ii) Suppose a consumer's utility function is U = xy and his budget constraint is x + y = 100. If price of y increases 4 times, find out the minimum expenditure necessary to keep his utility level unchanged after the price change. (7)

d) Two airlines Airgo and Flyme compete against each other on the route between Cleveland and Minneapolis. Each day they must decide on the number of discount seats to offer on this route. The number of seats offered by Airgo is S_A and the numbers offered by Flyme is S_F. The market-determined discount price P, depends on the total number of seats offered by both airlines, $S_A + S_F$ according to the equation: $P = 200 - .10 (S_A + S_F)$. the marginal cost of flying a passenger on this route equals 100 units for Airgo and 50 units for Flyme. Determine
i) The profit function of each airline.
ii) The Nash equilibrium. (5+10)

Group - B

3. Answer **any two** questions of the following : [2 × 5]
a) What is Human Development Index?
b) What do you understand by the "efficiency wage" of labour, and how does this concept help to explain the relative capital intensity of production?
c) What are the criteria for a good measure of income inequality?
d) Distinguish between backward and forward linkages with examples and examine the importance of these concepts in development planning.

4. Answer **any two** questions of the following : [2 × 8]
a) Are the following statements true, false, or uncertain? In each case, back up your answer with a brief, but precise explanation. (2×4)
i) The Kuznets ratios satisfy the Dalton transfer principle.
ii) If a relatively poor person loses income to a relatively rich person, the coefficient of variation must rise.
iii) The IGR is a better measure than PGR.
iv) HCR satisfies monotonicity and weak transfer principle.
b) i) "Economic growth is not a sufficient condition for improving mass living standards"- Discuss.
ii) Define development as freedom following Amartya Sen. (4+4)
c) Explain the concept of demographic transition. (8)
d) Discuss Ragnar Nurkse's ideas on balanced growth. (8)

5. Answer **any two** questions of the following : [2 × 12]
a) How is FGT index an improvement over Sen's poverty measure? Mention the main features of FGT index in this connection. (8+4)
b) What do you understand by the concept of 'low-level equilibrium trap'? (12)

c) What is Hirschman's major criticism of the doctrine of balanced growth? How does the path of unbalanced growth can lead to the desired goal? (2+10)

d) "It is not possible to make an invariable choice in favour of more labour intensive technique unless we make an explicit choice between present and future"-Elucidate. Mention Sen's possible solution in this context. (8+4)

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