RAMAKRISHNA MISSION VIDYAMANDIRA
(Residential Autonomous College under University of Calcutta)
B.A./B.Sc. FIRST SEMESTER EXAMINATION, JANUARY 2015
FIRST YEAR

Date : 05/01/2015

ECONOMICS (Honours)

Time : 11 am – 3 pm

Paper : I

Full Marks : 100

[Use a separate Answer Book for each group]

Group – A

Answer <u>any three</u> questions from <u>Q.No. 1 – 5</u> : [3×6]

1. Let the demand functions for x and y be $x = \dfrac{M}{2p_x}$ and $y = \dfrac{M}{2p_y}$ where M, p_x and p_y have their usual meanings. Show that the demand functions are downward sloping and homogenous of degree zero in all prices and income. Construct the indirect utility function and hence derive the expenditure function. [3+2+1]

2. Let the utility function be U = (x+1)y. Derive the demand functions for x and y and calculate their cross elasticities. [4+2]

3. a) Suppose the demand curve for a product is given by : $Q = 10 - 2P + P_S$, where P is the price of the product and P_S is the price of a substitute good. The price of the substitute good is Rs. 20.
   i) Suppose P = Rs. 10. What is the price elasticity of demand? What is the cross price elasticity of demand? [1·5]
   ii) Suppose the price of good, P, goes to Rs. 5. Now what is the price elasticity of demand? What is the cross-price elasticity of demand? [1·5]

   b) Given the demand function : q = –5P + 100
   i) Find the price at which total revenue is at its maximum. [2]
   ii) Show that demand has unitary elasticity at this price. [1]

4. A firm's production function is : $Q = -0·1L^3 + 6L^2 + 12L$, where Q is output and L is hours of labur employed.
   a) At what level of labour employment (L) average and marginal products of labour be equal? [3]
   b) At what value of L will the marginal product of labour be maximum? What will be the value of Q at this level of L? [3]

5. a) Consider the following cost function : $C = a + bQ + cQ^2 + dQ^3$, Under what parametric restrictions will this cost function generate U-shaped AVC and MC curves? [3]

   b) Consider the following production function : $Q = AL^\alpha.K^{1-\alpha}$. $A > 0; 0 < \alpha < 1$

   [symbols have usual meanings]

   Suppose in the short-run $K = \bar{K}$ and prices of L and K are given. Examine the shapes of the AVC and MC curves in this case. [3]

Answer <u>any four</u> questions from <u>Q.No. 6 – 11</u>: [4×8]

6. a) What is Veblen effect? [2]
   b) Are the following statements true or false? Explain your answers.
   i) The elasticity of demand is the same as the slope of the demand curve.
   ii) The cross-price elasticity will always be positive. [1+1]
   c) Using the appropriate diagram, graphically show that a linear supply curve intercepting the vertical axis at some point above the origin is elastic at every price. [2]
   d) Explain, intuitively, why the law of demand implies that $MR \le P$ for all output levels. [2]

7. a) You are considering buying fictions (x) and comics (y) with an allowance of Rs. 1000. Bookworm offers Rs. 50 and Rs. 25 for each fiction and comics respectively, but the next shop Book-heart

offers a 20% discount on unit price of both the items, but you must contribute Rs. 200 for a street child literacy campaign fund. If the welfare of the street child does not enter into your utility function which shop gives you a better offer? [4]

b) Suppose a consumer can consume x and y at any of these three cities A, B and C where the price vectors are (1, 4), (2·5, 2·5) and (4, 1) respectively. With an income of Rs. 100 and strictly convex preferences, show that the will never buy from city B. [4]

8. a) The society is composed of a poor class and wealthy class. Each consumer in this society buys only two goods: new economics books (y) and used economics books (x). For each poor consumer, the income effect of a change in the price of used books reinforces the substitution effect. For each wealthy consumer, the income effect opposes and outweighs the substitution effects.

   i) For which classes are used books a normal good and inferior good? Can it be a Giffen good?

   ii) Illustrate graphically the effect of a decrease in the price of used books on an individual's consumption in each class. Label the substitution and income effects for used books. [6]

   b) Raju is presently consuming at (6, 4) in potato and meat space. Meat becomes costlier but potatoes are cheaper but Raju calculated that the old bundle costs same at these prices. Argue whether he is better-off or worse-off or indifferent now. [2]

9. a) Distinguish between homogeneous and homothetic production functions with suitable examples. [2]

   b) Define elasticity of input substitution and calculate its value for the production function $Q = AL^\alpha, K^\beta$, $A > 0$, $0 < \alpha, \beta < 1$. [3]

   c) Can a production function, which exhibits constant returns to scale, be subject to diminishing returns to input? Explain. [3]

10. "All Giffen goods are inferior goods, but all inferior goods are not Giffen goods." Examine the validity of the statement. [8]

11. a) If the own price elasticity of demand for a good is k (a constant), then derive the equation of the demand curve. [2]

    b) In a two-good framework, show that if one commodity is inferior, the other commodity must be normal. [2]

    c) Examine the impact of imposition of a per unit tax on a commodity in terms of a partial equilibrium analysis. [4]

Group – B

Answer <u>any three</u> questions from <u>Q.No. 12 – 16</u>: [3×4]

12. What will be the value of government expenditure multiplier in a simple Keynesian Model when MPC = 1.5. [4]

13. What adjustments do you suggest to get personal income from GNP and explain why? [4]

14. Explain the impact of unemployment insurance on frictional unemployment. [4]

15. Discuss the Keynesian conjectures on consumption function. [4]

16. Briefly discuss the Accelerator Theory of investment. [4]

Answer <u>any one</u> question from <u>Q.No. 19 – 20</u>: [1×8]

17. Suppose the economy is characterized by the following behavioural equations : [4+2+2]

   $C = 160 + 0.6Y_D$

   $I = 150$

   $G = 150$

   $T = 100$

i)   Solve for the equilibrium output.

ii) Assume now G is equal to 110. Solve for the equilibrium output.

iii) At the new level of output compute public plus private saving. Is that equal to investment?

18. 'The borrowing constraint violates the intertemporal choice decisions' — Explain the validity of the statement.   [8]

Answer __any two__ questions from __Q.No. 19 – 22__: [2×15]

19. Define IS and LM curves. Explain the situations where IS and LM curves can be horizontal. Comment on the effectiveness of fiscal and monetary policies in both the situations.   [4+4+7]

20. How can you derive the aggregate demand curve from the IS-LM framework. What will be the shape of the aggregate demand curve when the IS curve is vertical? Explain the impact of an increase in government spending on the aggregate demand curve.   [5+5+5]

21. What are the emperical problems related to the Keynesian consumption function. Discuss how the life-cycle hypothesis tried to explain the inconsistencies.   [15]

22. Explain the neo-clanical theory of business fixed investment. What will be the nature of the investment function if the productions is of the form $Y=AK^{\alpha}L^{1-\alpha}$?   [12+3]

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