

C 25875

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Name.....

Reg. No.....

SIXTH SEMESTER B.A. DEGREE EXAMINATION, MARCH 2012
(CCSS)

Economics—Core Course

EC6B11—MATHEMATICAL ECONOMICS AND ECONOMETRICS

Time : Three Hours

Maximum : 30 Weightage

Answers may be written either in English or in Malayalam.

Part A

Answer all questions.

Each question carries ¼ weightage.

A. 1 If $Q = f(P)$ is the demand curve for normal good then :

(a) $\frac{dQ}{dP} = 0.$

(b) $\frac{dQ}{dP} > 0.$

(c) $\frac{dQ}{dP} < 0.$

(d) $\frac{dQ}{dP} \geq 0.$

2 In the production function $Q = \alpha K^\alpha L$, where K and L are capital and labour inputs, the parameter α stands for :

(a) Marginal product.

(b) Average product.

(c) Output elasticity of capital.

(d) Output elasticity of labour.

3 If the saving functions, $S = \alpha + \beta Y$, where Y is the disposable income, the expression for investment multiplier is :

(a) $\beta.$

(b) $\frac{1}{\beta}.$

(c) $\frac{1}{1-\beta}.$

(d) $1 - \beta.$

4 Given the marginal cost at 10 and average cost 5 the elasticity of cost is :

(a) $\frac{1}{2}.$

(b) 5.

(c) $\frac{1}{5}.$

(d) 50.

B. 5 The isoutility curve is given by $U^0 = xy$, where x and y are two goods the marginal rate of substitution of x for y is :

(a) $\frac{x}{y}.$

(b) $\frac{y}{x}.$

(c) $\frac{y}{x}.$

(d) $-\frac{y}{x}.$

Turn over

- 6 Which of the following is not true of optimal solution of linear programming problem ?
- (a) Corner solution. (b) Feasible solution.
(c) Vertex solution. (d) Tangency solution.
- 7 In the classical Linear Regression model, $Y = \alpha + \beta X + u$, the variance of u , $\text{Var}(u)$ is :
- (a) Zero. (b) Constant.
(c) 1. (d) u^2 .
- 8 When the demand curve of a monopolist is $P = a - bQ$ the total revenue function is given by :
- (a) $a - bQ^2$. (b) $* aQ - bQ^2$.
(c) $aQ - bQ$. (d) $aQ + bQ^2$.
- C. 9 In the Classical Linear Regression model, $Y = \alpha + \beta X + u$, then which of the variables is independent and identically distributed (iid) ?
- (a) None. (b) X.
(c) Y. (d) u.
- 10 The Cobb-Douglas production function in two inputs, K and L, given by $Y = 10K^{0.1}L^{0.8}$ indicates the operation of :
- (a) Increasing marginal product. (b) Constant returns to scale.
(c) Diminishing returns to scale. (d) Increasing returns to scale.
- 11 Coefficient of determination, r^2 is a measure of _____ variables :
- (a) Explanatory power. (b) Direction.
(c) Dependence. (d) Significance.
- 12 The probability of not committing type II error is called :
- (a) Type I error. (b) Level of significance.
(c) Power of test. (d) Critical value.

(12 × ¼ = 3 weightage)

Part B (Short Answer Type Questions)

Answer all questions.

- 13 What do you mean by an unbiased estimate ?
- 14 Explain random variable.
- 15 Explain the meaning of specification error.
- 16 Distinguish between Time series data and Cross-section data.
- 17 Define elasticity given the function $y = f(x)$.
- 18 Define marginal rate of technical substitution.

- 19 Establish the relationship between Marginal propensity to consume and marginal propensity to save in a two sector model.
- 20 Distinguish between linear and non-linear homogeneous production function.
- 21 Define discriminating monopoly. When is price discrimination possible and profitable ?
(9 × 1 = 9 Weightage)

Part C (Short Essay/Paragraph Type Questions)

Answer any five questions.

- 22 Given the demand function $pq = k$, where p and q are price and quantity and k is a constant, find the price elasticity coefficient.
- 23 Show that cost elasticity is related to average and marginal cost.
- 24 Distinguish between Fixed proportion and Variable proportion production function.
- 25 Given the demand curve under monopoly $P = \alpha - \beta Q$ verify that the marginal revenue falls twice as fast as the average revenue when output increases.
- 26 Discuss the various types of data used in econometric analysis.
- 27 What are the assumptions Classical Linear Regression Model ? Explain.
- 28 Explain the difference between Sample regression function and Population regression function.
(5 × 2 = 10 weightage)

Part D (Essay Questions)

Answer any two questions out of three.

- 29 Given the production function $Q = j(K, L)$ and the isocost line $C^0 = p_k K + p_l L$, where p_k and p_l are prices of K and L , find the equilibrium condition for maximising output.
- 30 Explain the properties of Cobb-Douglas production function.
- 31 Show that the BLU estimators of a regression model have minimum variance.
(2 × 4 = 8 weightage)