



M 7423

Reg. No. : SPI3AD ERO4

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III Semester B.A. Degree (CCSS – Reg./Supple./Imp.) Examination,
November 2014

COMPLEMENTARY COURSE IN ECONOMICS

3C03 ECO : Mathematical Economics – I
(2012 Admission Onwards)

Time : 3 Hours

Max. Weightage : 30

Instruction : Answer may be written either in **English** or in **Malayalam**.

PART – A

Objective type questions (in bunches of two) :

Choose the correct answer :

I. 1. MRS is the ratio of

- a) Price to income b) Income to price
c) Marginal utilities d) Marginal utility to price

2. Profit is maximum when

- a) $dp/dx = 0$ b) d^2p/dx^2 is negative
c) Both d) Anyone

3. Cobb Douglas production function is homogeneous of degree _____

- a) Zero b) One
c) Two d) None of these

4. When AC falls

- a) MC is above AC b) MC is below AC
c) MC = AC d) None of these (**Bunch weightage : 1**)

II. 5. _____ is the ratio between total cost and units of production.

- a) MC b) AC
c) TVC d) Fixed cost

6. If MR is 7 and elasticity of demand is 2, the AR is

- a) 14 b) 14/13
c) 7/2 d) 7/2

P.T.O.



7. In CES production function, the elasticity of substitution is

- a) Zero
b) Unity
c) Constant
d) None of these

8. _____ is the slope of the Isoquant.

- a) MRTS
b) MRS
c) MR
d) Price ratio

(Bunch weightage : 1)

PART - B

Answer **any ten** questions of the following not exceeding **50 words each**.

Each question carries 1 weightage.

9. Explain the important properties of an isoquant.
10. Find equilibrium price and quantity from the following demand and supply equation supply function, $Q_s = -20 + 3P$ and demand function, $Q_d = 220 - 5P$.
11. What is an indifference curve ? Examine the important characteristics of an indifference curve.
12. Distinguish between substitutes and complements.
13. Examine the role of mathematics in economics.
14. Find Q , if price of a commodity is Rs. 40 and MR is Rs. 60.
15. Examine the relation between TC, AC and MC.
16. Distinguish between Monopoly and Monopolistic competition.
17. What is Cobb Douglas production function ?
18. What is elasticity of demand ?
19. What do you mean by breakeven point ?
20. Compute total, average and average variable costs for the marginal cost function, $C' = 4 + 7x - 5x^2$ if the total fixed cost is 40.

(10×1=10 Weight)

PART - C

Answer **any 5** questions not exceeding **150 words each**. Each question carries **2** weightage.

21. Explain the relationship between TR, AR, MR and elasticity of demand mathematically.

22. Determine marginal utilities of x and y for the total utility function
 $U = x^3 - y^3/x^2 + y^2$.

23. Examine the components of price effect.

24. What is a linear expenditure system?

25. Derive the important conditions for consumer's equilibrium.

26. What are the different methods of price discrimination followed by a monopolist?

(5x2=10 Weight)

27. Explain the CES production function.

PART - D

Answer **any 2** questions not exceeding **450 words**. Each question carries **4** weightage.

28. Examine the theory of revealed preference in detail.

29. Explain mathematically the price output determination under perfect competition.

30. Given the utility function $U = x^2 + 3xy - 5y^2$, price of commodity x is Rs. 2, price of commodity y is Rs. 3 and consumer's money income Rs. 6, find out the equilibrium level of consumption of commodities x and y. Also prove the conditions for maximization.

31. What is producer's equilibrium? Derive various conditions of producer's equilibrium.

(2x4=8 Weight)