K18U 1823

Reg. No. : .....

Name : .....

III Semester B.A. Degree (CBCSS – Reg./Sup./Imp.) Examination, November 2018
(2014 Admn. Onwards)
Complementary Course in Economics
3C03 ECO : MATHEMATICAL ECONOMICS – I

Time : 3 Hours Max. Marks : 40

PART – A

Answer **all** questions. **Each** question carries **one** mark.

1. What is price elasticity of supply ?
2. The cost functions is defined by $\pi = a + bq + cq^2$, where a, b, c are constants, then what is MC ?
3. What is perfect competition ?
4. Define MRTS.

(1×4=4)

PART – B

Answer **any seven** questions. **Each** question carries **2** marks.

5. If the demand law is $x = \frac{20}{p+1}$. Find elasticity of demand with respect to price at the point where p = 3.
6. If the utility function is $u = f\left(\sqrt{x} + \sqrt{y}\right)$, find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$.
7. Explain different types of production function.

P.T.O.

8. If the cost function is $c(x) = 4x + 6$ and the revenue function is $R(x) = 9x - x^2$; where x is the number of units produced and R and C are measured in millions of rupees. Find :

   a) marginal revenue

   b) marginal cost

   c) fixed cost

   d) break-even point.

9. Distinguish between monopoly and monopsony.

10. What is demand ? What are the factors affecting demand ?

11. Distinguish between elasticity of demand and supply function.

12. Examine homogenous and homothetic utility function.

13. When is (a) total revenue maximum (b) total cost minimum.?

14. Given the production function $q = 10a - a^2 + ab$, determine the marginal productivity with respect to a.

(2×7=14)

PART – C

Answer **any four** questions. **Each** question carries **3** marks.

15. If $u = x + \log y$ is a utility function, find elasticity of substitution.

16. The production function of a firm uses only one variable input (labour) is $x = 125L + L^2 - 0.1L^3$. Find marginal cost if firm employs 20 units of labour and the wage rate is fixed at Rs. 90 per unit.

17. Explain the ordinal approach to the theory of consumer behavior.

18. Explain Giffen Paradox.

19. Explain Slutsky Equation.

20. Explain the linear expenditure system.

21. Distinguish Total Revenue and Marginal Revenue.

22. A manufacturer can produce a commodity at two locations. The selling price per unit is given by $p = 200 - 0.8x$, where $x = x_1 + x_2$. The cost functions at the two locations are $C_1 = 0.3x_1^2 + 60x_1 + 5000$ and respectively. Find x_1 and x_2 so that profits are maximum.

(3×4=12)

PART – D

Answer **any two** questions. **Each** question carries **5** marks.

23. Distinguish between indifference curves and isoquants. Mathematically explain the properties of indifference curve.

24. Explain mathematically the elasticity of substitution.

25. Distinguish Cobb-Douglas and CES production function.

26. Explain the role of theory and mathematics in economics.

(5×2=10)
