CMS COLLEGE LIBRARY TRIVANDRUM

(Pages : 3)

E – 3337

Reg. No. : .....

Name : .....

Fourth Semester B.A. Degree Examination, July 2018
First Degree Programme under CBCSS
ECONOMICS
Core Course – IV
EC 1441 : Basic Tools for Economics – I
(2015 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – I

Answer in **one** or **more** sentences. Attempt **all** questions :

1. Trace of a matrix.
2. Marginal Product.
3. Production function.
4. Quadratic equation.
5. Endogenous variable.
6. Income elasticity of demand.
7. Exponential function.
8. Order of a determinant.
9. Product limit theorem.
10. Consumer surplus.

(10×1=10 Marks)

SECTION – II

Answer **any eight** questions **not** exceeding **one** paragraph. **Each** question carries **two** marks :

11. Partial differentiation.
12. Solve $x^2 - 6x + 8 = 0$.

P.T.O.

13. The demand for a commodity is given by $D = 20 - 4p$ and supply is given by $S = 10p - 8$ find the equilibrium price and quantity.

14. The total cost function for producing a commodity in X quantity is $TC = 60 - 12 + 2x^2$ find AC and MC.

15. Find the total differential of the function $U = x^2 - 2xy + y^2$.

16. State Rational function of a continuity.

17. State the conditions of minima.

18. Find the value of determinant $A = \begin{bmatrix} 0 & -1 & 2 \\ 1 & -2 & -3 \\ 3 & 1 & 1 \end{bmatrix}$.

19. Distinguish between implicit and explicit function.

20. Find the elasticity of total cost of the function $2x^2 + 4x + 3$.

21. Solve $4x + 2y = 6$, $5x + y = 6$.

22. Define revenue function and supply function. **(8×2=16 Marks)**

SECTION – III

Answer **any six** questions **not** exceeding **120** words. **Each** question carries **4** marks.

23. Examine the economic applications of integral calculus.

24. State the properties of determinants.

25. Find the adjoint of a matrix $A = \begin{bmatrix} 1 & -2 & 3 \\ 2 & 3 & -1 \\ -3 & 1 & 2 \end{bmatrix}$.

26. Define rank of a matrix and find the rank of the matrix A

$$\begin{bmatrix} 1 & 2 & 1 & 2 \\ 3 & 2 & 1 & 6 \\ 2 & 4 & 2 & 4 \end{bmatrix}.$$

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27. State the rules of integration.

28. Briefly explain constraint optimization.

29. Examine how far differentiation is applied in economic analysis.

30. Show that $A^2 - 4A - 5I = 0$ $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$

31. What are the different types of algebraic functions. **(6×4=24 Marks)**

SECTION – IV

Answer **any two** questions, **not** exceeding **four** pages. **Each** question carries **15** marks.

32. Solve the following equation using Cramer's rule

$x + 2y + z = 8$

$2x + 3y + 3z = 14$

$3x + 2y + 2z = 13.$

33. Solve the following equations.

$x + y = 7,$

$x^2 + y^2 = 25.$

34. What are the conditions of maxima and minima and find minimum and maximum values of $z = 8x^3 + 2xy - 3x^2 + y^2 + 1$.

35. Describe various types of functions used in economic analysis. **(2×15=30 Marks)**