

(FOR THE CANDIDATES ADMITTED

20UEO408

DURING THE ACADEMIC YEAR 2020 ONLY)

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS): POLLACHI

END-OF-SEMESTER EXAMINATIONS: JULY 2022

B.A .ECONOMICS

MAXIMUM MARKS: 70

IV-SEMESTER

TIME: 3 HOURS

PART – III

MATHEMATICAL METHODS

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS.

(K1)

1. Linear equation is called _____.
 a) Second Degree Equation b) Pure Equation
 c) Simple Equation d) Identical Equation
2. Matrices was invented by _____.
 a) Leontieff b) Cayley c) Dantzig d) Cooper
3. The differential co-efficient is also called _____.
 a) Derivative b) Calculus c) Integral d) Integrand
4. Derivative of two variables can be studied in _____ ways.
 a) 4 b) 3 c) 2 d) 5
5. If $\int dx =$ _____.
 a) $K_x + C$ b) $X + C$ c) $C + x$ d) $X_n + C$

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES . (K2)

6. Define Equation.
7. What is Unit Matrix?
8. What is derivative?
9. What are the conditions for finding Maxima.
10. Define Integration.

SECTION – B

(5 X 4 = 20 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.

11. a) Solve $9x + 9 = x + 12$

(Or)

b) Solve $3x^2 + 5x - 2 = 0$.

12. a) If

$$\begin{bmatrix} 2 & 1 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

(Or)

b) Describe the types of Matrices.

(CONTD...2)

13. a) $Y = \frac{x+1}{x+1}$ Find $\frac{dy}{dx}$

(Or)

b) Find the Maxima or Minima of the function $Y = X^2 - 4X - 5$.

14. a) Find $\frac{\partial Z}{\partial X}$ and $\frac{\partial Z}{\partial y}$ for $Z = X^3 + Y^3 - 3XY$

(Or)

b) Calculate $\frac{\partial Q}{\partial L}$ and $\frac{\partial Q}{\partial K}$ for the production function $Q = L^3 - 2L^2K + 3LK^2 + K^3$

15. a) Evaluate $\int (8x^3 - 3x^2 + x - 1) dx$

(Or)

b) If $I(t) = 4t^3$ crores of rupees per year, what will be the capital formation in the time period of 9 years and ninth year?

SECTION - C

(4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS.

(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS FROM Qn. No: 17 to 21)

16. Explain the importance of mathematics in economics and its applications.

17. Solve the following pairs of simultaneous equations

$$4x + 3y = 7$$

$$3x - 2y = 9$$

18. Solve the following Linear Equations by using Crammer's rule.

$$5x + 3y = 65$$

$$2y - z = 11$$

$$3x + 4z = 57$$

19. Compute Marginal Utilities of x and y for the Utility Function.

$$U = \frac{x^3 + y^3}{x^2 - y^2}$$

20. Compute the marginal productivities of labour and capital at $L = 2$ and $K = 3$ for the production function $U = 2L^2K + 3LK^3 + 6L + 9K$

21. Given the demand function $P = 8 - 2X$ and the supply function $P = 2 + X$, find the Consumer's surplus and the Producer's surplus.
