

Reg. No.....

Name.....

M. A. DEGREE END SEMESTER EXAMINATION - NOVEMBER 2018**SEMESTER –1: ECONOMICS****COURSE: 16P1ECOT05: QUANTITATIVE TOOLS FOR ECONOMIC ANALYSIS***(Common for Regular 2018 admission and Supplementary 2017, 2016 Admissions)*

Time: Three Hours

Max. Marks: 75

PART AAnswer **any eight** questions. Each question carries 2 marks

1. Define i) singular matrix ii) upper and lower triangular matrices.
2. Define cofactor of a matrix.
3. Define transpose of a matrix with example.
4. What do you mean by determinant of a matrix?
5. Define feasible and optimal solution.
6. What are the conditions for a function $f(x,y)$ to be a maximum?
7. What do you mean by partial elasticity?
8. What do you mean by a homogenous function
9. Define indefinite integral.
10. Explain producer's surplus.
11. Explain Trapezoidal rule
12. Explain duality in Linear programming problem.

(2 x 8 = 16)

PART BAnswer **any seven** questions. Each question carries 5 marks

13. Find the determinant of the matrices $A = \begin{bmatrix} 1 & 0 & 1 \\ 2 & 3 & 0 \\ 0 & 4 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 & 4 \\ 1 & 2 & 1 \\ 0 & 1 & 3 \end{bmatrix}$
and show that $|AB| = |A| |B|$

14. Find the inverse of the matrix $\begin{bmatrix} 4 & 6 & 3 \\ 8 & 2 & -4 \\ 7 & 4 & 5 \end{bmatrix}$

15. Explain Cobb-Douglas production function and give the economic significance of the parameters of the Production function.
16. Find the total differential of the function $u = x^2 \log y + y.e^x$
17. Find the partial elasticity of cost for the function $C = x_1^2 + 2x_1 x_2$ when $x_1 = 1$ and $x_2 = 2$.
18. State Euler's theorem and its application to economics.
19. Find the area under the curve $y = x^2 + 4x + 5$, $-2 \leq x \leq 1$
20. Given the demand function $3p = 36 - 5x$, find consumer surplus if $p_0 = 2$, $x_0 = 6$
21. Explain input /output analysis.
22. Integrate the following functions i) $x(x^2+1)^2$ ii) $e^x(e^x + 2)$

(5 x 7 = 35)

PART C

Answer **any two** questions. Each question carries 12 marks

23. Solve by cramer's rule

$$5x - 6y + 4z = 15$$

$$7x + 4y - 3z = 19$$

$$2x - y + 6z = 46$$

24. i) For the production function $x=10 L^{0.7} K^{0.3}$, find Marginal products of labour with capital fixed and capital with labour fixed. Also examine whether the production function satisfies Euler's Theorem.

25. i) Given the marginal cost function $f'(x)=2+x+x^2$ · find total cost.

ii) Explain Simpson's one-third rule.

26. Using simplex method, solve the following LPP

Maximize $z= x+y$ subject to $8x+y \leq 200$, $x+2y \leq 100$, $x,y \geq 0$

(12 x 2 = 24)
