



Continuous Internal Assessment Test II – October 2025
I SEMESTER

Class: I UG
Major: Economics

Time: 2 hours
Maximum Marks: 60

23BECC02 - Mathematics for Economics

Course Outcomes:

1. Be familiar with the basic concepts in set theory and matrix algebra.
2. Be conversant with the technique of matrix algebra.
3. Know basic rules of differentiation and integration.
4. Comprehend the role of matrix in Economics.
5. Understand the use of derivatives and integration in Economics

Part-A

6x1=6

Choose the correct answer

1. ----- helps to find out the exact value of integral. CO1K2
a. indefinite integral b. elementary rule c. definite integral d. substitution method
2. consumer surplus can be calculated as : CO5K3
a. $CS = \int_0^{x^1} p dx + p_1 x_1$ b. $CS = \int_0^{x^1} p dx + p_1 x_1 + C$
c. $CS = \int_0^{x^1} p dx - p_1 x_1 + C$ d. $CS = \int_0^{x^1} p dx + p_1 x - \int_0^{x^1}$
3. Find $\int x^{2/5} dx$ CO5K2
a. $x^{6/5} + C$ b. $x^{7/5} + C$ c. $x^{3/6} + C$ d. $x^{7/5} + C$
4. Total cost can be calculated as : CO5K2
a. $TC = \int MR$ b. $TC = \int AC$ c. $TC = \int MC$ d. $TC = \int TR$
5. If $U = 4x^2 + 3y^3$, find du / dx CO3K2
a. $4x$ b. $8x^3$ c. $8x$ d. $8x + 9y^2$
6. Elasticity of demand can be calculated as : CO2K3
a. $(P/d \times dP/dD)$ b. $-(P/d \times 1/dP/dD)$ c. $(P/d \times 1/dP/dD)$ d. $(-P/d - 1/dP/dD)$

Part-B

3x6=18

Answer All Questions

Each answer should not exceed 400 words or two pages

- 7.a. Find out the Marginal revenue & Average revenue : CO3K2
(i) $R = 20x^2 - 4x$ (ii) $R = 16q^2 + 7q$
or
- 7.b. Find the derivative: $U = x^7 + y^{10}$ CO2K3
- 8.a. Integrate : (i) $\int (px^6 + 2x^{1/3} + e^x) dx$ / $\int 10x^4 dx$ CO3K4
(ii) $\int x^9 dx$
or
- 8.b. Find out the maxima / minima of the function : $y = x^2 - 4x + 2$ CO4K3
- 9.a. Calculate Marginal utility when, $x^1 = 4$; $x^2 = 5$
 $U = 3x_1 + 4x_2 + 2x_1 x_2$
or
- 9.b. $MC = x^3 - 2x + 5$, $FC = 35$ CO3K2
Find total cost and average cost with the help of integration.

Part-C

3x12=36

Answer All questions

Each answer should not exceed 800 words or four pages

- 10.a. Find out consumer surplus , $P = 85 - 4x - x^2$, when $x_1 = 5$ CO4K3
or
- 10.b. Find the Higher order partial derivatives : CO3K3
(i) $u = x^3 + y^2$ (ii) $u = 4x^2 + 3y^2$
- 11.a. Evaluate: CO4K2
(i) $\int (6x^9 + 2x^5) dx$ (ii) $\int x^2(x^6 + 4x) dx$

 x^2
or
- 11.b. Find the elasticity of demand, when $P = 8 + 2D$, $D = 4$ CO3K4
- 12.a. Find the maxima/ minima of a profit function : CO5K4
 $R = (6q - q^2)$ $C = (4q + 7)$
or
- 12.b. Find out Marginal productivity of inputs. Given the production function as : CO4K3
 $Q = f(K,L)$ $Q = 2L^5 + 4KL + 3K^2$