INDIRA UNIVERSITY, PUNE

SCHOOL OF COMMERCE & ECONOMICS- BSC ECO

Term End Examination (2025 Pattern) April- May – 2026- Semester – II

Course Name: Mathematics for Economics-II **Max. Marks: 50**
Course Code: 25ECO202T **Time: 2:30 Hrs.**

Instructions

- All questions are compulsory
- Use of scientific calculators is allowed
- Read the questions carefully.

Q1. **Attempt the question.** **(10 Marks)** CO1

Maximize utility: $U = Q_1^{0.5}Q_2^{0.5}$ when $P_1 = 2$, $P_2 = 6$and income $B = 240$.
(a)Find the optimal consumption bundle.
(b) Estimate the effect of a 1-unit increase in income on demand for both goods.

Q2. **Attempt the question.** **(10 Marks)** CO2

Given: $Q = 600 - 3P + 0.04Y$
where $P = 20$, $Y = 4000$.
Find: a)Price elasticity of demand
b)Income elasticity of demand

Q.3 **Attempt the question.** **(15 Marks)** CO4

Given the following inter-industry transactions table:

Sector	S1	S2	S3	Final Demand	Total Output
S1	30	20	10	40	100
S2	10	40	20	30	100
S3	20	10	30	40	100

a) Find the matrix of technical coefficients.
b) Verify the matrix using total output.

Q.4 **Attempt the question.** **(15 Marks)** CO4

Given the technical coefficient matrix:

$A = \begin{bmatrix} 0.2 & 0.1 & 0.3 \\ 0.3 & 0.2 & 0.1 \\ 0.1 & 0.3 & 0.2 \end{bmatrix}$ and final demand vector: $B = \begin{bmatrix} 50 \\ 60 \\ 40 \end{bmatrix}$

Determine the total output vector using the Leontief model.

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