GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Liberal Education

Bachelor of Arts Honours in Economics
Semester End Examination - May 2024

Duration : 180 Minutes
Max Marks : 100

Sem VI - K1UB603B - Elementary Mathematics

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	What is the definition of a behavioural and definitional equation?	K1	(2)
2)	How does a negative cross elasticity of demand indicate the relationship between two goods?	K2	(4)
3)	Determine the coordinates of point C, which divides the line segment AB internally in the ratio of 1:2, given the coordinates of points A and B as (-3,1) and (3,-6), respectively.	K2	(6)
4)	How can Dennis combine specific quantities of cottage cheese and yogurt to achieve a daily intake of exactly 62 grams of protein and 760 milligrams of calcium, given that an ounce of cottage cheese contains 3 grams of protein and 15 milligrams of calcium, while an ounce of yogurt contains 1 gram of protein and 41 milligrams of calcium?	K3	(9)
5)	Employ the utility function U=xy and constraint where the price of good x is $3, the price of good y is $6, and the individual has an income of b, determine the optimal quantities of goods x and y that maximize utility.	K3	(9)
6)	Perceive inverse demand and supply functions for a commodity are Inverse demand function:Pd=400−0.3Q, Inverse supply function:Ps=40+0.3Q Where, P shows the market price and Q shows the quantity. Subscript d represents demand and subscript s represents the supply. Calculate the equilibrium price.	K5	(10)
7)	Outline the concept of linear programming and its relevance to the theory of the firm.	K4	(12)

8) Construct a cost of living index number for 2015 based on 2012 using the family budget method, given the following data. K5 (15)

Commodity	Price		Weights
	2012	2015	
Rice	250	280	10
Wheat	70	85	5
Corn	150	170	6
Oil	25	35	4
Dhal	85	90	3

9) Determine the value of P+Q and P-Q from the matrices given below: K5 (15)

$P = \begin{bmatrix} 17 & 2 \\ 6 & 9 \end{bmatrix}$, $Q = \begin{bmatrix} 12 & 11 \\ 5 & 2 \end{bmatrix}$

10) Compute (i) Laspeyre's (ii) Paasche's (iii) Fisher's Index numbers for the 2010 from the following data: K6 (18)

Commodity	Price		Quantity	
	2000	2010	2000	2010
A	12	14	18	16
B	15	16	20	15
C	14	15	24	20
D	12	12	29	23