NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SOCIAL SCIENCES
DEPARTMENT OF ECONOMICS
2025_2 EXAMINATIONS

SUBJECT TITLE: ADVANCED MATHEMATICS ECONOMICS
SUBJECT CODE: ECO459
TIME ALLOWED: 2 HOURS
INSTRUCTIONS: ANSWER QUESTIONS ONE AND ANY OTHER TWO QUESTIONS.

QUESTION 1

(a). What is the role of optimization in economic theory and decision-making? **(10marks)**
(b). Examine the scope and significance of dynamic economics. **(10marks)**
(c). Given the demand function P=100−P and the supply function P=2P−20, determine the equilibrium price and quantity. **(10marks)**
(30MARKS)

QUESTION 2

If the marginal revenue function for a commodity is $(3q^2 - 6q + 2)$ naira per units when the level of production is q units, determine the total revenue function and find the total revenue when 20 units are sold.
(20MARKS)

QUESTION 3

(a). Differentiate y = Sin$(2x - 4)$wrt x. **(10marks)**
(b). Given $2^{x-1} \times 4^{x-4}$ x $16^{x-1} = 32^{x} \times 64^{2x+1}$ x 128^{1+2x}, Find x. **(10marks)**
(20MARKS)

QUESTION 4

(a). How do difference equations and differential equations differ in their application to modeling real-world systems? **(10marks)**
(b). What are the implications of the order of difference equations and differential equations for their solutions? **(10marks)**
(20marks)