BOWEN UNIVERSITY, IWO
FACULTY OF SOCIAL SCIENCES AND MANAGEMENT
DEPARTMENT OF ECONOMICS
BSC DEGREE EXAMINATION
SECOND SEMESTER 2018/2019 ACADEMIC SESSION

COURSE CODE: ECN 104 (3Credits)
COURSE TITLE: INTRODUCTORY. TO MATHS FOR ECONOMISTS II
TIME ALLOWED: 2 hours 30 minutes

INSTRUCTION: ANSWER QUESTION ONE and ANY other THREE (3)

1. $3X_1 + 2X_2 + 4X_3 = 19$

   $6X_1 + 2X_2 + X_3 = 37$

   $X_1 + 2X_2 + 3X_3 = 10$

   Solve for X_1, X_2, and X_3 using:

   a) Inverse Matrix Method (15 marks)

   b) Crammers Rule. (10 marks)

   Total **(25marks)**

2. a) If y=sin x, show that $\frac{d^2y}{dx^2} = -y, \frac{d^4y}{dx^4}$=y (7.5 marks)

   b.) Find the second derivative of y=f(θ) = $\frac{\sin\theta}{1+\cos\theta}$ (7.5 marks)

   Total (15 marks)

3. Using Elimination and Substitution method, solve:

   a) $8C + 3P = 288$

   $5C + 2P = 184$ (5 marks)

b) $A - B + C = 2$

$2A - 2B + C = 3$

$4A - 3B + 2C = 7$ (5 marks)

c) $2P - 3Q = 1$

$3P + 2Q = 21$ (5 marks)

Total **(15 marks)**

4. Evaluate:

a) $I = \int (x-1)\sqrt[3]{(x^2 - 2x + 3)}dx$ (5 marks)

b) $I = \int_2^3 \frac{2xdx}{(x^4-1)}$ (5 marks)

c) $\int x^2 sinxdx$ (5 marks)

Total **(15 marks)**

5. Differentiate with respect to X:

a) $y = \frac{x^3+3x}{(x+1)(x+2)}$ (7.5 marks)

a) $y = \frac{sinx}{x^2 + cosx}$ (7.5 marks)

Total (15 marks)