

BOWEN UNIVERSITY
FACULTY OF SOCIAL SCIENCES AND MANAGEMENT
DEPARTMENT OF ECONOMICS
BSC DEGREE EXAMINATION
EXTENDED REMEDIAL PROGRAMME
2018/2019 SESSION

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

INSTRUCTION: ANSWER ANY FOUR (4)

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 (17.5 marks)

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 $y = f(\theta) = \frac{\sin \theta}{1 + \cos \theta}$ (10 marks)

3. Using Elimination and Substitution method, solve:

a) $8C + 3P = 288$

$$5C + 2P = 184 \quad (8.75 \text{ marks})$$

b) $2P - 3Q = 1$

$$3P + 2Q = 21 \quad (8.75 \text{ marks})$$

4. Evaluate:

a) $I = \int (x-1)^{\frac{3}{2}}(x^2-2x+3)dx$ (8.75 marks)

b) $I = \int_2^3 \frac{2x dx}{(x^2-1)}$ (8.75 marks)

5. Differentiate with respect to X:

a) $y = \frac{x^3+3x}{(x+1)(x+2)}$ (8.75 marks)

a) $y = \frac{\sin x}{x^2 + \cos x}$ (8.75 marks)

Total (70 marks)