



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY: SOCIAL & MANAGEMENT SCIENCES

FIRST SEMESTER EXAMINATIONS
2017/2018 ACADEMIC SESSION

COURSE CODE: MSS 201

COURSE TITLE: BUSINESS MATHEMATICS

DURATION: 2 HOURS.

HOD's SIGNATURE

INSTRUCTION: Attempt section A and any two (2) Questions in section B

19/3/18

SECTION A

- The study of calculus usually begins with the basic definition of
 - Derivative
 - First Derivative
 - Second Derivative
 - Differentiation
 - First Principles
- The study of all forms of differentiation is collectively referred to as
 - Integral Calculus
 - First Principles
 - Calculus
 - Differential Calculus
 - B & D only
- are fundamental to the study of calculus
 - Calculus formula
 - Limit formula
 - Second derivative formula
 - Limit Lines
 - Limit
- A matrix is a rectangular array of -----
 - Unguided numbers
 - Variables
 - Undefined parameters
 - Elements
 - A & B only
- If two rows or columns of a determinant are the same, the value of the determinant is
 - 0
 - 1/2
 - 1
 - Less than 1
 - Greater than 0

6.

$$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

is an example of

- Scalar Matrix
 - Zero Matrix
 - Row Matrix
 - Diagonal Matrix
 - Identify Matrix
- is a matrix with element zero except in the leading diagonal
 - Scalar Matrix
 - Zero Matrix
 - Row Matrix
 - Diagonal Matrix
 - Identify Matrix
 - is defined in terms of the number of rows and columns it has.
 - Scalar Matrix
 - Order Matrix
 - Diagonal Matrix
 - Unit Matrix
 - Square Matrix
 - Another name for zero matrix is
 - Unit Matrix
 - Square Matrix
 - Null Matrix
 - Power Matrix
 - Equality Matrix
 - A matrix having the same number of rows and columns is called
 - Symmetric Matrix
 - Operational Matrix
 - Rectangular Matrix
 - Square Matrix
 - Triangular Matrix
 - An idempotent matrix is
 - Symmetric Matrix
 - Operational Matrix
 - Rectangular Matrix
 - Square Matrix
 - Triangular Matrix
 - is a scalar quantity which is calculated in a well-defined manner from the entries of a square matrix
 - Scalar of a matrix
 - Orthogonal of a matrix
 - Diagonal of a matrix
 - Unit of a matrix
 - Determinant of a matrix

3. A firm is generative...

13.

$$\begin{pmatrix} 2y & 4 \\ 6 & 8 \end{pmatrix} + \begin{pmatrix} 3x & -6 \\ 4x & -1 \end{pmatrix} = \begin{pmatrix} 8 & -2 \\ 18 & 7 \end{pmatrix}$$
 Find the value of x and y

A. $x=3, y=-\frac{1}{2}$ B. $x=2, y=-3$ C. $x=-3, y=-\frac{1}{2}$ D. $x=1, y=-\frac{1}{2}$ E. $x=-3, y=\frac{1}{2}$

14. Find the derivative of $Y = (3x^2 + 2)(5x - 1)$ w.r.t x A. $45x^2 - 6x + 10$ B. $45x^2 + 6x - 10$ C. $54x^2 - 4x + 9$ D. $35x^2 - 2x + 3$ E. $35x^2 - 8x + 10$

15. Find the derivative of $Y = (2x - 5)^7$ w.r.t x; dy/dx A. $14(2x-5)^6$ B. $23(2x+5)^5$ C. $4(2x-3)^4$ D. $11(5x-5)^8$ E. $24(2x-2)^2$

16. Find the derivative of $Y = 3\sqrt{(2x+1)}$ w.r.t x; dy/dx A. $2\sqrt{2x-3}^2$ B. $2/3(3\sqrt{2x+1})^2$ C. $1/3(2\sqrt{3x+1})^4$ D. $2/3(\sqrt{5x+1})^2$ E. $2/3(3\sqrt{4x+1})^5$

17. For two matrices to be multiplied together, the number of columns in the first matrix must be ----- to the number of rows in the second matrices involved. A. Less B. Greater C. Increase D. Equal E. Double

18. Find the value of x, y and z

$x + 2y + 4z = 7$ ----- (i)

$3x + y + 2z = 6$ ----- (ii)

$9x + 3y + 2z = 14$ ----- (iii)

A. $x=1, y=1, z=1$ B. $x=2, y=1, z=1$ C. $x=1, y=-4, z=-1$ D. $x=0, y=2, z=1$ E. $x=4, y=1, z=2$

19. The marginal revenue of a firm is given as $6-4x$. The sales figure shows that when 20 units were produced, the revenue realized was #8000. What will be the revenue if 30 units are produced? A. #3,030 B. #6,060 C. #4,500 D. #2,500 E. #6,700

20. ----- is a rectangular array of numbers that are carefully ordered within a place A. Row Matrix B. Column Matrix C. Diagonal Matrix D. Matrix E. Unit Matrix **30 Marks**

SECTION B

1. A manufacturing company run, three production plants, each capable of producing three co-different products X, Y and Z. The first plant produced a unit of product X, 2 units of product Y and 4 units of product Z at a total cost of #7 million naira. The second plant produced 3units of X, a unit of Y and 2 units of Z at a total cost of #6 million naira. While the third plant produced 9 units of product X, 2 units of product Y and 2 units of product Z at a total cost of #14 million. You are required to assist the company to determine the cost of producing each brand of the product, using the inverse matrix method. **15 Marks**

2. The Human Resource Manager of Jumbo Investment Ltd., is conscious of the number of skilled and unskilled workers to use for a project so that cost will be minimized. The cost of executing the project is given as $C(s, u) = 27s^3 - 72su + 8u^2 + 5864$. Required: (i). Compute the number of skilled (s) and unskilled (u) workers to be employed so as to minimize cost of executing the project. (ii). What is the total cost of executing the project? **15 Marks**

3. A firm leased a generating set and the fixed and variable cost function for running the generating set is given by the linear function, $C(x) = 2000 + 500x$, where x is the quantity of diesel used at a time. You are required to assist the management to ascertain the running cost if;

- (i) The generator was not used at all.
- (ii) 50 litres of diesel was used
- (iii) 200 litres of diesel was used
- (iv) What is the quantity of diesel used if the total running cost amount to #80,000?

15 Marks