



## ENGINEERING MATHEMATICS 1 (DBM1013) SESSION JUNE 2016 ASSIGNMENT 2

## **INSTRUCTION : ANSWER ALL QUESTIONS.**

1. Given that matrix  $A = \begin{bmatrix} 4 & 2 & a+b \\ 1 & a+c & 0 \end{bmatrix}$  and  $B = \begin{bmatrix} a+2 & 2 & 9 \\ 1 & b+1 & 0 \end{bmatrix}$ . If A = B, find the value of a, b and c.

(CLO2, C2)

(3 marks)

2. If 
$$A = \begin{bmatrix} 6 & 0 & 4 \\ 1 & 5 & -3 \end{bmatrix}$$
,  $B = \begin{bmatrix} 2 & 9 \\ 8 & 0 \\ -4 & 7 \end{bmatrix}$ ,  $C = \begin{bmatrix} 7 & 2 \\ 3 & 1 \end{bmatrix}$  and  $D = \begin{bmatrix} 4 & 6 \\ 5 & 8 \end{bmatrix}$ , Determine;

a) 4.A b) A.B c) B.A d) C + D e) D - C

(CLO2, C2) (5 marks)

3. The determinant of matrix 
$$A = \begin{bmatrix} 2 & 1 & 1 \\ 1 & -1 & -1 \\ 1 & s & 1 \end{bmatrix}$$
 is 3.

- a) Calculate the value of *s*
- b) If  $A \cdot B = I$ , where *I* is a unit matrix. Find the matrix of *B*.
- c) Given that  $A.\begin{bmatrix} p \\ q \\ r \end{bmatrix} = \begin{bmatrix} 3 \\ 0 \\ 0 \end{bmatrix}$ , calculate the value of p, q and r.

(CLO2, C3) (12 marks) 4. Solve the following equations by using Cramer's Rule.

$$x + 3y + 2z = 3$$
$$2x - y - 3z = -8$$
$$5x + 2y + z = 9$$

(CLO2, C3) (10 marks)