EASTERN UNIVERSITY, SRI LANKA

FIRST YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2011/2012

(Nov/Dec – 2013)

AE 1102 – Applied Mathematics for Agricultural Science (1:15/00)

Repeat Examination

Answer all questions

Time: One hour

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1. (a) Find the equation of a straight line passes through the point (-1, 3) with slope 2.

   (b) i. Find the matrix AB if

   $$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \quad \text{and} \quad B = \begin{pmatrix} 2 & 0 \\ 1 & 2 \end{pmatrix}.$$

   ii. Let $A = \begin{pmatrix} 2 & 3 & -1 \\ -1 & 4 & 8 \end{pmatrix}$ and $B = \begin{pmatrix} 1 & -8 & 4 \\ 0 & 5 & -3 \end{pmatrix}$.

   Find the matrix $2A - B$.

   (c) Evaluate the following limits:

   i. $\lim\limits_{x \to 1} \dfrac{x^2 - 1}{x - 1}$;

   ii. $\lim\limits_{x \to 2} \dfrac{x^2 + 4x - 12}{x^2 - 2x}$.

(PTO)

(a) Differentiate the following functions with respect to the variable x:

   i. $y = 4x^2 + 5x + 7$;

   ii. $y = (x^2 + 2x)(5x + 3)$;

   iii. $y = \dfrac{(2x^2 + 3x)}{(x^2 + 3)}$.

Integrate the following with respect to x:

   i. $\dfrac{1}{x^3}$;

   ii. $\dfrac{2x}{(x^2+1)}$;

   iv. e^{8x} .