

DARE BENEDICT OLUBUKOLA

MECHANICAL ENGINEERING

19/ENG06/016 SERIAL NO.; 111

MAT 102 ASSIGNMENT

1. If $A = (6u^2 + 8)i + (4u - 10)j + 8u^3k$ and

$$B = 3ui + (2u - 5)j + 5k$$

(i) Find $\frac{d(A \cdot B)}{du}$

(ii) $\frac{dA}{du}$

Solution

$$A = (6u^2 + 8)i + (4u - 10)j + 8u^3k$$

$$B = 3ui + (2u - 5)j + 5k$$

$$(i) A \cdot B = 3u(6u^2 + 8) + (4u - 10)(2u - 5) + 8(5)8u^3$$

$$= 18u^3 + 24u + 8u^2 - 40u + 50 + 40u^3$$

$$= 58u^3 + 8u^2 - 16u + 50$$

$$\therefore \frac{d(A \cdot B)}{du} = 174u^2 + 16u - 16$$

$$(ii) \frac{dA}{du} = 12ui + 4j + 24u^2k$$