

NAME: JOYU-UGRU NIMESOM TADUW
 MATRIC NO: 18ENG021052 (CERT OVER)
 DEPT: COMPUTER ENGINEERING

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

SOL

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

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

Answer:

(i) $\frac{d}{du}(A \cdot B) = A(u) \cdot \frac{dB(u)}{du} + B(u) \cdot \frac{dA(u)}{du}$

$(A \cdot B) = (6u^2 + 8)u + (4u - 10)(2u - 5) + 8u^3 + 8u^2$
 $= (18u^3 + 8) + (8u^2 + 50) + 40u^2 + 8u^3$

$\therefore \frac{d}{du} = A(u) \cdot \frac{dB(u)}{du} + B(u) \cdot \frac{dA(u)}{du}$

$\frac{d}{du} = 54u^2 + 16u + 120u^2$

(ii) $\frac{dA(u)}{du} = \frac{dA}{dt} \cdot \frac{dt}{du}$

$= \hat{c} \frac{dA}{du} + \hat{f} \frac{dA}{du} + \hat{R} \frac{dA}{du}$

$\frac{dA}{du} = 12u^2 + 16u + 120u^2$