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MATRIC NO :- 19/ENG02/1005

i) $A = 3i + 4j - 6k$, $B = 5i - 11j + 2k$,
$C = 7i - 7j + k$

a) $A \cdot C + B \cdot C$

$A \cdot C = (3i + 4j - 6k) \cdot (7i - 7j + k)$
$= 21 + 28 - 6$
$A \cdot C = 43$

$B \cdot C = (5i - 11j + 2k) \cdot (7i - 7j + k)$
$= 35 + 77 + 2$
$= 114$

$A \cdot C + B \cdot C = 43 + 114$
$= 157$ //

b) $(A - B) \cdot C$

$(A - B) = (3i - 4j - 6k) - (5i - 11j + 2k)$
$= -2i - 15j - 4k$

$(A - B) \cdot C = (-2i - 15j - 4k) \cdot (7i - 7j + k)$
$= -14 + 105 - 4$
$= 87$ //

c) $A \cdot (B \times C)$

$$\begin{array}{ccc} + & - & + \\ \begin{vmatrix} 3 & 4 & -6 \\ 5 & -11 & 2 \\ 7 & -7 & 1 \end{vmatrix} & & \end{array}$$

$$3\begin{vmatrix} -11 & 2 \\ -7 & 1 \end{vmatrix} - 4\begin{vmatrix} 5 & 2 \\ 7 & 1 \end{vmatrix} - 6\begin{vmatrix} 5 & -11 \\ 7 & -7 \end{vmatrix} =$$

$$3(-11+14) - 4(5-14) - 6(-35+77)$$

$$3(3) - 4(-9) - 6(42)$$

$$9 + 36 - 252$$

$$= -207 \text{ //}$$