Let the vectors \overrightarrow{PQ} , \overrightarrow{QR} , \overrightarrow{RS} , \overrightarrow{ST} , \overrightarrow{TU} and \overrightarrow{UP} represent the sides of a regular hexagon.

Statement $\overrightarrow{IPQ} \times (\overrightarrow{RS} + \overrightarrow{ST}) \neq \overrightarrow{0}$.

because

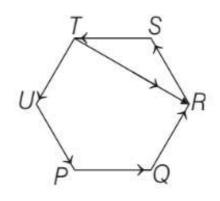
Statement II $\overrightarrow{PQ} \times \overrightarrow{RS} = \overrightarrow{0}$ and $\overrightarrow{PQ} \times \overrightarrow{ST} \neq \overrightarrow{0}$.
(2007, 3M)

Since, \overrightarrow{PQ} is not parallel to \overrightarrow{TR} .

 \overrightarrow{TR} is resultant of \overrightarrow{RS} and \overrightarrow{ST} vectors. $\Rightarrow \overrightarrow{PQ} \times (\overrightarrow{RS} + \overrightarrow{ST}) \neq \overrightarrow{0}$.

But for Statement II, we have

$$\overrightarrow{PQ} \times \overrightarrow{RS} = \overrightarrow{0}$$



which is not possible as \overrightarrow{PQ} not parallel to \overrightarrow{RS} .