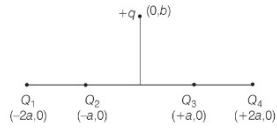


QUES 03:-

Four charges Q_1, Q_2, Q_3 and Q_4 of same magnitude are fixed along the x -axis at $x = -2a, -a, +a$ and $+2a$ respectively. A positive charge q is placed on the positive y -axis at a distance $b > 0$. Four options of the signs of these charges are given in List I. The direction of the forces on the charge q is given in List II. Match List I with List II and select the correct answer using the code given below the lists. **(2014 Adv.)**



List I	List II
P. Q_1, Q_2, Q_3, Q_4 all positive	1. $+x$
Q. Q_1, Q_2 positive; Q_3, Q_4 negative	2. $-x$
R. Q_1, Q_4 positive; Q_2, Q_3 negative	3. $+y$
S. Q_1, Q_3 positive; Q_2, Q_4 negative	4. $-y$

Codes

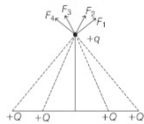
- (a) P-3, Q-1, R-4, S-2 (b) P-4, Q-2, R-3, S-1
 (c) P-3, Q-1, R-2, S-4 (d) P-4, Q-2, R-1, S-3

Ans - a)

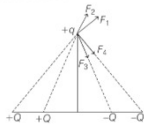
SOL:- According to option (d) the electric field due to P and S and due to Q and T add to zero. While due to U and R will be added up. Hence, the correct option is (d).

(P) Component of forces along x -axis will vanish. Net force along positive y -axis

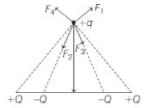
$$E_3 < E_1 < E_2$$



(Q) Component of forces along y -axis will vanish. Net force along positive x -axis



(R) Component of forces along x -axis will vanish. Net force along negative y -axis



(S) Component of forces along y -axis will vanish. Net force along negative x -axis

