

# PART 1 - PHYSICS

**Topic :** Electric charges and fields

## SECTION-A : (Maximum Marks : 4)

This section contains **ONE** question.

Each question has **TWO** lists: **List-I** and **List-II**.

Four options are given representing matching of elements from List-I and List-II. **ONLY ONE** of these four options corresponds to a correct matching.

For each question, choose the option corresponding to the correct answer.

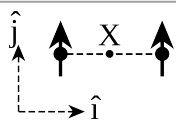
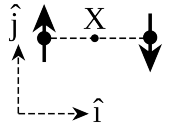
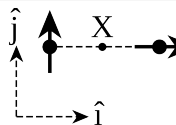
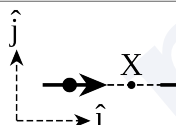
Answer to each question will be evaluated according to the following marking scheme :

Full Marks : +4 If **ONLY** the correct option is chosen;

Zero Marks : 0 If none of the options is chosen (i.e. the question is unanswered);

Negative Marks : -1 In all other cases.

1. **List-I** shows four configurations, each consisting of a pair of ideal electric dipoles. Each dipole has a dipole moment of magnitude  $p$ , oriented as marked by arrows in the figures. In all the configurations the dipoles are fixed such that they are at a distance  $2r$  apart along the  $x$  direction. The midpoint of the line joining the two dipoles is  $X$ . The possible resultant electric fields  $\vec{E}$  at  $X$  are given in **List-II**.

| List-I |                                                                                     | List-II |                                                               |
|--------|-------------------------------------------------------------------------------------|---------|---------------------------------------------------------------|
| P.     |  | 1.      | $\vec{E} = 0$                                                 |
| Q.     |  | 2.      | $\vec{E} = -\frac{p}{2\pi\epsilon_0 r^3} \hat{j}$             |
| R.     |  | 3.      | $\vec{E} = -\frac{p}{4\pi\epsilon_0 r^3} (\hat{i} - \hat{j})$ |
| S.     |  | 4.      | $\vec{E} = \frac{p}{4\pi\epsilon_0 r^3} (2\hat{i} - \hat{j})$ |
|        |                                                                                     | 5.      | $\vec{E} = \frac{p}{\pi\epsilon_0 r^3} \hat{i}$               |

Choose the option that describes the correct match between the entries in List-I to those in List-II. [JEE Advanced 2025 Paper 1]

(A)  $P \rightarrow 3, Q \rightarrow 1, R \rightarrow 2, S \rightarrow 4$

(B)  $P \rightarrow 4, Q \rightarrow 5, R \rightarrow 3, S \rightarrow 1$

(C)  $P \rightarrow 2, Q \rightarrow 1, R \rightarrow 4, S \rightarrow 5$

(D)  $P \rightarrow 2, Q \rightarrow 1, R \rightarrow 3, S \rightarrow 5$

Scan or tap for the full solution 

Space for Rough Work

JEE ADVANCED ELECTRIC CHARGES AND FIELDS —  
ELECTRIC DIPOLE: FIELD ON AXIS AND EQUATOR —  
PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

| SECTION-A |   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Ques.     | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Ans.      | C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |