

PART 1 - PHYSICS

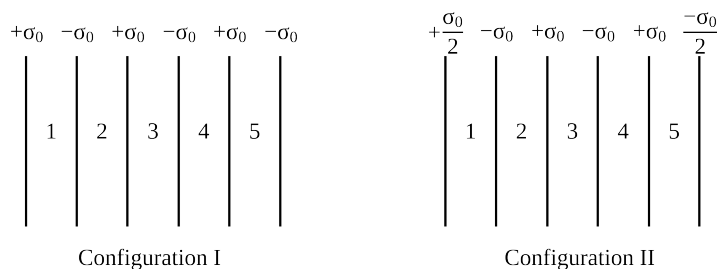
Topic : Electric charges and fields

SECTION-1 : (Maximum Marks : 4)

- This section contains **ONE** question.
- Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four option(s) is(are) correct answer(s).
- For each question, choose the option(s) corresponding to (all) the correct answer(s).
- Answer to each question will be evaluated according to the following marking scheme :

Full Marks	: +4	ONLY if (all) the correct option(s) is(are) chosen;
Partial Marks	: +3	If all the four options are correct but ONLY three options are chosen;
Partial Marks	: +2	If three or more options are correct but ONLY two options are chosen, both of which are correct;
Partial Marks	: +1	If two or more options are correct but ONLY one option is chosen and it is a correct option;
Zero Marks	: 0	If none of the options is chosen (i.e. the question is unanswered);
Negative Marks	: -2	In all other cases.
- For example, in a question, if **(A), (B) and (D)** are the ONLY three options corresponding to correct answers, then choosing ONLY (A), (B) and (D) will get +4 marks; choosing ONLY (A) and (B) will get +2 marks; choosing ONLY (A) and (D) will get +2 marks; choosing ONLY (B) and (D) will get +2 marks; choosing ONLY (A) will get +1 mark; choosing ONLY (B) will get +1 mark; choosing ONLY (D) will get +1 mark; choosing no option (i.e. the question is unanswered) will get 0 marks; and choosing any other combination of options will get -2 marks.

1. Six infinitely large and thin non-conducting sheets are fixed in configurations I and II. As shown in the figure, the sheets carry uniform surface charge densities which are indicated in terms of σ_0 . The separation between any two consecutive sheets is $1 \mu\text{m}$. The various regions between the sheets are denoted as 1, 2, 3, 4 and 5. If $\sigma_0 = 9 \mu\text{C}/\text{m}^2$, then which of the following statements is/are correct: (Take permittivity of free space $\epsilon_0 = 9 \times 10^{-12} \text{ F/m}$) [JEE Advanced 2025 Paper 2]



- (A) In region 4 of the configuration I, the magnitude of the electric field is zero.
- (B) In region 3 of the configuration II, the magnitude of the electric field is $\frac{\sigma_0}{\epsilon_0}$.
- (C) Potential difference between the first and the last sheets of the configuration I is 5 V.
- (D) Potential difference between the first and the last sheets of the configuration II is zero.

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED ELECTRIC CHARGES AND FIELDS —
APPLICATIONS OF GAUSS'S LAW (LINE, SHEET, SHELL) —
PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-1																											
Ques.	1																										
Ans.	A																										