

PART 1 - PHYSICS

Topic : Electrostatic potential and capacitance

SECTION-A : (Maximum Marks : 4)

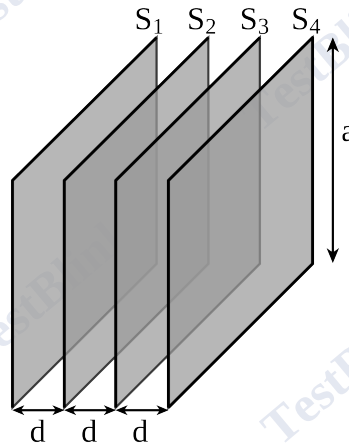
- This section contains **ONE** question.
- Each question has **TWO** lists: **List-I** and **List-II**.
- Four options are given representing matching of elements from List-I and List-II. **ONLY ONE** of these four options corresponds to a correct matching.
- For each question, choose the option corresponding 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. Four identical thin, square metal sheets, S_1 , S_2 , S_3 and S_4 , each of side a are kept parallel to each other with equal distance d ($\ll a$) between them, as shown in the figure. Let $C_0 = \epsilon_0 a^2/d$, where ϵ_0 is the permittivity of free space.

Match the quantities mentioned in **List-I** with their values in **List-II** and choose the correct option.

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List-I		List-II	
P.	The capacitance between S_1 and S_4 , with S_2 and S_3 not connected, is	1.	$3C_0$
Q.	The capacitance between S_1 and S_4 , with S_2 shorted to S_3 , is	2.	$C_0/2$
R.	The capacitance between S_1 and S_3 , with S_2 shorted to S_4 , is	3.	$C_0/3$
S.	The capacitance between S_1 and S_2 , with S_3 shorted to S_1 , and S_2 shorted to S_4 , is	4.	$2C_0/3$
		5.	$2C_0$

(A) $P \rightarrow 3$; $Q \rightarrow 2$; $R \rightarrow 4$; $S \rightarrow 5$ (B) $P \rightarrow 2$; $Q \rightarrow 3$; $R \rightarrow 2$; $S \rightarrow 1$ (C) $P \rightarrow 3$; $Q \rightarrow 2$; $R \rightarrow 4$; $S \rightarrow 1$ (D) $P \rightarrow 3$; $Q \rightarrow 2$; $R \rightarrow 2$; $S \rightarrow 5$

Scan or tap for the full solution



Space for Rough Work

JEE ADVANCED ELECTROSTATIC POTENTIAL AND CAPACITANCE — CAPACITORS AND CAPACITANCE, PARALLEL PLATE CAPACITOR — PYQS

Test Pattern : JEE (Advanced)

ANSWER KEY

SECTION-A																											
Ques.	1																										
Ans.	C																										