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JEE MAIN ELECTROSTATIC POTENTIAL AND CAPACITANCE — ELECTROSTATICS OF CONDUCTORS — PYQS

Max. Marks: 20 **Questions:** 5

Section A (MCQ) — 5 questions

Q.1 Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): In electrostatics, a conductor does not store any net charge inside.

Reason (R): Inside the capacitor (with no dielectric medium), the free charge carriers, if placed between the plates of capacitor, experience force and drift.

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 4th April Evening Shift]

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

Scan or tap for the full solution

Q.2 Two charged conducting spheres S_1 and S_2 of radii 8 cm and 18 cm are connected to each other by a wire. After equilibrium is established, the ratio of electric fields on S_1 and S_2 spheres are E_{S1} and E_{S2} respectively. The value of $\frac{E_{S1}}{E_{S2}}$ is _____.

[JEE Main 2026 (Online) 2nd April Morning Shift]

(1) $\frac{3}{2}$ (2) $\frac{2}{3}$ (3) $\frac{4}{9}$ (4) $\frac{9}{4}$

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Q.3 Two metal spheres of radius R and 3R have same surface charge density σ. If they are brought in contact and then separated, the surface charge density on smaller and bigger sphere become σ_1 and σ_2, respectively. The ratio $\frac{\sigma_1}{\sigma_2}$ is

[JEE Main 2025 (Online) 8th April Evening Shift]

(1) $\frac{1}{3}$ (2) $\frac{1}{9}$ (3) 9 (4) 3

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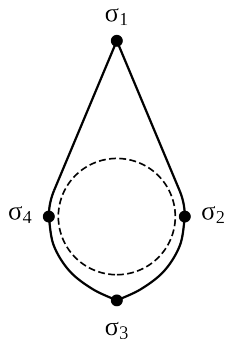
Q.4 Electric charge is transferred to an irregular metallic disk as shown in the figure. If σ_1, σ_2, σ_3 and σ_4 are charge densities at given points then, choose the correct answer from the options given below:



A. $\sigma_1 > \sigma_3$; $\sigma_2 = \sigma_4$

B. $\sigma_1 > \sigma_2$; $\sigma_3 > \sigma_4$

C. $\sigma_1 > \sigma_3 > \sigma_2 = \sigma_4$

D. $\sigma_1 < \sigma_3 < \sigma_2 = \sigma_4$

E. $\sigma_1 = \sigma_2 = \sigma_3 = \sigma_4$

[JEE Main 2025 (Online) 8th April Evening Shift]

(1) B and C Only (2) A and C Only

(3) D and E Only (4) A, B and C Only

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Q.5 Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): The outer body of an aircraft is made of metal which protects persons sitting inside from lightning strikes.

Reason (R): The electric field inside the cavity enclosed by a conductor is zero.

In the light of the above statements, choose the most appropriate answer from the options given below : [JEE Main 2025 (Online) 7th April Evening Shift]

(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(2) (A) is correct but (R) is not correct

(3) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(4) (A) is not correct but (R) is correct

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5						
Ans.	**2**	**4**	**4**	**4**	**3**						