

PYQSide

NEET ELECTROSTATIC POTENTIAL AND CAPACITANCE — ENERGY STORED IN A CAPACITOR — PYQS

Max. Marks: 60

Questions: 15

Section A (MCQ)

- Q.1** Consider two uncharged capacitors of equal capacitance 200 pF. One of them is charged by a 100 V supply and disconnected. Now this capacitor is connected to the uncharged capacitor. The amount of electrostatic energy lost in the process is :

[NEET (UG) 2026]

- (1) 0.5 J (2) 1.0×10^{-6} J
(3) 0.5×10^{-6} J (4) 1.0 J

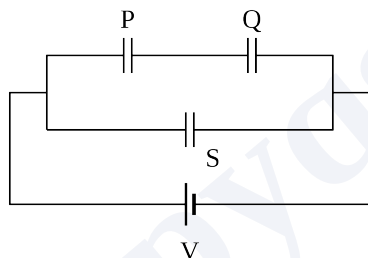
Scan or tap for the full solution



- Q.2** Three identical capacitors, P, Q and S, each of the capacitance C, are connected to a battery of voltage V, as shown in the figure. If the energy stored in the capacitor P and total energy stored in the system are

U_P and U_T , respectively, then the ratio $\frac{U_P}{U_T}$ is:

[RE-NEET (UG) 2026]



- (1) 1/6 (2) 2/3 (3) 1/3 (4) 1/2

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- Q.3** A 12 pF capacitor is connected to a 50 V battery, the electrostatic energy stored in the capacitor in nJ is

[RE-NEET (UG) 2024]

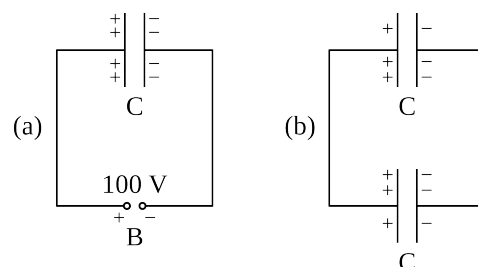
- (1) 15 (2) 7.5 (3) 0.3 (4) 150

Scan or tap for the full solution



- Q.4** A capacitor of capacitance $C = 900$ pF is charged fully by 100 V battery B as shown in figure (a). Then it is disconnected from the battery and connected to another uncharged capacitor of capacitance $C = 900$ pF as shown in figure (b). The electrostatic energy stored by the system (b) is

[NEET (UG) 2022]



- (1) 4.5×10^{-6} J (2) 3.25×10^{-6} J
(3) 2.25×10^{-6} J (4) 1.5×10^{-6} J

Scan or tap for the full solution



- Q.5** A parallel plate capacitor has a uniform electric field $\vec{E}$ in the space between the plates. If the distance between the plates is 'd' and the area of each plate is 'A', the energy stored in the capacitor is : (ϵ_0 = permittivity of free space)

[NEET (UG) 2021]

- (1) $\frac{E^2 A d}{\epsilon_0}$ (2) $\frac{1}{2} \epsilon_0 E^2$
(3) $\epsilon_0 E A d$ (4) $\frac{1}{2} \epsilon_0 E^2 A d$

Scan or tap for the full solution



- Q.6** A capacitor is charged by a battery. The battery is removed and another identical uncharged capacitor is connected in parallel. The total electrostatic energy of resulting system

[NEET 2017]

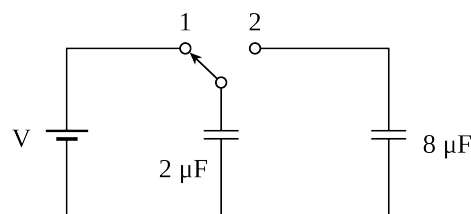
- (1) decreases by a factor of 2
(2) remains the same
(3) increases by a factor of 2
(4) increases by a factor of 4

Scan or tap for the full solution



- Q.7** A capacitor of $2 \mu\text{F}$ is charged as shown in the diagram. When the switch S is turned to position 2, the percentage of its stored energy dissipated is

[NEET 2016 (Phase 1)]



- (1) 75% (2) 80% (3) 0% (4) 20%

Scan or tap for the
full solution



Q.8 A parallel plate air capacitor has capacity C , distance of separation between plates is d and potential difference V is applied between the plates. Force of attraction between the plates of the parallel plate air capacitor is

[AIPMT 2015]

- (1) $\frac{CV^2}{d}$ (2) $\frac{C^2V^2}{2d^2}$ (3) $\frac{C^2V^2}{2d}$ (4) $\frac{CV^2}{2d}$

Scan or tap for the
full solution



Q.9 A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A , the energy stored in the capacitor is

[AIPMT 2012 (Mains)]

- (1) $\frac{1}{2}\epsilon_0 E^2$ (2) $\frac{E^2 Ad}{\epsilon_0}$
(3) $\frac{1}{2}\epsilon_0 E^2 Ad$ (4) $\epsilon_0 E Ad$

Scan or tap for the
full solution



Q.10 A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A , the energy stored in the capacitor is

[AIPMT 2011 (Prelims)]

- (1) $\frac{1}{2}\epsilon_0 E^2$ (2) $\frac{E^2 Ad}{\epsilon_0}$
(3) $\frac{1}{2}\epsilon_0 E^2 Ad$ (4) $\epsilon_0 E Ad$

Scan or tap for the
full solution



Q.11 A series combination of n_1 capacitors, each of value C_1 , is charged by a source of potential difference $4V$. When another parallel combination of n_2 capacitors, each of value C_2 , is charged by a source of potential difference V , it has the same (total) energy stored in it as the first combination has. The value of C_2 , in terms of C_1 , is then

[AIPMT 2010 (Prelims)]

- (1) $\frac{2C_1}{n_1 n_2}$ (2) $16\frac{n_2}{n_1}C_1$
(3) $2\frac{n_2}{n_1}C_1$ (4) $\frac{16C_1}{n_1 n_2}$

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Q.12 A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A , the energy stored in the capacitor is

[AIPMT 2008]

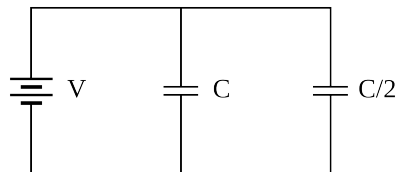
- (1) $\frac{1}{2}\epsilon_0 E^2$ (2) $\frac{E^2 Ad}{\epsilon_0}$
(3) $\frac{1}{2}\epsilon_0 E^2 Ad$ (4) $\epsilon_0 E Ad$

Scan or tap for the
full solution



Q.13 Two condensers, one of capacity C and other of capacity $C/2$ are connected to a V -volt battery, as shown in the figure. The work done in charging fully both the condensers is

[AIPMT 2007]



- (1) $\frac{1}{4}CV^2$ (2) $\frac{3}{4}CV^2$ (3) $\frac{1}{2}CV^2$ (4) $2CV^2$

Scan or tap for the
full solution



Q.14 Energy per unit volume for a capacitor having area A and separation d kept at potential difference V is given by

[AIPMT 2001]

- (1) $\frac{1}{2}\epsilon_0 \frac{V^2}{d^2}$ (2) $\frac{1}{2\epsilon_0} \frac{V^2}{d^2}$ (3) $\frac{1}{2}CV^2$ (4) $\frac{Q^2}{2C}$

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Q.15 A capacitor is charged with a battery and energy stored is U . After disconnecting battery another capacitor of same capacity is connected in parallel to the first capacitor. Then energy stored in each capacitor is

[AIPMT 2000]

- (1) $U/2$ (2) $U/4$ (3) $4U$ (4) $2U$

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	3	1	1	3	4	1	2	4	3	3	4
Ques.	12	13	14	15							
Ans.	3	2	1	2							