Parishram (2025)

Physics

DPP: 7

Electrostatic Potential and Capacitance

Q1 A capacitor of capacitance of 10μF is charged to 10V. The energy stored in it is _____.
(A) 100 μJ (B) 500 μJ
(C) 1000 μJ (D) 1 μJ

Q2 A parallel plate air capacitor has capacity C farad, potential V volt and energy E Joule. When the gap between the plates is completely filled with dielectric then
(A) Both V and E increase
(B) Both V and E decrease
(C) V decreases, E increases
(D) V increases, E decreases

Q3 A capacitor with capacitance 5μF is charged to 5μC. If the plates are pulled apart to reduce the capacitance to 2μF, how much work is done?
(A) 6.25×10^{-6} J
(B) 3.75×10^{-6} J
(C) 2.16×10^{-6} J
(D) 2.55×10^{-6} J

Q4 A metallic sphere of radius 18 cm has been given a charge of 5×10^{-6}C. The energy of the charged conductor is _____.
(A) 0.2 J (B) 0.6 J
(C) 1.2 J (D) 2.4 J

Q5 A spherical drop of capacitance 1 μF is broken into eight drops of equal radius. Then, the capacitance of each small drop is _____.
(A) $\frac{1}{8}\mu F$ (B) 8μF
(C) $\frac{1}{2}\mu F$ (D) $\frac{1}{4}\mu F$

Q6 Three capacitors each of capacity 4 μF are to be connected in such a way that the effective capacitance is 6 μF. This can be done by:
(A) Connecting all of them in series
(B) Connecting them in parallel
(C) Connecting two in series and one in parallel
(D) Connecting two in parallel and one in series

Q7 To form a composite 16μF, 1000V capacitor from a supply of identical capacitors marked 8μF, 250V, we require a minimum number of capacitors:
(A) 40 (B) 32
(C) 8 (D) 22

Answer Key

Q1 (B)

Q2 (B)

Q3 (B)

Q4 (B)

Q5 (C)

Q6 (C)

Q7 (B)

Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Video Solution:

Q2 Video Solution:

Q3 Video Solution:

Q4 Video Solution:

Q5 Video Solution:

Q6 Video Solution:

Q7 Video Solution: