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Why does a parallel plate capacitor stores energy but not charge? Both plates were equal and oppositly charged hence, the net charge is zero.

I But work is done in seperating Those changes, therefore everyy is stored.

Capacitance

Def: It is The charge stored <u>on one plate of a capacitor</u> per unit potential difference across the plates.



Level: Voltage ______, Amount of water: amount of charge



SI Unit of Capacitance : Farad (F) (mF, µF, nF, pF general values) Define the Farad (1F) : It is the capacitance when 1C of charge is stored on a plate for a p.d. of 1V.

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Energy store	dina	capacitor		ashid.co	<mark>m kas</mark> l
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A = 1 bh	$O A = \frac{1}{2} x$	q×V h	me E =	Vq, 20% US	ed Kor
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$E = \frac{1}{2}Vq$, but $q = 0$		kashar	rashid.C	omku
$E = 1 V_{\rm c}/C$	V) larmer.	E = 1 CV	2 80% used	$\Delta E = I C (1)$	$(\frac{2}{1} - \frac{1}{1})^{2}$
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A student sets up the circuit shown in Fig. 7.1 to measure the charge on a capacitor C for different values of potential difference across the capacitor.





The variation with potential difference V of the charge Q stored on the capacitor is shown in Fig. 7.2.





(a) State and explain how Fig. 7.2 indicates that there is a systematic error in the readings of one of the meters.

The graph doesnot pass through the origin this shows there was a zero error of 0.5V on the voltmeter.

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- (b) Use Fig. 7.2 to determine the capacitance, in μF, of capacitor C.
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- kashan²ashid.com kashanrashid.com kash $\Delta E = \frac{1}{2} \times 2815 \times 10^{-6} \times (9^2 - 6^2) \text{ sharrashid.com}$ n kashanrashid.cor com kas de = 0.063 J

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(c) A student has available three capacitors, each of capacitance $12 \,\mu$ F. Draw circuit diagrams, one in each case, to show how the student connects the three capacitors to provide a combined capacitance of



 $C_T = 36 \mu F$



12NF

LT= 12+6

18 µ F

E

12

6 µF

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Time lonstant

$$T = RC \rightarrow capacitan cc
 y resistance
 $\frac{1}{T} \times \frac{q}{T} \rightarrow \frac{q}{T} \rightarrow$$$



A capacitor of capacitance 3.8µF discharges through a capacitor of 47ks2. Calculate The Time taken for the capacitor to reduce its charge from 68µC to 18µC.

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