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3.MEASUREMENT OF DIELECTRIC CONSTANT OF A CAPACITOR

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Number of Observations : 16

Sl No	Record of Observations	Values	Units
1	Capacitance (C)	100	μ F
2	Resistance (R)	270	KΩ
2	Battery voltage (V)	9	V

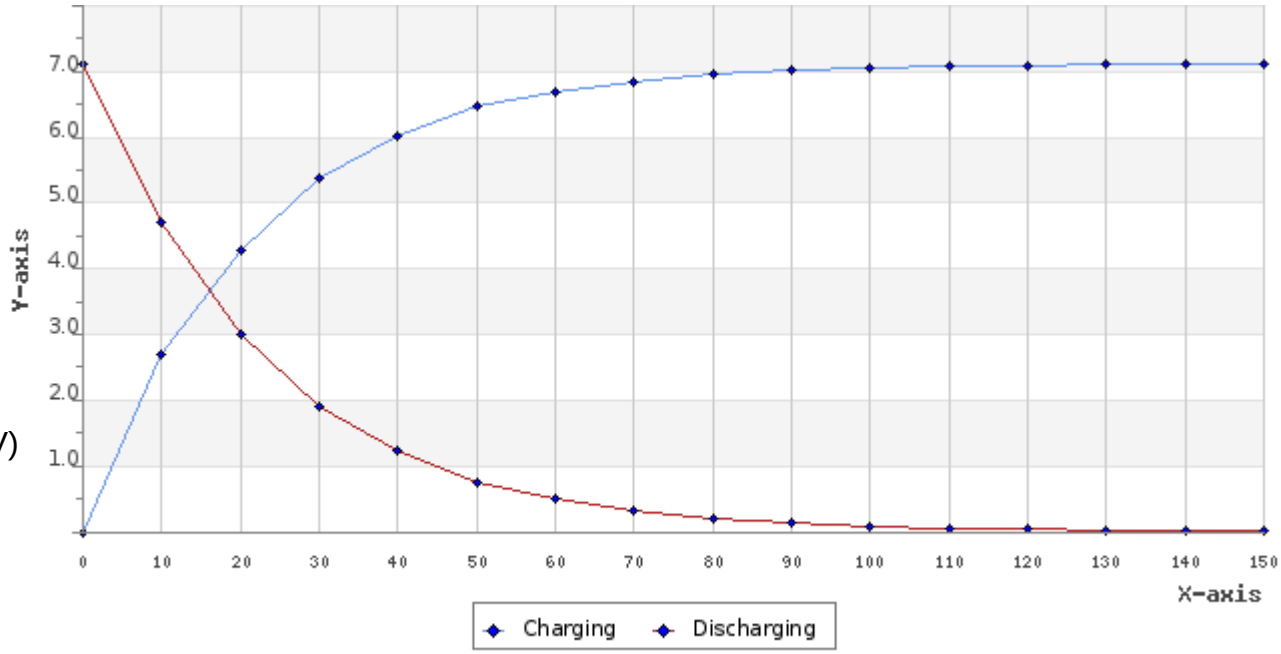
DIMENSIONS OF THE CAPACITOR AND THICKNESS OF THE DIELECTRIC MEDIUM				
1	Capacitor (C)	100	220	μ F
2	Length(l)	50	120	mm
3	Width(w)	6	6	mm
4	Thickness of the dielectric material(d)	0.10	0.10	mm

TABULATION

Sl No.	Time in Sec	Voltage Charging	Voltage Discharging
1	0	0	7.13
2	10	2.7	4.7
3	20	4.27	3.01
4	30	5.38	1.9
5	40	6.01	1.23
6	50	6.48	0.75
7	60	6.68	0.49
8	70	6.85	0.33
9	80	6.95	0.2
10	90	7.01	0.13
11	100	7.05	0.09
12	110	7.09	0.06
13	120	7.1	0.04
14	130	7.11	0.03
15	140	7.12	0.02
16	150	7.13	0.01

3.MEASUREMENT OF DIELECTRIC CONSTANT OF A CAPACITOR

Graph :



Voltage (V)

Time (S)

3.MEASUREMENT OF DIELECTRIC CONSTANT OF A CAPACITOR

CALCULATION				
Capacitance	Dielectric constant k		$t_{1/2}$ in sec	
μ F	Theoretically	Graphically	Theoretically	Graphically
100				

Conclusion

The dielectric medium in the electrolytic capacitor is paper.

Er=3.766