ELECTROSTATICS-CAPACITANCE

Test Paper-I

MAX MARKS: 30   **TIME: 90Mts**

Sl. No.	QUESTION	ANSWER PAGE	MARKS
1	What is a capacitor?	Page:74	1
2	Define capacitance of a capacitor. Give the factors on which the capacitance depends. What is the symbolic representation of a fixed capacitance and a variable capacitance?	Page:74	3
3	What is meant by the dielectric strength of a dielectric medium?	Page:74	1
4	Give the conditions for a capacitor to store charge without leaking.	Page:74	1
5	Give the common units of capacitance.	Page:74	1
6	Derive the formula to find the capacitance of a parallel plate capacitor.	Page:74	3
7	Show that 1 Farad is a big unit in practice.	Page:74	2
8	What happens to the capacitance of a parallel plate capacitor when a dielectric medium of dielectric constant K is introduced between the plates of the capacitor? Also show that $C=kC_0$.	Page:76	3
9	A slab of material of dielectric constant k has the same area as the plates of a parallel plate3 capacitor but has a thickness $(3/4)$ d, where d is the separation of the plates. How is the capacitance changed when the slab is inserted between the plates?	Page:77	3
10	Derive the formula to find the effective capacitance when capacitors are connected in series.	Page:78	3
11	Derive the formula to find the effective capacitance when capacitors are connected in Parallel	Page:79	3
12	Derive an expression to find the energy stored in a capacitor. Derive the formula to find the effective capacitance when capacitors are connected in series.	Page:81	3
13	A network of four 10 µF capacitors is connected to a 500V supply.as shown in the fig. Determine (a) the equivalent capacitance of the network (b) the charge on each capacitor. Refer to the diagram given in page79 Of the NCERT Text book	Page:79	3