Intermediate :-
[10+2]

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Dielectrics :-

Dielectrics: A dielectric substance is a material which does not conduct electricity i.e dielectrics are nonconductors insulators. In such substances the electrons are firmly bound to the atoms of the material. These electrons can, therefore, move through very small distances of the order of atomic dimensions. There are practically no free electrons in dielectrics. Familiar examples are glass, mica, ebonite, paraffin wax and air. The molecules of a dielectric can be classified into two types (i) Non-polar molecules and Polar molecules

(i) Non-polar molecules. The molecules in which the centre of positive charges gravity of positive charges exactly coincides with that of the negative charges and the net dipole moment is zero are called non-Polar molecules. The molecules don't have any permanent dipole moment because the dipole length is zero. Familiar examples are H_2, O_2, N_2 etc

(ii) Polar molecules. The molecules in which the centre of gravity of positive charges does not coincide with that of negative charges are known as Polar molecules Such molecules, Therefore, constitute a permanent dipole and have permanent dipole moment. Familiar examples are H_2O, HCl and NH_3 etc.

Polar In the absence of any electric field, in any bulk material, the molecular dipoles are randomly oriented

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and their electric dipole moments point in all possible directions cancelling out the effect of each other as shown in fig. Hence, if we take a macroscopic view the material will not show any dipole moment and the net resultant dipole moment per unit volume is zero. Though the individual molecules have dipole moment, the dipole moment of the bulk material is zero.



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