

QUIZ on Lecture P1_Wk1_L2

1. A molecule has a diameter of ~ 1 nm. If the molecule is polarized so that a charge of 0.5 electrons is shifted from one end to the other, what is the approximate electric dipole moment that will result?
 - a) 0.025 D
 - b) 0.25 D
 - c) 2.5 D**
 - d) 25 D

2. A molecule with a permanent electric dipole at a fixed position in space
 - a) produces no electric field
 - b) produces an electric field that is uniform through all space
 - c) produces a fluctuating, time varying electric field
 - d) produces an electric field that changes direction depending on your position with respect to the dipole**

3. In these lectures, the direction of a dipole moment is defined by
 - a) the direction from the negative to the positive charge**
 - b) the direction from the positive to the negative charge
 - c) the direction from the center of mass of the molecule to the net positive charge
 - d) the direction from the center of mass of the molecule to the net negative charge

4. A molecule with a permanent electric dipole is placed in an external electric field. The electrostatic energy stored in this system
 - a) is independent of the molecule's orientation
 - b) is minimum when the molecular dipole points in the same direction as the electric field**
 - c) is maximum when the molecular dipole points in the opposite direction as the electric field
 - d) is maximum when the molecular dipole is at right angles with respect to the electric field
 - e) is minimum when the molecular dipole is at right angles with respect to the electric field