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My friends are so mad that they do not know how I have all the high quality ebook which they do not!

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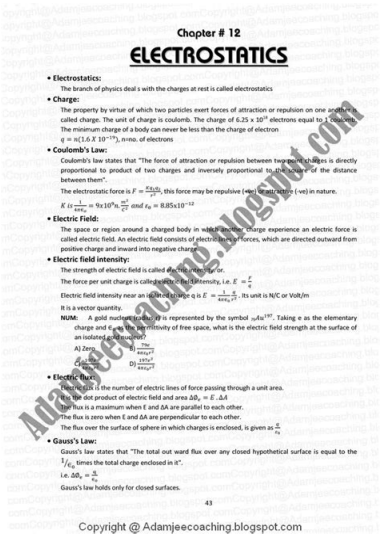
so many fake sites. this is the first one which worked! Many thanks



Chapter # 12

ELECTROSTATICS

- **Electrostatics:**
  The branch of physics deal s with the charges at rest is called electrostatics
- **Charge:**
  The property by virtue of which two particles exert forces of attraction or repulsion on one another is called charge. The unit of charge is coulomb. The charge of 6.25×10^{18} electrons equal to 1 coulomb.
  The minimum charge of a body can never be less than the charge of electron
  $q = n(1.6 \times 10^{-19})$, n=no. of electrons
- **Coulomb's Law:**
  Coulomb's law states that "The force of attraction or repulsion between two point charges is directly proportional to product of two charges and inversely proportional to the square of the distance between them".
  The electrostatic force is $F = \frac{Kq_1q_2}{r^2}$, this force may be repulsive (+ve) or attractive (-ve) in nature.
  K i.e $\frac{1}{4\pi\varepsilon_0} = 9\times10^9 \text{n}.\frac{m^2}{c^2}$ and $\varepsilon_0 = 8.85\times10^{-12}$
- **Electric Field:**
  The space or region around a charged body in which a unit charge experience an electric force is called electric field. An electric field consists of electric lines of forces, which are directed outward from positive charge and inward into negative charge.
- **Electric field intensity:**
  The strength of electric field is called the field intensity or.
  The force per unit charge is called electric field intensity, i.e. $E = \frac{F}{q}$
  Electric field intensity near an isolated charge q is $E = \frac{1}{4\pi\varepsilon_0}\frac{q}{r^2}$, Its unit is N/C or Volt/m
  It is a vector quantity.
  NUM: A gold nucleus of $_{79}Au^{197}$ is represented by the symbol. Taking e as the elementary charge and ε_0 as the permittivity of free space, what is the electric field strength at the surface of an isolated gold nucleus?
  A) Zero B) $\frac{79e}{4\pi\varepsilon_0 r^2}$
  C) $\frac{q}{4\pi\varepsilon_0 r^2}$ D) $\frac{197e^2}{4\pi\varepsilon_0 r^2}$
- **Electric flux:**
  The electric flux is the number of electric lines of force passing through a unit area.
  It is the dot product of electric field and area $\Delta\emptyset_E = E.\Delta A$
  The flux is a maximum when E and ΔA are parallel to each other.
  The flux is zero when E and ΔA are perpendicular to each other.
  The flux over the surface of sphere in which charges is enclosed, is given as $\frac{q}{\varepsilon_0}$
- **Gauss's Law:**
  Gauss's law states that "The total out ward flux over any closed hypothetical surface is equal to the $1/\varepsilon_0$ times the total charge enclosed in it".
  i.e. $\Delta\emptyset_E = \frac{q}{\varepsilon_0}$
  Gauss's law holds only for closed surfaces.

43

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