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CLASS XII HOLIDAY HOME WORK (MAY-JUNE)

NUMERICALS:

1. A hydrogen atom consists of a proton and an electron, assuming the orbit radius to be 5.3 x 10^{-11}m. find the force of attraction between proton and electron.
2. If 10^9 electrons move out of a body to another body per second how much time is required to get a total charge of 1C on the other body
3. two charges of minus 4μC and 16μC are placed 9cm apart where should a third charge of 15μC be placed so that it is in equilibrium
4. ABC is an equilateral triangle of side 0.1m is the midpoint of BC charges of 100 μC, -100μC and 75μC are placed at B,C, M find the force on a one μC positive charge placed on A.

PROJECTS:

Choose any one project from the given.

1. To study various factors on which the internal resistance/EMF of a cell depends.
2. To study the variations in current flowing in a circuit containing a LDR because of a variation.
   (a) in the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance).
   (b) in the distance of a incandescent lamp, (of fixed power), used to 'illuminate' the LDR.
3. To find the refractive indices of (a) water (b) oil(transparent), using a plane mirror, a equivalence lens, (made from a glass of known refractive index) and an adjustable object needle.
4. To investigate the relation between the ratio of:
   (*i)* input and output voltage, and
   (*ii*) number of turns in the secondary coil and primary coil of a self designed transformer.
5. To investigate the dependance of the angle of deviation on the angle of incidence using a hollow prism filled, one by one, with different transparent fluids.
6. To estimate the charge induced on each of the two identical dtyrofoam balls in a vertical plane by making use of coulomb's law.
7. to study the factor on which the self inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/bulb in a circuit fed up by an A.C. source of adjustable frequency.

8. to study the Earth's magnetic field using a tangent galvanometer

ACTIVITY:

1. to identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items
2. to use a multimeter to:
   (a) see the unidirectional flow of current in a case of a diode and an LED and
   (b) check whether a given electronic component is in working order.
3. To study effect of intensity of light (by varying distance of the source) on an LDR.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe diffraction light due to a thin slit.
6. To study the nature and size of the image formed by a convex lens on a screen by using a candle and a screen (for different distances of the candle from the lens.)
   6(b). to study the nature and size of the image of the image formed by a concave mirror on a screen by using a candle and a screen (for different distance of the candle from the mirror).
7. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

QUESTION:

Define gauss law and write its three application.