VIVA - VOCE

Q.1. What is the objective of our experiment?

Ans. *To find e/m of an electron by helical or Busch method.*

Q.2. What do you understand by specific charge?

Ans. *It is defined as the ratio of charge to mass. i.e.* $\frac{q}{m}$, *where q = charge and m = mass.*

Q.3. What is e/m of an electron ?

Ans. *e/m of an electron means charge to mass ratio or specific charge of an electron.*
In MKS system, it is 1.758×10^{11} *coulomb/kg.*

Q.4. What is e/m of a neutron ?

Ans. *As neutron is neutral so it is zero.*

Q.5. What is e/m of a proton ?

Ans. *It is same as that of electron i.e.* 1.758×10^{11} *coulomb/kg.*

Q.6. How will you find strength of magnetic field.

Ans. *The magnetic field is given as* $B = \mu_0 nI$, *where n is number of turns per unit length.*

Q.7. Write expression for magnetic field due to a solenoid.

Ans. *Magnetic field due to a solenoid having n number of turns and carrying current "i" is given as:*

$$B = \frac{\mu_0 n i}{2}(\cos\theta_1 - \cos\theta_2)$$

Where θ_1 *and* θ_2 *are the angles formed by the solenoid ends at the centre.*

Q.8. Give units of magnetic field density.

Ans. *It is measured in weber/*m^2.

Q.9. Give relationship between Gauss and Tesla.

Ans. *1 Tesla =* 10^{-4} *Gauss.*

Q.10. Give path followed by an electron when both electric and magnetic field are applied.

Ans. *When both electric and magnetic field are applied then electric force on electron is eE and magnetic force on electron in Bev if both the forces are equal and opposite, the electron follow a straight line path.*

Q.11. What is the principle of getting a spot on cathode ray tube?

Ans. *The screen of cathode ray tube is coated with some fluorescent material like willemite or zinc sulphide, when fast moving electron strike the screen produces fluorescence.*

Q.12. Name other methods for finding e/m of an electron.

Ans. *These are :-*
(i) Determination of e/m by magnetron method.
(ii) Determination of e/m by Millikan's oil drop method.
(iii) Determination of e/m by Thomson's method.

Q.13. Why does the CRT screen shine when electrons strike it?

Ans. *Because CRT screen is coated with some fluorescent material like zinc sulphide so when electrons strike the screen, it shines due to fluorescence.*

Q.14. How is the intensity of the spot (or line) on the screen can be varied?

Ans. *By varying the density of electron beam and hence the brilliance of the spot can be varied by varying the potential of the control grid of CRT.*

Q.15. What is shown by e/m ?

Ans. *It shows that all cathode rays are electrons.*