CHEMISTRY
MCQs

1 = B
2 = A
3 = A
4 = C
5 = A

SHORT ANSWERS

(i)
e/m value of Protons

The hydrogen contains two particles proton and electron. when it is used in discharge tube the positive rays particles are just protons and cathode rays particles are electron. Since proton is 1836 times heavier than electron so e/m value from hydrogen is 1836 times lesser.

(ii)
Decrease Pressure

At normal pressure the gas molecules are conjested so when pressure is decreased the number of gas molecules also decrease and they do not cause any hindrence in the way of cathode rays. so it is ~~nesseterg~~ necessary to decrease pressure.

Frequency	Wave number
• The number of wave cycles that pass a given point in one second is frequency	• The number of wavelengths per unit distance. is wave number
• Frequency is measured in hertz or radian per unit distance.	• It is measure in cycles per unit distance or radian per unit distance.

LONG ANSWER

Milikans oil drop Method

→ In 1909 Milikan determined the charge on electron by oil drop method.

Apparatus :-

(i) Metallic chamber :-

The apparatus consist of metallic chamber. It has two parts. The chamber is filled with air and the pressure adjusted by vaccum pump.

(ii) Electrodes:-

There are two electrodes used to generate electrical field

- The upper electrode is connected to positive terminal of battery it has hole in it.
- The lower electrode is connected to negative terminal of battery.

(iii) Atomizer:-

A fine spray of oil droplets is created by an atomizer. A few drops passes through the hole in top plate into the region between plates.

(iv) Microscope:-

One of the droplet is observed through a microscope. This droplet when illuminated perpendicularly to the direction of view appears in the microscope as a bright speck against dark background.

WORKING

★Absence of electric field:-

The drop falls under the force of

of gravity without applying the electric field

$V_1 \propto mg$ ——— (1)

m = mass

g = accelation due to gravity.

Presence of electric field:-

After air between electrodes is ionized by X rays. The droplet takes an electron and gets charged. the by battery electric field is generated droplet moves upwards against gravity.

$V_2 \propto Ee - mg$ ——— (2)

Calculation:-

Dividing (1) by (2)

$$\frac{V_1}{V_2} = \frac{mg}{Ee - mg}$$

V_1 and V_2 are recorded by microscope. factors like g and E are also known Mass of droplet can be determined by electric field.