LGS GROUP OF COLLEGES
A PROJECT OF LAHORE GRAMMAR SCHOOL

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Subject: **Chemistry** Test No. **W#5** Date:_____

	A B C D		A B C D		A B C D		A B C D	Marks Obtained
1	○ ○ ● ○ ○	6	○ ○ ○ ○	11	○ ○ ○ ○	16	○ ○ ○ ○	
2	● ○ ○ ○	7	○ ○ ○ ○	12	○ ○ ○ ○	17	○ ○ ○ ○	
3	● ○ ○ ○	8	○ ○ ○ ○	13	○ ○ ○ ○	18	○ ○ ○ ○	
4	○ ○ ● ○	9	○ ○ ○ ○	14	○ ○ ○ ○	19	○ ○ ○ ○	
5	● ○ ○ ○	10	○ ○ ○ ○	15	○ ○ ○ ○	20	○ ○ ○ ○	

Short Question

(i)
e/m of positive rays from hydrogen

Hydrogen consist of only two particles i.e one proton & one electron. In discharge tube, when hydrogen is ionized, it break into electron and electron (i.e cathode ray) and a positive ray which is actually an proton. As proton is 1836 time heavier than electron. So the e/m ratio of hydrogen's positive ray is 1836 times lesser. that that of cathode ray.

(ii)
Decrease pressure

At normal pressure the gas molecules are conjested and they cause hindrance in way of cathode rays. But when pressure is decreased, the number of gas molecules also decrease and don't cause any hindrance. so it is necessary to decrease pressure

| Frequency	Wave number
The number of wave cycles that a given point in one second is called frequency	The number of wavelengths per unit discance is called wave number
Frequency is measured in hertz or radian per unit distance	It is measured in cycles per unit distance or radian per unit distance

~~Millikan~~

LONG QUESTION

Millikan's oil drop method

1. Instrumentation

(i) Metallic Chamber:

The apparatus consists of a metallic champber. It is filled with air and pressure is adjusted by vacuume pump.
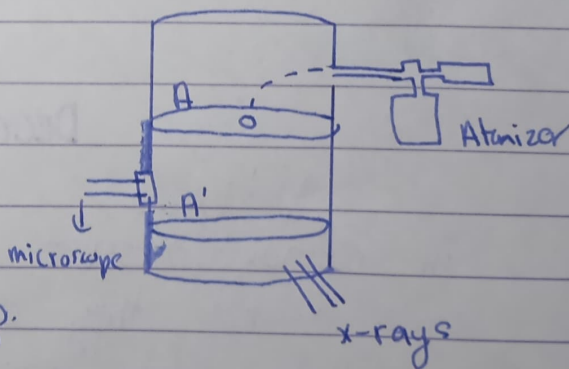
(ii) Electrodes:
It has 2 electrodes: A & A'. A (upper electrod) is connected to possitive terminal and has a hole in it. A' is connected to negative

terminal.

(iii) Atomizer: A fine spray of oil droplet is created by an atomizer. A few droplets pass through the hole in the top plate into the region between the charged plates.

(iv) Microscope: It is used to observe the droplet

2. Working.

(i) Absence of Electric field:

Droplet falls under the force of gravity without appling electric field. The velocity of the droplet is determined. velocity will depend upon weight. So

$$V_1 \propto mg \rightarrow (i)$$

(ii) In presence of Electric field.

After the air between the electroder is ionized by x-rays ● the g· oil droplet will become cation.

On appling electric field, they move upward

$$V_2 \propto E_e - mg \rightarrow (ii)$$

Dividing ——— e

Dividing eq i && ii

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

values of V_1 & V_2 are recorded with the help of microscope. g and E are also known. Mass of electron can be measured by varing electric field. Hence e can be calculated.

The smallest value of e which has been recerde found using this method is 1.59×10^{-19} coulmbs, which is very close to the recent values of 1.6022×10^{-19} coulombs.