LGS GROUP OF COLLEGES
A PROJECT OF LAHORE GRAMMAR SCHOOL

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Subject: Chemistry. Test No. _____ Date: 21-11-24

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

Marks Obtained

Question no 0(12

i

e/m value of Protons:

A single Hydrogen atom has two particles proton and electron while the streams of electon are called cathode rays.

Electrons have a much smaller mass compared to Protons. and the e/m value/ratio is inversely proportional to mass.

The mass of a Proton is almost 1836 times greater than of an electron so,

The e/m value obtained from the rive H gas is 1836 times less than that of cathode.

ii

Pressure:

In a discharged tube it is necessary to decrease pressure to produce cathode rays

because at normal Atmospheric Pressure, the gas particles are too densly packed.

When the Pressure is reduced (usually below 1mm Hg) the gas becomes less dense and the electrons can move freely.

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iii

Frequency	Wave number
The number of wave cycles that pass a given point in one second is called Frequency is measured in Hertz or radian per unit distance.	The number of wave length per unit distance is wave number. It is measured in cycle per unit distance or radian per unit distance.

Question no 03

Milikons oil drop Method:

In 1909. Milikans determined the charge on electron by oil drop Method.

Apparatus:

Metallic Chamber: The apparatus

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

Electrodes:

There are two electrodes used to generate electrical field.

- The upper electrode is connected to +ive terminal of battery. It (E) has a hole in it
- The lower electrode is connected to -ive terminal of battery.

Atomizer:

A fine spray of oil droplets is created by an atomizer. A few drops passes through the hole in top plate in b/w the plates.

Microscope:

One of the droplets 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 gravity without applying the electric field.

$V_1 \propto mg$

m = mass

g = acceleration due to gravity

Presence of electric feild

After air between electrodes is ionized by x-rays. The droplet takes an electron and gets charged. By battery electric feild is generated and the droplets moves upward against gravity.

$$V_2 \propto Ee - mg$$

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 feild.

Diagram: