LGS GROUP OF COLLEGES

CHEMISTRY   Assignment   XI

er Code:1908	Name:…………………..	Roll No:
C: 5th Half	Objective + Subjective	Marks =15, Ti...

SECTION-I OBJECTIVE TYPE (TIME 10 MINUTES)

te: Four possible answers A, B, C and D to each question are given. The choic
you think is correct, fill that circle in front of that question with Marker or
in the answer book. Cutting or filling two or more circles will result in zer
in that question.   (1x5=5)

1 The nature of the positive rays depends on
(A) The nature of the electrode   (B) The nature of the residual gas
(C) ● The nature of the discharge tube   (D) All of the above

2 Bohr model of atom is contradicted by:
(●) Heisenberg's uncertainty principle   (B) Planck's quantum theory
(C) Dual nature of matter   (D) All of above

3 The velocity of photon is:
(A) Independent of its wavelength   ● Depends on its wavelength
(C) Equal to square of its amplitude   (D) Depends on its source

4 Rutherford's model of atom failed because
(A) The atom did not have a nucleus and electron
(B) It did not account for the attraction between protons and neutrons
(C) It did not account for the stability of the atom
(●) There is actually no space between the nucleus and the electrons

5. Mass of one mole of electronic
(A) 0.55mg   (B) .0184 mg
(C) 1.673 mg   ●) 1.008 mg

Part - I

2. Write short answers of the following questions.   (3x2=6)

i. The e/m values of positive rays obtained from hydrogen gas is 1836 times le
that of cathode rays. Justify?

ii. Why is it necessary to decrease the pressure in discharge tube to get cathode

iii. Differentiate between frequency and wave umber?

(PART II)   ark

3. Describe Millikan's oil drop method for the measurement of charge ... Electr

calculated. **Conclusions:-**

charge on $\bar{e} = 1.59 \times 10^{-19} C$

$$= 1.602 \times 10^{-19} C$$

Mass of electron:-

$$\frac{e}{m} = 1.7528 \times 10^{11}$$

$$\frac{1.602 \times 10^{-19}}{1.7528 \times 10^{11}} = m$$

$$9.1 \times 10^{-31} Kg = m$$

upon its weight mg.

$$v_1 \propto mg - ①$$

where m is the mass of the droplet and g is the acceleration due to gravity. After that the air between the electrodes is ionized by x-rays. The droplet under the observation takes up an electron and gets charged. connect A and A' to a battery which generates an electric field having a strength E. The droplet moves upwards against the action of gravity with a velocity (v_2)

$$v_2 \propto E_e - mg \quad (ii)$$

where e is the charge on the electron and E_e is the upward force on the droplet moves upwards applied between electrical field of strength E.

Dividing equation (1) and (2)

$$\frac{v_1}{v_2} = \frac{mg}{E_e - mg} - ③$$

The values of v_1 and v_2 are recorded with the help of microscope. The factors like g and E are known. $\bar{e}$ can be

2) **electrodes:-**

These are two electrodes A' and A. These electrodes are **used** to generate an electrical field in the space between the electrodes. The upper electrodes has a hole.

3) **Atomizer:-**

A fine spray of oil droplets is created by an atomizer.

4) **Microscope:-**

A few droplets passes through the hole in the top plate and into the region between the charged plates, where one of them is observed through a microscope.

Working

i) **absence of electric field:-**

This droplet, when illuminated perpendicularly to the direction of view. appears in microscope as bright speck against a dark background. The droplet falls under the force of gravity without applying electric field. The velocity of droplet is determined. The velocity of droplet depends

a uniform glow inside the tube. Some rays are produced of cathode rays.

(iii)

Frequecy	wave number
Frequency is the number of waves passing through a point per second.	wave number is the number of waves per unit length, and is reciprocal to wavelength.
$E \propto v$	$\bar{v} = \dfrac{1}{\lambda}$
$E = h v$	

Question No 3
Part II

Indroduced:-

In 1909, Millikan determined the charge on electron by a simple arrangements.

Constructuction:-

1) Metallic Chamber:-

Metallic Chamber consists of two parts.

ii) Air filled:-

The Chamber is filled with air,

iii) Vaccum pump:

The Pressure of which can be adjusted by a vaccum pump.

Subject:-

Chemistry

Name:-

Shakeela Rafaqat Ali.

Question No 2

(i)

e/m values of proton:-

The e/m value for the positive rays is always smaller than that of electrons and depends upon the nature of gas. The e/m values of positive rays obtained from hydrogen gas 1836 times less than that of cathode rays Because mass of proton is decreased so that e/m values of proton is increased.

(ii)

Pressure of discharge tube:-

The current does not flow through the gas at ordinary pressure even at high voltage of 5000 volts. When the pressure of tube the tube is reduced an than high voltage of 5000-1000 volts is applied, Then electric discharge takes place through the gas producing and a