LGS GROUP OF COLLEGES
A PROJECT OF LAHORE GRAMMAR SCHOOL

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Subject: Chemistry Test No. M-2 Date: 24-12-24

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

Marks Obtained

SUBJECTIVE TYPE

Part - I

Question no 2

Short Answer

1- Moseley's law

It is the relationship between frequency of a particular line in x-rays and the atomic number of element

$\sqrt{\nu} = a(Z-b)$ a → proportionality constant b → screening constant.

ii - Heisenberg's

According to this principle it is difficult to determine the position as well as the momentum of the electron simultaneously with accuracy

$$\Delta X \times \Delta P \geq \frac{\lambda}{2\pi}$$

Student Name: _____

3- Differentiate

Stark effect	Zeeman effect
• when the spectral lines are split up into a number of thin lines in the presence of electric field then it is called stark effect.	when emission spectrum is studied in the presence of magnetic field. The spectral lines are split up into thinner lines it is called zeeman effect.

4- Aufbau Principle

According to this principle the ~~no~~ electrons should be filled in every sub shell in order of increasing energy. The electrons are first placed in 1s, 2s, 2p and 3s lower energy orbital and then goes to high energy level e.g s-orbital is first completely filled and then electrons enter the next orbital

Example:

N(7) $1s^2, 2s^2, 2p^3$

7- Differentiate

Continous Spectrum:- The spectrum in which different lines are diffused into each other at the

boundries and there are no dark spaces between these lines is called Continous spectrum.

Line spectrum:-

The spectrum which is obtained by heating a substance and in which different lines are separated by sharp boundries or dark spaces is called line or atomic spectrum.

11- Lower to higher orbit

The equation for the radius of the H-atom, after pushting the values of different parameters for H-atom is as follows

$$r = 0.529(n^2)\,A^\circ \qquad \boxed{1A^\circ = 10^{-10}\,m}$$

8- Differentiate

Atomic Absorption Spectrum	Atomic Emission Spectrum
A spectrum formed by the radiation after being absorbed by the absorbing substance is called atomic Absorpton spectrum.	A spectrum formed by the radiation emitted by the heated substance is called atomic emission spectrum.
Example:- The spectrum of Light when passed through unexcited hydrogen atom is the atomic absorption spectrum.	**Example:-** The spectrum of light emitted by the excited hydrogen atom is atomic emission spectrum.

Long Answer

(b) Properties of cathod rays

W. Crooks, J.J Thomson and E.J Perrin observed the followin properties of cathod rays.

i- Negative nature:-

In 1894 & 1895 J. Perrin observed that cathod rays are deflected in the magnetic field perpendicular to the line joining two poles.

2- Produce Fluoresence:-

They rays cause fluoresence on striking the walls of glass tube. These rays also cause fluoresence in rare metals.

3- Produce X-rays:-

Cathod rays produce penetrating radiations called x-rays. When they strike a solid object with larger atomic mass.

4- Produce heat:-

When cathode rays are foccussed from concave cathode to metal foil (platinum foil) it begins to glow.

5- Consist of material particles:-

In 1870 W. Crooks observed that constitivent particles of cathod rays have definite mass and velocity i.e. momentum