Chemistry - 11th Class Chemistry Short Questions Chapter 5 Preparation

Q1. **Why the anode rays depend upon the nature of the gas?**

Ans 1: Anode rays are those particles which are consisted of rest of the atom or molecule after the removal of one electron, the mass of every anode ray particle depends upon the nature of the gas, so the anode rays for all gaseous substances are different.

Q2. **The energy difference between adjacent levels goes on decreasing sharply. Why?**

Ans 1:

If we put the value of n as 1,2,3,4 we get the energies of various orbits of hydrogen atom. These values are as follows:

$E_1 = -2.18 \times 10^{-18} J$

$E_2 = -0.54 \times 10^{-18} J$

$E_3 = -0.24 \times 10^{-18} J$

$E_4 = -0.14 \times 10^{-18} J$

As is clear from these values that energy differences between adjacent levels go on decreasing from lower to the higher level.

Q3. **How the energy of the plioton can be calculated from the measurement of the frequency, wavelength or wave number of the photon?**

Ans 1:

Q4. **Whichever gas is used in the discharge tube, the nature of the cathode rays remains the same. Why?**

Ans 1: All the gases are consisted of atoms or molecules. They have electrons in outermost orbitals. These electrons are detached by the high voltage and due to collisions, these electrons become free. They are repelled by the cathode and attracted towards the anode. That is why, they are called cathode rays. They are always electrons and nothing else.

Q5. **How do you prove that the energy associated with the electron which is revolving around the nucleus of H-atom is negative?**

Ans 1:

Q6. **How the slow neutrons prove to be more effective than the fast neutrons?**

Ans 1:

Q7. **Why the photographic plate is white and few dark lines are there in the line absorption spectra of a substance?**

Ans 1: Some of the photons are absorbed by the sample to excite the electrons of and substance from lower energy levels to higher energy levels. These photons of light don't reach the photographic plate. Rest of the light reaches the photographic plate, arid the plate is white. Only those places are dark in the form of sharp lines where the photon don't reach.

Q8. **What is Zeeman effect?**

Ans 1: When the light of spectral lines is passed through the magnetic field, then the one spectra line is splitted up into many spectra lines. This splitting of the spectral line cannot be explained by Bohr's theory.

Q9. **Heisenberg's uncertainty principle has no relation with Bohr's atomic model. Justify it.**

Ans 1: Since the electron has wavy nature and paths are elliptical as well, so the simultaneous determination of position and momentum is not possible. But Bohr's model does not accommodate the wavy nature of electron. He says that the paths are fixed orbits and their orbits are planar. It means that Bohr's model is very simple as compared to Heisenberg's uncertainty principle.

Q10. **How do you come to know that the velocities of electrons in higher orbits are less than those in lower orbits of hydrogen atom?**

Ans 1:
