Physics - ICS Part 2 Physics Chapter 20 Short Questions Preparation

Q1. Can electron reside inside the nucleus?

Ans 1: No,electron cannot reside inside the nucleus .If electron resides inside nucleus then uncertainty in position.

Q2. Can x-rays be reflected,diffracted polarized just like any other eaves?Explain

Ans 1: Yes x rays can be reflected,refracted diffracted by crystal only and polarized just like any other waves.

Q3. Write use of x-rays.

Ans 1: X-rays are used

1. To visualize the interior of the material opaque to ordinary light.
2. In computerized axial tomography.
3. In photographic films.

Q4. Briefly describe continuous x-rays.

Ans 1: Continuous X-rays is due to an effect known as Bremsstrahlung effect when fast moving electron bombarded at the target,they are suddenly slowed down on impact with the target,And due to deceleration their kinetic energy is converted into X-rays photons.

Q5. What is meant by line spectrum? How line spectrum can be used for the identification of elements?

Ans 1: When an electron jumps from higher energy state to lower energy state than emits energy and make a spectral line.
$E_2 - E_{1=hf}$
This is called line spectrum.And different elements emit line spectrum of different wavelengths,So they can be identifiedeasily.

Q6. Write two properties of x-rays.

Ans 1:

1. They cause ionization.
2. They have very short wavelength.

Q7. Is energy conserved when an atom emits a photon of light?

Ans 1: Yes energy is conserved when an excited atom emits a photon of light.When atom is excited ,energy is supplied .The same

energy is emitted in the form of photon when it return back to its ground state.

Q8. List of color of line spectra of an excited hydrogen atom.

Ans 1: The color of line spectrum of hydrogen atom are

- Red
- Blue
- Blue-Green
- Violet
- Ultraviolet

Q9. Bohr's theory of hydrogen atom is based upon several assumptions.Do any of these assumptions contradict classical physics?

Ans 1: Bohr's first assumptions contradicts classical physics.Bohr said that electron do not radiate energy during revolving while according to classical physics,electron radiate energy during revolving and fall into the nucleus which is impossible.

Q10. How can spectrum of hydrogen contain so many lines,whereas hydrogen atom contain one electron?

Ans 1: The single electron in hydrogen atom occupies ground state but it can be excited to several states by absorbing energy.During de-excitation ,it can emit several lines of different wavelength.
