

Name:		Roll No.		Subject	Physics
Test Type	MCQs, Short & Long question	Class	12	Date	
Chapter	20 Start to before Laser	Unit	20	Time	

Q. No. 1 Tick the best option

22

- Helium was initially identified by using spectroscopy in:
(a) Moon (b) Star (c) Earth (d) Sun
- Inner shell transition in a heavy metal led to:
(a) Continuous X-rays (b) Discrete X-rays (c) Band X-rays (d) Hard X-rays
- X-rays are:
(a) High energy electrons (b) high energy neutrons
(c) High energy protons (d) High energy photons
- The radius of 1st Bohr orbit in hydrogen atom is:
(a) 0.053×10^{-12} cm (b) 0.53×10^{-10} cm (c) 9.1×10^{-11} cm (d) 1.6×10^{-11} cm
- In the Bohr's model of the hydrogen atom, the lowest orbit corresponds to:
(a) Infinite energy (b) Maximum energy (c) Minimum energy (d) Zero energy
- Longest wavelength of Paschen series is (R_N = Rydberg's constant):
(a) $\frac{9}{R_N}$ (b) $\frac{144}{7R_N}$ (c) $\frac{400}{9R_N}$ (d) $\frac{1}{R_N}$
- For Paschen series, the value of 'n' starts from:
(a) 4 (b) 6 (c) 8 (d) 2
- Balmer series lies in the:
(a) UV region (b) Visible region (c) Far infrared region (d) IR region
- K_α X-rays are produced due to transition of electron from:
(a) K to L shell (b) M to L shell (c) M to K shell (d) L to K shell
- The unit of R_H is:
(a) m/s (b) m (c) m^2 (d) m^{-1}
- If transition of electron from infinity ends to third orbit, then radiation emitted lie in:
(a) Balmer series (b) Lyman series (c) Paschen series (d) Bracket series
- The shortest wavelength in Lyman series is equal to:
(a) R_H (b) $\frac{R_H}{2}$ (c) $\frac{3R_H}{2}$ (d) $\frac{1}{R_H}$
- Speed of electron in the first Bohr's orbit is:
(a) 2.19×10^8 m/s (b) 2.19×10^6 m/s (c) 2.19×10^5 cm/s (d) 2.19×10^{-6} m/s
- The diameter of an atom is of order of:
(a) 10^{-10} m (b) 10^{-12} m (c) 10^{-14} m (d) 10^{-8} m
- X-rays discovered by:
(a) Mari Curie (b) Becquerel (c) Einstein (d) Roentgen
- The energy in the fourth orbit of hydrogen atom is:
(a) -2.51 eV (b) -0.85 eV (c) -13.6 eV (d) -3.50 eV
- The target of X-rays tube is made of which metal?
(a) Iron (b) Brass (c) Nickel (d) Tungsten
- The relation between Rydberg constant " R_H " and ground state energy " E_0 " is given by:
(a) $R_H = \frac{E_0}{hc}$ (b) $R_H = \frac{hc}{E_0}$ (c) $E_0 = \frac{R_H}{hc}$ (d) $R_H = E_0 hc$
- Postulates of Bohr atomic model were based on:
(a) Classical theory (b) Quantum theory (c) Semi-classical (d) Modern Q.M
- The speed of an electron in nth orbit is given as:
(a) $4\pi^2 Ke^2 / nh$ (b) $4\pi Ke^2 / nh$ (c) $4\pi Ke / n^2 h^2$ (d) $2\pi Ke^2 / nh$
- Which of the following property must be there in a substance so that it can be used as target in X-ray tube?
(a) It must have low melting point (b) it must have low atomic number
(c) It must have high reflecting ability (d) It must have high atomic number
- The characteristics X-rays spectrum is due to:
(a) The absorption of neutrons by target material
(b) The bombardment of target materials by protons
(c) The bombardment of target materials by electrons
(d) The bombardment of target materials by alpha particles

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Q. No. 2 Write the short answer of these following question

5 x 2 = 10

- 1) Why electron cannot reside within the nucleus?
- 2) What is the De Broglie interpretation of Bohr's orbits?
- 3) Describe the types of spectra and give its example.
- 4) Find the speed of electron in the first Bohr orbit.
- 5) Write down the biological effects of X-rays.

Q. No. 3 Long question

05

- 1) What are inner shell transition? Also discuss the production of X-rays.

