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2025-2026

Subject: Chemistry

Std- XI

Worksheet No 2

STRUCTURE OF ATOM

1.	The energy of second Bohr orbit of the hydrogen atom is -328 kJ mol^{-1} ; hence the energy of fourth Bohr orbit would be A. -41 kJ mol^{-1} B. $-1312 \text{ kJ mol}^{-1}$ C. -164 kJ mol^{-1} D. -82 kJ mol^{-1}
2.	A body of mass $x \text{ kg}$ is moving with a velocity of 100 m/s . Its de-Broglie wavelength is $6.62 \times 10^{-35} \text{ m}$. Hence x is A. 0.25 kg B. 0.15 kg C. 0.2 kg D. 0.1 kg
3.	The number of orbitals associated with quantum numbers $n=5$, $m_s = \frac{1}{2}$ is A. 25 B. 50 C. 15 D. 11
4.	Principal, azimuthal and magnetic quantum numbers are respectively related to A. Size, orientation and spin B. Size, shape and orientation C. Shape, size and orientation D. Shape, distance from nucleus and spin
5.	The correct set of quantum numbers for unpaired electron of chlorine atom ($Z=17$) may be A. $n = 2, l = 0, m = 0$. B. $n = 2, l = 1, m = -1$ C. $n = 3, l = 1, m = 1$ D. $n = 3, l = 0, m = 0$.
6.	State Heisenberg's Uncertainty principle. What is its significance?
7.	Explain photoelectric effect. Write the results of its observation.
8.	What is the number of unpaired electrons in Mn^{2+} ion?
9.	What is the number of photons of light with wavelength 4000 pm that give 1 J of energy?
10.	What is the wave length of light emitted when the electron in a hydrogen atom undergoes transition from the energy level with $n=4$ to the energy level $n= 1$?
11.	<p>Given below are two statements labelled as Assertion (A) and Reason (R). Assertion (A): The orbitals having equal energy are known as degenerate orbitals. Reason (R): The three $2p$ orbitals are degenerate in the presence of an external magnetic field.</p> <p>Select the most appropriate answer from the options given below:</p> <p>a) Both assertion and reason are correct statements, and reason is the correct explanation of the assertion. b) Both assertion and reason are correct statements, but reason is not the correct explanation of the assertion. c) Assertion is correct, but reason is wrong statement. d) Assertion is wrong, but reason is correct statement.</p>