Atoms

1. The first model of atom in 1898 was proposed by
(a) Ernst Rutherford
(b) Albert Einstein
(c) J.J. Thomson
(d) Niels Bohr

▼ **Answer**

Answer: c

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2. In Geiger-Marsden scattering experiment, the trajectory traced by an a-particle depends on
(a) number of collision
(b) number of scattered a-particles
(c) impact parameter
(d) none of these

▼ **Answer**

Answer: c

3. In the Geiger-Marsden scattering experiment the number of scattered particles detected are maximum and minimum at the scattering angles respectively at
(a) 0° and 180°
(b) 180° and 0°
(c) 90° and 180°
(d) 45° and 90°

▼ **Answer**

Answer: a

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4. In the Geiger-Marsden scattering experiment, is case of head-on collision the impact parameter should be
(a) maximum
(b) minimum
(c) infinite
(d) zero

▼ **Answer**

Answer: a

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5. Rutherford's experiments suggested that the size of the nucleus is about
(a) 10^{-14} m to 10^{-12} m
(b) 10^{-15} m to 10^{-13} m
(c) 10^{-15} m to 10^{-14} m
(d) 10^{-15} m to 10^{-12} m

▼ **Answer**

Answer: c

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6. Which of the following spectral series falls within the visible range of electromagnetic radiation?
(a) Lyman series
(b) Balmer series
(c) Paschen seriee
(d) Pfund series

▼ **Answer**

Answer: b

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7. The first spectral series was discovered by
(a) Balmer

(b) Lyman
(c) Paschen
(d) Pfund

▼ **Answer**

Answer: a

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8. Which of the following postulates of the Bohr model led to the quantization of energy of the hydrogen atom?
(a) The electron goes around the nucleus in circular orbits.
(b) The angular momentum of the electron can only be an integral multiple of h/2π.
(c) The magnitude of the linear momentum of the electron is quantized.
(d) Quantization of energy is itself a postulate of the Bohr model.

▼ **Answer**

Answer: b

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9. The Bohr model of atoms
(a) assumes that the angular momentum of elec-trons is quantized.
(b) uses Einstein's photoelectric equation.
(c) predicts continuous emission spectra for at-oms.
(d) predicts the same emission spectra for all types of atoms.

▼ **Answer**

Answer: a

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10. If tt is the orbit number of the electron in a hydrogen atom, the correct statement among the following is
(a) electron energy increases as n increases.
(b) hydrogen emits infrared rays for the electron transition from n = to n = 1
(c) electron energy is zero for n = 1 (<0 electron energy varies as n2.

▼ **Answer**

Answer: a

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11. If the radius of inner most electronic orbit of a hydrogen atom is 5.3 * 10~n m, then the radii of n = 2 orbits is
(a) 1.12 Å
(b) 2.12 Å
(c) 3.22 Å
(d) 4.54 Å

▼ **Answer**

Answer: b

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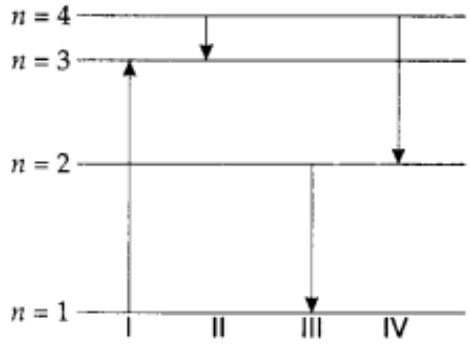
12. The diagram shows the energy levels for an electron in a certain atom. Which transition shown represents the emission of a photon with the most energy?



(a) I
(b) II
(c) III
(d) IV

▼ **Answer**

Answer: c

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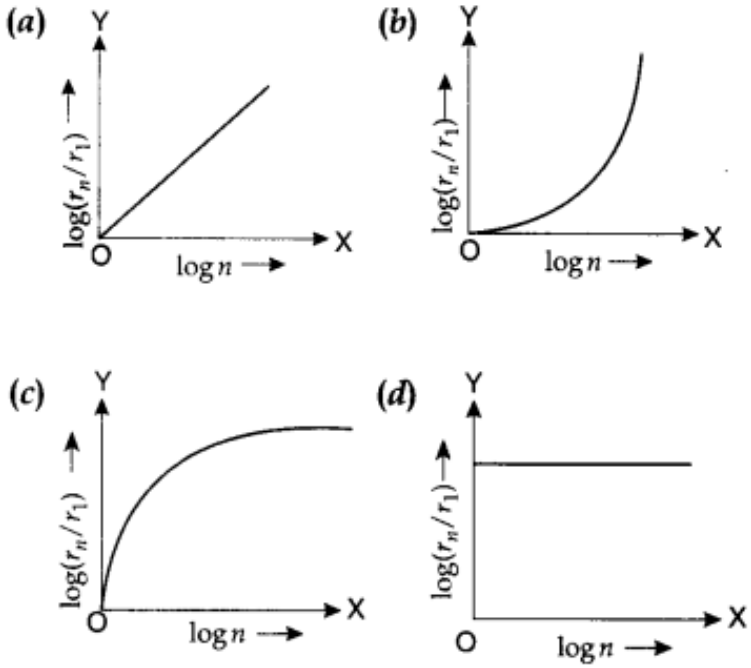
13. In a hydrogen atom, the radius of n^{th} Bohr orbit is r_n. The graph between $\log(r_n/r_1)$ and log n will be



▼ **Answer**

Answer: a
