الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلـــــوم

CHEMISTRY

2nd secondary
first term

HOME PERFORMANCE



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2026

week

5

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Home performance (Week 5)

Q1/ choose the correct answer:-

1- What phenomenon did Thomson's model fail to explain, which was the Basis for the development of Rutherford's model?

(a) The deflection of a beam of electrons in the presence of a magnetic field.
(b) The emission of specific colors (line spectrum) when atoms are heated.
(c) The passage of most alpha particles through a gold foil with a small fraction Of them being deflected at large angles.
(d) The dual nature of the electron, which is considered a charged particle with Wave properties.

2- Assuming that Thomson's model was correct, and alpha particles were fired at gold foil, what would be the main factor causing a slight deflection of the alpha particles?

(a) The force of direct collision between the alpha particles and the electrons Embedded within it.
(b) The repulsive force between the positively charged alpha particle and the High-density nucleus.
(C) The repulsion between the alpha particles and the like charges on the atom.
(d) The absence of a vacuum in the atom, forcing the alpha particle to pass Through the it.

3- If you know that gold alloy is considered a solid solution, the electrons in the Thomson model are similar to ……

(a) The solvent. (b) The solute.
(C) The alloy. (d) The crystal lattice of the alloy

4- Which of the following characteristics apply to the Thomson atomic model?

1- The nucleus is located at the center of the atom.
2- Electrons are spread throughout the atom.
3- The nucleus is positively charged.
4- The atom may be electrically neutral.

(a) 1 and 3 (b) 1 and 4
(c) 2 and 4 (d) 3 and 5

5-Which of the following particles is not affected by an electric field?

(a) Beta particles (b) Alpha particles ($_2$He)
(c) Helium atoms ($_2$He) (d) Electrons



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Question (2):-

(1) Suppose you are given a chance to repeat Rutherford's experiment by using a thin solid hydrogen foil instead of gold. Compare between your experience and the experience of Rutherford in the term of:-

(a) Angle of deviation of alpha particles

(b) Number of penetrate alpha particles

.....

.....

(2) What conclusion did Rutherford reach from each of the following Observations?

1- Very few alpha particles were reflected when the gold foil was placed.

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2- Flashes appeared on both sides of the original position where they appeared Before the gold foil was placed.

.....

3- A very large proportion of flashes appeared at the same position where they Appeared before the gold foil was placed.

.....

(3) Mention the observation that leads to each of the following conclusions from Rutherford's experiment:

1- Most of the atom is empty space and not solid.

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2- There is a very small, dense particle in the center of the atom called the nucleus.

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3- The nucleus is a positively charged.

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WEEKLY ASSESSMENTS



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Weekly assessment (Week-5)

Question (1):-Choose the correct answer

(1) Which of the following observations in Rutherford's experiment proves that most of the atomic mass is concentrated in a very small part in it?

(a) The appearance of a large number of flashes at the same place on the metal Plate before the gold foil was placed.

(b) The appearance of flashes on the metal plate on both sides of the first position Before the placing gold foil.

(c) The appearance of a very small number of flashes on the metal plate in front of The gold foil as a result of the reflection of alpha particles

(d) The appearance of a large number of flashes on the metal plate in front of the Gold foil as a result of the reflection of alpha particles

(2) If the gold foil ($_{79}$Au) in Rutherford's experiment is replaced with aluminum foil ($_{13}$Al), which of the following expresses the change in observations?

(a) The alpha particle deflection rate increases and the deflection angle increases.

(b) The alpha particle deflection rate decreases and the deflection angle increases.

(c) The alpha particle deflection rate increases and the deflection angle decreases.

(d) The alpha particle deflection rate decreases and the deflection angle decreases.

(3) What factor determines the value of the deflection angle of the alpha Particle in the Rutherford experiment?

(a) The thickness of the target slice

(b) The mass number of the alpha particle

(c) The charge of the nucleus (atomic number Z)

(d) The number of electrons orbiting the nucleus.

4- Which of the following represents the progress of two radiations of alpha particle when exposed to a large nucleus?

(a) (b) (C) (d)





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5- Which of the following statements is correct?

(a) The Rutherford model is called the solar model, and the Thomson model is Called the plum pudding model.
(b) The Rutherford model and the Thomson atomic model are called the solar model.
(c) Rutherford's model is called the plum pudding model and Thomson's Model is called the watermelon model.
(d) Rutherford's model is called the watermelon model and Thomson's model Is called the plum pudding model.

Question (2):- Mention the scientific reason for each of the following:-

1- The metal plate used in Rutherford's experiment is coated with zinc sulphide.

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2- Both electrons and alpha particles are affected by the electric field.

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3- The Rutherford model is called the solar model, while the Thomson model can be described as the plum pudding model

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Question (3):- Assisted by schoolbook

"If you know that Ernest Rutherford discovered alpha particles as a type of radiation emitted by radioactive elements (such as uranium and radium)."

1- Did Rutherford discover alpha radiation in 1899 or 1911?

.....

2. Did Rutherford discover that alpha particles are positive helium nuclei 1899 or 1911?

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3- Were electrons discovered as one of the components of the atom before or After 1911?

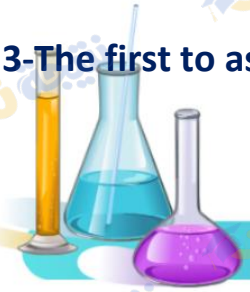
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Question (4):- Mention the name of the scientist:-

1- The first to discover the existence of electrons as one of the components of the Atom ( )

2- The first to discover the existence of a positive nucleus in the atomic structure ( )

3-The first to assume that the atom is electrically neutral ( )



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