

Structure of Atom

1. Who first proposed the idea of atom?

Early Indian and Greek philosophers proposed the idea of atom.

2. What does the word “atom” mean?

The word atom means “uncut-able” or “non-divisible”.

3. Who gave the atomic theory on scientific basis?

John Dalton gave the atomic theory on scientific basis.

4. In which year did Dalton propose his atomic theory?

Dalton proposed his atomic theory in 1808.

5. What is Dalton’s atomic theory?

It states that matter is made up of tiny indivisible particles called atoms.

6. Name the laws explained by Dalton’s atomic theory.

- Law of conservation of mass
- Law of constant composition
- Law of multiple proportions

7. Why did Dalton’s atomic theory fail?

It failed to explain the electrical nature of matter.

8. What are sub-atomic particles?

Electrons, protons, and neutrons are called sub-atomic particles.

9. State the basic rule of charged particles.

Like charges repel each other and unlike charges attract each other.

10. Who studied electricity through electrolyte solutions?

Michael Faraday studied electricity through electrolyte solutions.

11. What did Faraday's experiments suggest?

They suggested the particulate nature of electricity.

12. What is a cathode ray discharge tube?

It is a glass tube containing gas at low pressure and two electrodes.

13. From where do cathode rays originate?

Cathode rays originate from the cathode.

14. Towards which electrode do cathode rays move?

They move towards the anode.

15. What are cathode rays?

Cathode rays are streams of negatively charged particles.

16. What happens when cathode rays strike zinc sulphide?

A bright glowing spot is produced.

17. How do cathode rays travel in absence of fields?

They travel in straight lines.

18. What do cathode ray experiments prove?

They prove the existence of electrons.

19. What is the charge on an electron?

Electron carries a negative charge.

20. Who discovered the electron?

J. J. Thomson discovered the electron.

21. Do cathode ray properties depend on the gas used?

No, they do not depend on the gas used.

22. Do cathode ray properties depend on electrode material?

No, they do not depend on electrode material.

23. Why are electrons called basic constituents of atoms?

Because electrons are present in all atoms.

24. What is fluorescence?

It is the emission of light by certain substances when struck by rays.

25. What is phosphorescence?

It is the glowing effect produced after exposure to rays.

MCQs – Structure of Atom

1. The word “atom” is derived from:

- A) Latin word
- B) Greek word
- C) French word
- D) Arabic word

Answer: B) Greek word

Explanation: The word atom comes from the Greek word “a-tomio” meaning non-divisible.

2. The meaning of “a-tomio” is:

- A) Small particle
- B) Invisible particle
- C) Non-divisible
- D) Charged particle

Answer: C) Non-divisible

Explanation: “A-tomio” means uncut-able or non-divisible.

3. Who proposed the atomic theory on scientific basis?

- A) Michael Faraday
- B) J. J. Thomson
- C) John Dalton
- D) Ernest Rutherford

Answer: C) John Dalton

Explanation: John Dalton proposed the atomic theory in 1808.

4. Dalton proposed his atomic theory in:

- A) 1808
- B) 1830
- C) 1897
- D) 1911

Answer: A) 1808

Explanation: Dalton introduced his atomic theory in the year 1808.

5. According to Dalton, atoms are:

- A) Divisible
- B) Negatively charged
- C) Indivisible
- D) Neutral particles only

Answer: C) Indivisible

Explanation: Dalton considered atoms as ultimate indivisible particles of matter.

6. Dalton’s atomic theory successfully explained:

- A) Nuclear structure
- B) Radioactivity

C) Laws of chemical combination

D) Discovery of electrons

Answer: C) Laws of chemical combination

Explanation: Dalton's theory explained laws like conservation of mass and constant composition.

7. Which scientist studied electricity through electrolyte solutions?

A) John Dalton

B) Michael Faraday

C) Niels Bohr

D) James Chadwick

Answer: B) Michael Faraday

Explanation: Faraday showed that electricity causes chemical reactions in electrolytes.

8. Cathode rays move from:

A) Anode to cathode

B) Cathode to anode

C) Electrode to solution

D) Nucleus to electron

Answer: B) Cathode to anode

Explanation: Cathode rays originate from the cathode and move towards the anode.

9. Cathode rays consist of:

A) Positively charged particles

B) Neutral particles

C) Negatively charged particles

D) Alpha particles

Answer: C) Negatively charged particles

Explanation: Cathode rays are streams of electrons carrying negative charge.

10. The negatively charged particles discovered in cathode rays are called:

- A) Protons
- B) Neutrons
- C) Electrons
- D) Positrons

Answer: C) Electrons

Explanation: Electrons were identified as negatively charged particles.

11. Who discovered the electron?

- A) J. J. Thomson
- B) Ernest Rutherford
- C) Niels Bohr
- D) John Dalton

Answer: A) J. J. Thomson

Explanation: J. J. Thomson discovered electrons using cathode ray experiments.

12. Cathode rays travel in:

- A) Circular path
- B) Zig-zag path
- C) Straight line
- D) Random path

Answer: C) Straight line

Explanation: In absence of electric and magnetic fields, cathode rays move in straight lines.

13. Which material glows when struck by cathode rays?

- A) Copper sulphate
- B) Zinc sulphide

C) Sodium chloride

D) Calcium oxide

Answer: B) Zinc sulphide

Explanation: Zinc sulphide coating produces a bright glow when hit by cathode rays.

14. Cathode rays show fluorescence because they:

A) Produce heat

B) Carry sound

C) Strike fluorescent materials

D) Dissolve gases

Answer: C) Strike fluorescent materials

Explanation: Fluorescent materials glow when cathode rays hit them.

15. The properties of cathode rays do not depend upon:

A) Nature of gas

B) Material of electrodes

C) Both A and B

D) Voltage applied

Answer: C) Both A and B

Explanation: Cathode ray properties remain same irrespective of gas or electrode material.

16. Which statement is correct about electrons?

A) Present only in metals

B) Present only in gases

C) Present in all atoms

D) Present only in cathode ray tubes

Answer: C) Present in all atoms

Explanation: Electrons are fundamental constituents of all atoms.

17. Like charges:

- A) Attract each other
- B) Repel each other
- C) Become neutral
- D) Produce neutrons

Answer: B) Repel each other

Explanation: Similar charges repel each other.

18. Unlike charges:

- A) Repel each other
- B) Destroy each other
- C) Attract each other
- D) Produce light only

Answer: C) Attract each other

Explanation: Opposite charges attract each other.

19. A cathode ray tube contains gas at:

- A) High pressure
- B) Atmospheric pressure
- C) Very low pressure
- D) Zero pressure

Answer: C) Very low pressure

Explanation: Electrical discharge occurs properly at very low gas pressure.

20. Television picture tubes are based on:

- A) Alpha rays
- B) Beta rays
- C) Cathode rays
- D) X-rays

Answer: C) Cathode rays

Explanation: Television screens work using fluorescence produced by cathode rays.