

2.1 ATOMS AND MOLECULES – MCQs

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1. An atom is the _____ particle that shows all the properties of an element.
a) Largest b) Smallest c) Middle-sized d) Heaviest
2. Which of the following is the smallest unit of an element?
A. Molecule B. Atom C. Compound D. Mixture
3. Which of the following represents a chlorine atom?
A. Cl B. Cl₂ C. 2Cl D. Cl⁻
4. Which statement about an atom is correct?
A. It is the largest unit of an element. B. It is the smallest unit of an element.
C. It is always made of two atoms. D. It always exists independently in nature.
5. A molecule with 2 atoms is called:
a) Monoatomic b) Diatomic c) Triatomic d) Tetra-atomic
6. Which of these is a triatomic molecule?
a) O₂ b) O₃ c) He d) H₂
7. A molecule of an element, like O₂, is made of:
a) Different kinds of atoms b) The same kind of atoms c) No atoms d) Only ions
8. A water molecule (H₂O) has:
a) 1 H atom + 1 O atom b) 2 H atoms + 1 O atom
c) 2 H atoms + 2 O atoms d) 1 H atom + 2 O atoms
9. How many oxygen atoms are present in sulphuric acid molecule.
a. 2 b. 4 c. 6 d. 7
10. Blue vitriol is CuSO₄·5H₂O. How many total atoms are in one molecule of it?
a) 4 b) 5 c) 6 d) 21
11. Who gave the first scientific atomic theory?
a) Dalton b) Democritus c) Rutherford d) Avogadro
12. According to Dalton, all matter is made up of very small particles called:
A. Molecules B. Ions C. Atoms D. Radicals
13. According to Dalton's atomic theory, atoms are:
a) Divisible b) Indivisible c) Made of protons only d) Charged
14. According to Dalton's atomic theory, atoms of the same element are:
a) Different in mass b) Alike in shape, size and mass c) Always charged d) Always joined together
15. According to Dalton, atoms join to form compounds in:
a) Any ratio b) A simple, whole-number ratio c) A random ratio d) An equal ratio, always
16. Dalton's atomic theory postulates
a. All atoms of an element are identical. C. conservation of atoms in the reaction
b. Atoms combine in fixed proportions. D. all of the above
17. Which statement is correct according to Dalton?
A. Atoms of the same element have different masses
B. Atoms combine in simple ratios
C. Atoms can be destroyed in reactions
D. Atoms are charged particles

18. Which of these is NOT a postulate of Dalton's theory?
 - a) Atoms cannot be divided
 - b) Atoms of the same element are alike
 - c) Atoms have protons and electrons inside
 - d) Atoms combine in simple ratios
19. Which statement best reflects Dalton's view of chemical reactions?
 - A. Atoms are created
 - B. Atoms are destroyed
 - C. Atoms are rearranged
 - D. Atoms disappear
20. Which discovery showed that an atom can be divided into smaller particles?
 - A. Discovery of molecules
 - B. Discovery of subatomic particles
 - C. Discovery of mixtures
 - D. Discovery of compounds
21. Which idea is NOT part of Dalton's original atomic theory?
 - A. Matter is made of atoms
 - B. Atoms combine in fixed ratios
 - C. Atoms contain protons and electrons
 - D. Atoms of different elements are different
22. What do we call atoms of the same element that have different mass?
 - a) Molecules
 - b) Isotopes
 - c) Ions
 - d) Radicals
23. Chlorine has two isotopes. What are they?
 - a) Cl-35 and Cl-37
 - b) Cl-16 and Cl-17
 - c) Cl-1 and Cl-2
 - d) Cl-35 and Cl-40
24. Which observation directly disproves Dalton's idea that all atoms of an element are identical?
 - A. Chemical bonding
 - B. Isotopes
 - C. Molecules
 - D. Mixtures
25. The nucleus of an atom is made of:
 - a) Electrons and protons
 - b) Electrons and neutrons
 - c) Protons and neutrons
 - d) Electrons, protons and neutrons
26. Which of these can change one element's atom into another element's atom?
 - a) Heating it
 - b) Cooling it
 - c) nuclear reaction
 - d) Mixing it with water
27. According to Dalton, atoms of different elements always combine in a simple ratio. What does modern chemistry say?
 - a) This is always true
 - b) Some compounds have a more complex ratio
 - c) Atoms never combine
 - d) None of these
28. Which word do we use today instead of "compound atom"?
 - a) Molecule
 - b) Ion
 - c) Isotope
 - d) Radical
29. Modern science shows that atoms can change into atoms of another element during:
 - A. Melting
 - B. Dissolving
 - C. Nuclear reactions
 - D. Filtration
30. Dalton's atomic theory fails in nuclear reactions because:
 - A. Atoms combine
 - B. Atoms are rearranged
 - C. Atoms can be transformed into other elements
 - D. Atoms remain unchanged
31. Which sentence about Dalton's theory is TRUE today?
 - a) It is completely wrong.
 - b) It has some limits, but it is still the basis of modern chemistry
 - c) It has been fully replaced by quantum theory
 - d) Nobody uses it anymore

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