

CLASS IX – SCIENCE – CHAPTER 03

ATOMS AND MOLECULES

Name:

Date:

- 01.** Atomic radius is measured in nanometers and
(a). $1\text{nm} = 10^{-10}\text{m}$ (b). $1\text{m} = 10^{-10}\text{nm}$ (c). $1\text{m} = 10^{-9}\text{nm}$ (d). $1\text{nm} = 10^{-9}\text{m}$
- 02.** Symbol of Iron is: -
(a). Ir (b). I (c). Fe (d). None of these
- 03.** Atomicity of chlorine and Argon is
(a). Diatomic and Monoatomic (b). Monoatomic and Diatomic
(c). Monoatomic and Monoatomic (d). Diatomic and Diatomic
- 04.** Molecular mass of water (H_2O) is
(a). 18g (b). 8g (c). 33g (d). 34g
- 05.** 1 Mole of a compound contains –
(a). 6.023×10^{23} atoms (b). 6.023×10^{24} atoms
(c). 60.23×10^{23} atoms (d). 6.023×10^{25} atoms
- 06.** Oxygen is –
(a). Monovalent (b). Bivalent (c). Trivalent (d). Tetravalent
- 07.** What is the molecular formula for Calcium Hydroxide?
(a). $\text{Ca}(\text{OH})^2$ (b). Ca OH (c). Ca^2OH (d). Ca H^2
- 08.** Neutron is
(a). Chargeless and Massless (b). Chargeless and has Mass
(c). Has charge and Mass (d). Has charge and Massless.
- 09.** Which of the following statements is correct?
(a). Cathode rays travel in straight line and have momentum.
(b). Cathode rays travel in straight line and have no momentum
(c). Cathode rays do not travel in straight line but have Momentum.
(d). Cathode rays do not travel in straight line and have no momentum.
- 10.** β –particles are represented as: -
(a) ${}^0_{-1}\text{e}$ (b) ${}^0_{+1}\text{e}$ (c) ${}^1_{-1}\text{e}$ (d) ${}^1_0\text{e}$
- 11.** ${}^{40}_{18}\text{Ar}$ and ${}^{40}_{20}\text{Ca}$ are
(a). Isotopes (b). Isobars (c). Isotones (d). Both b and c
- 12.** The maximum number of electrons in L shell is
(a). 8 (b). 18 (c). 28 (d). 38.

Q01. State law of conservation of Mass?

Q02. Define Valency? Find the Valency of oxygen and Aluminum.

Q03. State the Postulates of Dalton Theory? What are the failures of Dalton Atomic theory?

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- Q04.** State the law of constant Proportion?
- Q05.** Define the terms: (a). Atomic number (b). Mass number
- Q06.** Stat the properties of cathode rays? Write an experiment to show that cathode rays travel in straight line? What is meant by e/m ratio? What was the value of this ratio for a particle in the cathode rays?
- Q07.** What is radioactivity? What are the applications of radioisotopes?
- Q08.** What are isotopes? Name the isotopes of hydrogen and draw the structure of their atoms?
- Q09.** What are α , β and γ – rays composed of.
- Q10.** Write the chemical formula for
(a). Calcium Phosphate (b). Magnesium Hydroxide (c). Aluminium chloride.
- Q11.** How many molecules of water are present in a drop of water which has a mass of 50mg?
- Q12.** Find the number of protons and neutrons in the nucleus of an atom of an element X which is represented as $^{207}\text{X}_{82}$.
- Q13.** Complete the following equations which describe nuclear charge –
(a). $^{23}_{11}\text{Na} + ^1_0\text{n} \rightarrow \underline{\hspace{2cm}} + ^0_{-1}\text{e}$ (b). $^9_4\text{Be} + ^4_2\text{He} \rightarrow ^1_0\text{n} + \underline{\hspace{2cm}}$
(c). $^{16}_8\text{O} + ^1_0\text{n} \rightarrow \underline{\hspace{2cm}} + ^4_2\text{He}$
- Q14.** Which element will be more reactive and why \rightarrow the element whose atomic number is 10 or the one whose atomic number is 11?
- Q15.** Calculate the molar mass of Na_2SO_4 and CaCO_3 ?
- Q16.** Find the percentage of water of crystallization in $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$.
- Q17.** 2.42g of Cu gave 3.025g of a black oxide of Cu, 6.49g of a black oxide, on reduction with H, gave 5.192g of Cu. Show that these figures are in accordance with law of constant proportion?
- Q18.** A compound was found to have the following percentage composition by mass Zn = 22.65%, S = 11.15%, H = 4.88%, O = 61.32%. The relative molecular mass is 287g/mol. Find the molecular formula of the compound, assuming that all the hydrogen in the compound is present in water of crystallizations.
- Q19.** Calculate the molecular Mass of
(a). Ammonium sulphate $[(\text{NH}_4)_2\text{SO}_4]$ (b). Penicillin $[\text{C}_{16}\text{H}_{18}\text{N}_2\text{SO}_4]$ (c). Paracetamol $[\text{C}_8\text{H}_9\text{NO}]$
- Q20.** The following questions are about one mole of sulphuric acid $[\text{H}_2\text{SO}_4]$?
(a). Find the number of gram atoms of hydrogen in it?
(b). How many atoms of hydrogen does it have?
(c). How many atoms (in grams) of hydrogen are present for every gram atom of oxygen in it?
(d). Calculate the number of atoms in H_2SO_4 ?
- Q21.** There are 2 elements C and B. C emits an α – particle and B emits a β – particle. How will the resultant elements charge?