



An Eye on Talent

Olympiad Aptitude Test Chemistry Class XI

- The branch of chemistry that deals with the structure of matter, the energy changes and the theories, laws and principles that explain the transformation of matter from one form to another is called _____ chemistry.
(A) Inorganic (B) Organic
(C) Analytical (D) Physical
- Which one of the following is not a mixture?
 - Iodized table salt
 - Gasoline
 - Liquefied Petroleum Gas (L. P. G.)
 - Distilled water.
- One mole of CO_2 contains
 - 6.022×10^{23} atoms of C
 - 6.022×10^{23} atoms of O
 - 18.1×10^{23} molecules of CO_2
 - 3 g atoms of CO_2
- Chemical formula cannot be determined by using
 - Raman Spectroscopy
 - Nuclear magnetic resonance
 - Titration
 - X-ray diffraction method
- Which of the following reactions has the ratio of volumes of reacting gases and the product as 1:2:2?
 - $2\text{CO}_{(g)} + \text{O}_{2(g)} \rightarrow 2\text{CO}_{2(g)}$
 - $\text{O}_{2(g)} + 2\text{H}_{2(g)} \rightarrow 2\text{H}_2\text{O}_{(g)}$
 - $\text{H}_{2(g)} + \text{F}_{2(g)} \rightarrow 2\text{HF}_{(g)}$
 - $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightarrow 2\text{NH}_{3(g)}$
- How many molecules are present in one gram of hydrogen?
 - 6.02×10^{23}
 - 3.01×10^{23}
 - 2.5×10^{23}
 - 1.5×10^{23}

7. A compound made of two elements A and B are found to contain 25% A (Atomic mass 12.5) and 75% B (Atomic mass 37.5). The simplest formula of the compound is
- (A) AB (B) AB₂
(C) AB₃ (D) A₃B
8. Hydrogen reacts with nitrogen to form ammonia as: $\text{N}_{2(\text{g})} + 3\text{H}_{2(\text{g})} \rightarrow 2\text{NH}_{3(\text{g})}$
The amount of ammonia that would be produced if 200 g of H₂ reacts with N₂ is
- (A) 1032.2 g (B) 11332 g
(C) 1133.3 g (D) 8692.6 g
9. Which property of an element is always a whole number?
- (A) Atomic weight
(B) Equivalent weight
(C) Atomic number
(D) Atomic volume
10. What will be the volume of CO₂ at NTP obtained on heating 10 grams of (90% pure) limestone
- (A) 22.4 litre (B) 2.016 litre
(C) 2.24 litre (D) 20.16 litre
11. In SO₂ and SO₃, the ratio of the masses of oxygen which combine with a fixed mass of sulphur is 2:3. This is an example of the law of
- (A) Constant proportion.
(B) Multiple proportion.
(C) Reciprocal proportion.
(D) Gay Lussac.
12. Among the following pairs of compounds, the one that illustrates the law of multiple proportions is
- (A) NH₃ and NCl₃ (B) H₂S and SO₂
(C) CuO and Cu₂O (D) CS₂ and FeSO₄
13. A molal solution is one that contains 1 mole of a solute in
- (A) 1000 g of the solvent
(B) One litre of the solvent
(C) One litre of the solution
(D) 22.4 litres of the solution
14. Recently the unit of atomic mass amu is replaced by
- (A) u (B) mol
(C) g (D) kg

15. _____ proposed some symbols for some common atoms and molecules.
(A) Democritus (B) Newton
(C) Thompson (D) Dalton
16. Vapour density of a gas is 22. What is its molecular mass?
(A) 33 (B) 22
(C) 44 (D) 11
16. Atoms have a radius of the order
(A) 10^{-26} m (B) 10^{-15} μ m
(C) 10^{-15} mm (D) 10^{-15} m
17. Mole is the SI unit of _____.
(A) Volume
(B) Pressure
(C) Amount of substance
(D) Density
18. The percentage composition of carbon in urea, $[\text{CO}(\text{NH}_2)_2]$ is
(A) 40% (B) 50%
(C) 20% (D) 80%
19. _____ of a compound is the chemical formula indicating the relative number of atoms in the simplest ratio.
(A) Empirical formula
(B) Molecular formula
(C) Empirical mass
(D) Molecular mass
20. The percentage of oxygen in NaOH is
(A) 40 (B) 60
(C) 8 (D) 10