



Some Basic Concepts of Chemistry

Q.No.1:

A compound with molecular mass 180 is acylated with CH_3COCl to get a compound with molecular mass 390. The number of amino groups present per molecule of the former compound is :

JEE 2013

- A. 2
- B. 5
- C. 4
- D. 6

Q.No.2:

A gaseous hydrocarbon gives upon combustion 0.72 g. of water and 3.08 g. of CO_2 . The empirical formula of the hydrocarbon is :

JEE 2013

- A. C_2H_4
- B. C_3H_4
- C. C_6H_5
- D. C_7H_8

Q.No.3:

How many litres of water must be added to 1 litre of an aqueous solution of HCl with a pH of 1 to create an aqueous solution with pH of 2 ?

JEE 2013

- A. 0.1 L
- B. 0.9 L
- C. 2.0 L
- D. 9.0 L

Q.No.4:

Experimentally it was found that a metal oxide has formula $M_{0.98}O$. Metal M, is present as M^{2+} and M^{3+} in its oxide. Fraction of the metal which exists as M^{3+} would be :

JEE 2013

- A. 7.01%
- B. 4.08%
- C. 6.05%
- D. 5.08%

Q.No.5: The ratio of masses of oxygen and nitrogen in a particular gaseous mixture is 1 : 4. The ratio of number of their molecules is

- A. 1 : 8
- B. 3 : 16
- C. 1 : 4
- D. 7 : 32

Q.No.6: 3 g of activated charcoal was added to 50 mL of acetic acid solution (0.06 N) in a flask. After an hour it was filtered and the strength of the filtrate was found to be 0.042 N. The amount of acetic acid adsorbed (per gram of charcoal) is :

JEE 2015

- A. 18 mg
- B. 36 mg
- C. 42 mg
- D. 54 mg

Q.No.7: 1 gram of a carbonate (M_2CO_3) on treatment with excess HCl produces 0.01186 mole of CO_2 . The molar mass of M_2CO_3 in $g\ mol^{-1}$ is :

JEE 2017

- A. 84.3
- B. 118.6
- C. 11.86
- D. 1186

Q.No.8: A 10 mg effervescent tablet containing sodium bicarbonate and oxalic acid releases 0.25 ml of CO_2 at $T = 298.15\ K$ and $p = 1\ bar$. If molar volume of

CO₂ is 25.0 L under such condition, what is the percentage of sodium bicarbonate in each tablet? [Molar mass of NaHCO₃ = 84 g mol⁻¹] **JEE 2019**

- A. 0.84
- B. 33.6
- C. 16.8
- D. 8.4

Q.No.9: The number of significant figures in 50000.020×10^{-3} is _____. **JEE 2021**

Q.No.10: A 6.50 molal solution of KOH (aq.) has a density of 1.89 g cm⁻³. The molarity of the solution is ____ mol dm⁻³. (Round off to the Nearest Integer).
[Atomic masses : K : 39.0 u; O : 16.0 u; H : 1.0 u] **JEE 2021**

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