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CHEMISTRY

MULTIPLE CHOICE - 1

ATOMS,MOLECULES & STOICHIOMETRY

Atoms, Molecules and Stoichiometry

1. The relative atomic mass of boron, which consists of the isotopes $\frac{11}{5}$ B is 10.8. What is the percentage of $\frac{11}{5}$B atoms in the isotopic mixture?

    (A)   0.8%   (B)   8.0%   (C)   20%   (D)   80%

2. In the absence of a catalyst, ammonia burns in an excess of oxygen to produce steam and nitrogen. What is the volume of oxygen remaining when 60cm³ of ammonia is burnt in 100 cm³ of oxygen, all volumes being measured at the same temperature and pressure?

    (A)   35 cm³   (B)   40 cm³   (C)   45 cm³   (D)   55 cm³

3. For complete oxidation, 1mol of an organic compound requires 3 mol of oxygen gas. What could be formula of the compound?

    (A) CH_3CHO (B) CH_3CH_2OH (C) CH_3CH_3 (D) CH_3CO_2H

4. Lise of the Data Booklet is relevant to this question. What is the number of molecules in 500 cm³ of oxygen under room conditions?

    (A) 1.25×10^{22} (B) 1.34×10^{22} (C) 3.0×10^{22} (D) 3.0×10^{26}

5. ⁹Be is used in the production of 'fast neutrons' How many neutrons are present in 0.09 g of ⁹Be? [L = Avogadro constant]

    (A)   0.04L   (B)   0.05L   (C)   0.09L   (D)   0.45L

6. Which of these samples of gas contains the same number of atoms as 1 g of hydrogen (M_r: H_2, 2)?

    (A)   22g of carbon dioxide (Mr: CO2, 44)

    (B)   8g of methane (Mr: CH4, 16)

    (C)   20g of neon (Mr.: Ne, 20)

    (D)   8g of ozone (Mr: O3, 48)

7. Which statement about one mole of metal is all ways correct?

   (A)   It contains the same number of atoms as 1 mol of hydrogen atoms.

   (B)   It contains the same number of atoms as $\frac{1}{12}$ mol ^{12}C.

   (C)   It has the same mass as 1 mol of hydrogen atoms.

   (D)   It is liberated by 1 mol of electrons.

8. How many atoms of carbon are present in 18 g of glucose, $C_6H_{12}O_6$?

   (A) 6.0×10^{22} (B) 3.6×10^{23} (C) 6.0×10^{23} (D) 3.6×10^{24}

9. What volume of oxygen is required for the complete combustion of a mixture of 5 cm3 of CH_4 and 5 cm3 of C_2H_4?

   (A) $10\ cm^3$ (B) $15\ cm^3$ (C) $20\ cm^3$ (D) $25\ cm^3$

10. Lise of the Data Booklet is relevant to this question. A substance X was found to contain 72% carbon, 12% hydrogen and 16% oxygen. What is the empirical formula of X?

    (A) C_2H_4O (B) C_3H_6O (C) $C_6H_{12}O$ (D) $C_6H_{12}O_2$

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