

1) Since sodium is an active metal it

- (A) occurs free in nature.
- (B) forms ions readily.
- (C) gains electrons readily.
- (D) forms unstable compounds.
- (E) liberates oxygen when it reacts with water.

2) What gas is released when a piece of zinc, Zn, is dropped into hydrochloric acid, $\text{HCl}_{(aq)}$?

- (A) chlorine, Cl_2 (B) hydrogen chloride, HCl (C) hydrogen, H_2 (D) zinc chloride, ZnCl_2

3) One liter of a certain gas has a mass of 4 g at STP. From this fact, it follows that

- (A) the gas is helium.
- (B) the molar mass of the gas is $4 \text{ g}\cdot\text{mol}^{-1}$.
- (C) the molar mass of the gas is $89.6 \text{ g}\cdot\text{mol}^{-1}$
- (D) 6×10^{23} molecules of the gas have a mass of 4 g.
- (E) there are two atoms in each molecule of the gas.

4) A sample of sulfur dioxide gas has a mass of 16 g. The mass of the same number of molecules of nitrogen gas is?

- (A) 7 g (B) 14 g (C) 16 g (D) 28 g (E) 56 g

5) Classify solid sodium bromide, NaBr , according to its structure.

- (A) ionic solid (B) hydrogen-bonded solid (C) metallic solid (D) covalent network solid

6) Covalent bonds are most likely to be found in the compound represented by the formula

- (A) NaCl (B) KBr (C) CH_4 (D) H (E) CaF_2

7) Which molecule is essentially nonpolar?

- (A) CH_4 (B) HCl (C) HBr (D) H_2O (E) NH_3

8) The percentage of nitrogen in NH_4NO_3 is

- (A) 17.5% (B) 22.2% (C) 28.0% (D) 35.0% (E) 57.5%

9) The number of grams of oxygen in 1.5 mol of atmospheric oxygen is

- (A) 12 g (B) 16 g (C) 24 g (D) 32 g (E) 48 g

10) What is the formula of chromium(III) sulfide?

- (A) CrS_3 (B) Cr_2S_3 (C) Cr_3S_2 (D) Cr_3S