Name: **MC Practice #4**

1. Which nuclide is listed with its half-life and decay mode?

   (A) K-37, 1.24 h, α **(B) N-16, 7.2 s, β^-**

   (C) Rn-222, 1.6 x 10^3y, α (D) U-235, 7.1 x 10^8 y, β^-

2. The table below shows the number of subatomic particles in atom *X* and in atom *Z*.

Subatomic Particles in Two Atoms

Atom	Number of Protons	Number of Neutrons	Number of Electrons
X	6	6	6
Z	6	7	6

   Atom *X* and atom *Z* are isotopes of the element

   (A) aluminum **(B) carbon**

   (C) magnesium (D) nitrogen

3. The greatest composition by mass in an atom of $^{17}_{8}O$ is due to the total mass of its

   (A) electrons **(B) neutrons** (C) positrons (D) protons

4. The bond between which two atoms is most polar?

   (A) Br and Cl (B) Br and F

   (C) I and Cl **(D) I and F**

5. In the formula $X_2(SO_4)_3$, the *X* represents a metal. This metal could be located on the Periodic Table in

   (A) Group1 (B) Group 2 **(C) Group 13** (D) Group 14

6. At STP, which element is solid, brittle, and a poor conductor of electricity?

   (A) Al (B) K (C) Ne **(D) S**

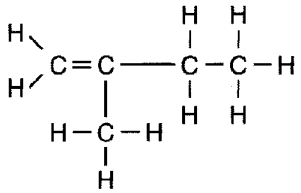
7. Given the balanced equation representing a reaction:

$$2NaCl(\ell) \rightarrow 2Na(\ell) + Cl_2(g)$$

   A 1170.-gram sample of $NaCl(\ell)$ completely reacts, producing 460. grams of $Na(\ell)$. What is the total mass of $Cl_2(g)$ produced?

   (A) 355 g **(B) 710. g** (C) 1420. g (D) 1630. g

8. Given the formula representing a hydrocarbon:



   The molecular formula and the empirical formula for this hydrocarbon are

   (A) C_5H_{10} and CH_2 (B) C_5H_{10} and CH_3

   (C) C_4H_8 and CH_2 (D) C_4H_8 and CH_3

9. Which element forms an ionic compound when it reacts with lithium?

   (A) K (B) Fe (C) Kr **(D) Br**

10. Given the formula representing a molecule:

$$H - C \equiv C - H$$

    The molecule is

    (A) symmetrical and polar **(B) symmetrical and nonpolar**

    (C) asymmetrical and polar (D) asymmetrical and nonpolar

Answer Key
SPARK: MC Practice #4

1. **B**
2. **B**
3. **B**
4. **D**
5. **C**
6. **D**
7. **B**
8. **A**
9. **D**
10. **B**