

SUBATOMIC PARTICLES AND ISOTOPE

1. Isotopes of a given element contain

- (A) Same number of neutrons but different number of protons
- (B) Same number of neutrons and protons
- (C) Same number of protons but a different number of neutrons
- (D) Same number of protons but a different number of electrons

2. An atom with 29 protons and 36 neutrons is an isotope of

- (A) Si
- (B) Cu
- (C) Kr
- (D) Cl

3. Carbon exists as three naturally occurring isotopes: C-12, C-13 and C-14. As the number of neutrons increases in the isotope, the nuclear charge

- (A) increases
- (B) decreases
- (C) remains the same

4. An atom of an element is electrically neutral because the

- (A) Number of protons equals the number of electrons
- (B) Number of protons equals the number of neutrons
- (C) Number of neutrons equals the number of electrons

5. What is the nuclear charge of an atom of nitrogen-14?

- (A) +14
- (B) +7
- (C) 0
- (D) +6

6. Calculate the average atomic mass of chromium from the following given percent abundances and isotope masses: 4.350 % - 49.946 amu; 83.790% - 51.941 amu; 9.500% - 52.941 amu and 2.360% - 53.939 amu.

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Answers

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Isotope 1: 4.350% abundance, 49.946 amu

Isotope 2: 83.790% abundance, 51.941 amu

Isotope 3: 9.500% abundance, 52.941 amu

Isotope 4: 2.360% abundance, 53.939 amu

Average Atomic Mass = $(0.0435 \times 49.946 \text{ amu}) + (0.8379 \times 51.941 \text{ amu}) + (0.095 \times 52.941 \text{ amu}) + (0.0236 \times 53.939 \text{ amu}) = 52.004 \text{ amu}$