

Multiple Choice: (4 points each. Put answers in left margin as capital letters.)

- Which of the following elements should have the lowest density?
A) argon B) chlorine C) magnesium D) sodium E) sulfur
2. A block has a temperature of 175 °C. What is its temperature in °F?
A) 65 B) 129 C) 283 D) 347 E) 448
- How many significant digits are in the answer to the problem $(2050 + 147.0) + 12$?
A) 1 B) 2 C) 3 D) 4 E) 5
- Which of the following is a chemical property?
A) density C) rusting E) weight
B) malleability D) solubility
- Which of the following indicates that light has been added to a reaction mixture when written above the reaction arrow?
A) Δ B) λ C) $h\nu$ D) light E) photon
- 1.95 kJ of heat is required to raise the temperature of 500 g of lead from 15° C to its final temperature. Taking the specific heat capacity of lead to be 130 J/(kg•°C), the final temperature is:
A) 22.5 °C C) 37.5 °C E) None of these
B) 30 °C D) 45 °C
- Which of the following particles would have the strongest repulsion to the Ca^{2+} ion?
A) Al^{3+} B) Br^- C) Na^+ D) O^{2-} E) S^{2-}
- The correct number of protons, neutrons, and electrons in P^+ (P-31) is:
A) 15p, 16n, 14e C) 16p, 16n, 15e E) 16p, 16n, 17e
B) 15p, 16n, 16e D) 16p, 15n, 16e
- Which of the following is a simple ion?
A) NO B) NO_3^- C) N_3^- D) N^{3-} E) N
- What is the charge on phosphorus in $\text{Cr}(\text{PO}_4)_2$?
A) +1 B) +2 C) +3 D) +4 E) +5

11. Which of the following elements can form cations of only one charge (+2)?

- A) Cr B) Fe C) Sc D) Zn E) Zr

12. Identify the sulfite ion:

- A) SO^{2-} B) SO_3^- C) SO_4^- D) SO_3^{2-} E) SO_4^{2-}

Discussion Questions:

1. Define: (4 points each)

kinetic energy –

mass number –

isotope–

Fill-in-the-blanks (4 points each)

1. A proton weighs roughly _____ times more than an electron.

2. Provide an English/metric conversion factor for **mass**: _____

3. _____ bromine trichloride, Cl_2O_7 _____

4. _____ magnesium iodide, CoSO_4 _____

5. _____ methane, HClO_2 _____

6. Consider the oxyacids of the halogens (e.g. HClO_2). How does fluorine differ from the other halogens? (Answer in one, short sentence.)

7. In general, systems become _____ stable when energy is added to them.

