

Chemistry Regents "Must Know" Facts

- 1) Substitute the word " _____ " for "average kinetic energy" to make questions easier.
- 2) Sublimation is a phase change from a _____ directly to a _____. 2 examples = _____ and _____
- 3) Solutions containing ions of transition elements (groups _____ - _____) are often _____. Ex. = _____
- 4) Only two elements exist as liquids at STP. _____ (metal) & _____ (non-metal)
- 5) Elements are arranged in the periodic table according to their atomic _____.
- 6) The atomic mass of an element is the _____ average of the element naturally occurring _____
- 7) The mass # of an atom is found by adding the number of _____ + _____
- 8) One atomic mass unit (1 amu) is defined as exactly $1/12$ the mass of _____
- 9) Atoms that become ions by losing electrons _____ in size while those that gain e^- _____.
- 10) The nuclear charge of an atom is the same as its number of _____.
- 11) The nucleons of an atom are those particles found in the _____ (i.e., _____ & _____)
- 12) Molecular substances generally contain only _____ bonds, have _____ m.p.'s and are _____.
- 13) Molecules with polar bonds may be non-polar because their shapes are _____.
- 14) Carbon dioxide has _____ bonds and is _____ because it is symmetrical (shape = _____)
- 15) Memorize the 7 elements that are diatomic:
- 16) Memorize: 1 mole = _____ molecules = _____ grams = _____ liters (if it is a gas at STP).
- 17) Water, NH_3 and HF have unusually high boiling points due to strong intermolecular forces (____ bonds)
- 18) Network solids contain _____ bonds, have _____ m.p.'s and are very _____. Ex = _____
- 19) Elements in the same group have _____ chemical properties b/c they have the same # of _____
- 20) Elements in the same period have the same # of _____
- 21) Metallic elements generally obtain a complete octet by _____ electrons
- 21) The most metallic elements are located in the _____ region of the periodic table
- 23) Metals are good conductors of heat and electricity because of their "Sea of mobile _____"
- 24) Group 1 & 2 metals are so reactive they are not found free in nature and must be obtained by _____
- 25) Semi-metals are located _____ and exhibit _____ and _____ properties
- 26) Gases behave most like ideal gases under conditions of _____ temp and _____ pressure
- 27) The two gases that behave most like ideal gases under any conditions are _____ and _____.
- 28) An electrolyte is a substance that is capable of _____ when dissolved in water.
- 29) Three examples of electrolytes are _____, _____ and _____.
- 30) Salts contain _____ bonds and are easily identified b/c they contain a _____ and _____.
- 31) Memorize and know the significance of: LEO - GER and RED CAT - AN OX.
- 32) Saturated hydrocarbons only contain the elements _____ & _____ and have all _____ bonds.
- 33) Chemical reactions are spontaneous when they are _____ and entropy _____.
- 34) All reactions (especially redox reactions), there must be conservation of _____ and _____.

- 35) Be able to distinguish (and draw) the differences between elements, compounds & mixtures.
- 36) When one element changes into another, the process is known as _____.
- 37) Isotopes of all elements with atomic #'s greater than ____ are radioactive and _____ over time.
- 38) Alpha decay & beta decay are examples of _____ transmutation.
- 39) Fission and Fusion both release very large amounts of energy due to the conversion of _____ to _____.
- 40) Intermolecular forces (_____ forces) between hydrocarbons are generally (*strong / weak*).
- 41) Larger hydrocarbons have (*stronger/weaker*) van der Waals forces and _____ m.p.'s & b.p.'s.
- 42) Polar solutes generally dissolve in _____ solvents. The most common polar solvent is _____.
- 43) As the concentration of dissolved particles in solution increases, the b.p. _____ and m.p. _____.
- 44) Ionic solutes affect the m.p. and b.p. to a greater extent than molecular solutes b/c they _____ in H₂O.
- 45) Electrons must _____ energy to move to the excited state & release energy to move to the _____ state.
- 46) Rutherford's Gold-Foil Experiment revealed an atom is made of mostly _____.
- 47) Equilibrium exists when the _____ of forward and reverse reactions are equal.
- 48) When a system is at equilibrium, the concentration of reactants and products are _____.
- 49) Electronegativity is a measure of an atom's attraction for _____.
- 50) Ionization energy is the energy required to _____ an electron from an atom.

Strategies for answering multiple-choice questions

- Many questions/answers have 2 components. Answer them one at a time.
- Eliminate incorrect/inconsistent choices immediately.
- Don't pick answers that you have never heard of.

Blind Guessing & Reaffirmation of answers

- The correct answer to a multiple-choice question is often significantly different from the other 3 choices.
- The correct answer to a multiple-choice question is often at one extreme of a sequence.

General Advice for Parts B-2 and C

- Read Instructions carefully. Answer the question that is being asked.
- When questions include *italics*, be sure to account for the *italicized* word/phrase in your answer.
- Write legibly! Answers that cannot be read, will not earn points!
- Don't write too much. Answer only the question that is being asked.
- When given reading passages, try to answer the questions with words from the passage itself.
- Do not solve mathematical problems that only ask for a correct setup.