# Regents Review Jun15 26-50 ANSWERS

| 26 | 2 | Vocab. Equilibrium means the rate of the forward reaction = the rate of the reverse. Everything changes, but stays the same. |
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| 27 | 1 | pH is the measure of the $H^{+1}$ ion concentration (a log scale, but a measure of acidity or basic quality) |
| 28 | 3 | Acid base neutralization in the lab requires you to titrate with the burets. |
| 29 | 4 | Penetration is alphabetical in Greek letters, GAMMA is strongest, then BETA, the weakest is ALPHA |
| 30 | 1 | A big atom breaks into smaller atoms is a FISSION reaction. Fusion is small atoms fusing into large. 3 + 4 are physical changes |
| 31 | 3 | Radium is in Period 7, it has 7 orbitals. Valence electrons are in the valence orbital, the 7th one in this case. |
| 32 | 2 | Atoms have a set number of protons. Different numbers of neutrons = isotopes of that atom. Here there are 2 isotopes of each atom, hydrogen with 1 proton, and helium with 2. Two kinds of elements, 2 isotopes of each. |
| 33 | 4 | There are NO unknown elements called "X", the elements are ALL KNOWN. Chlorine is in group 17, all atoms similar to chlorine are also in group 17, and all have 7 valence electrons in the valence (outermost) orbital. |
| 34 | 3 | LOOK. Metalloids touch the staircase on the periodic table. 9 atoms touch (Al and Po are exceptions) |
| 35 | 1 | Ions get brackets. F has 7 electrons as an atom, it GAINS 1 electron, when it becomes the $F^{-1}$ anion. |
| 36 | 1 | Again, NO "X" atoms. We need an atom here that can make 4 bonds, it has to be carbon. |
| 37 | 2 | It's not a diagram, and it's not empirical. This compound has an empirical formula of $CH_2$ |
| 38 | 3 | Set mole ratio Al to Oxygen from formula, 4:3  Then make it X:4.5, finish by cross multiplying, and solve for moles of Al |
| 39 | 4 | % comp by mass = [mass of part that's oxygen divided by mass of whole compound] X100%. So, [96/164]X100% = 58.5% |
| 40 | 1 | 2 or more smaller reactants forming into a larger product  (sometimes this is combination reaction too, vocab) |
| 41 | 2 | Molecular compounds have NO metals. Here, the metals are Ca, Li, and Mg |
| 42 | 4 | The difference here is the PHASE. Solid NaCl won't conduct, melted Liquid NaCl will. The others are all the same |
| 43 | 3 | Adding water will change density (D=mass/volume), change BP (less ions per liter), and change the % mass of water too |
| 44 | 2 | Table F. But "most" is misleading. The 3 compounds, BaS, $CaCO_3$, and $BaSO_4$ are INSOLUBLE in water. $Ba(OH)_2$ is soluble |
| 45 | 1 | Colder = lower kinetic energy, less motion; therefore less collisions and weaker collisions |
| 46 | 2 | Constant pressure, so $[V_1/T_1] = [V_2/T_2]$  =  [50.0L/303K] = [$V_2$/273K]  cross multiply, solve, $V_2$ = 45.0 liters |
| 47 | 4 | Heat of reaction is $\Delta H$, the difference in energy between reactants and products.  Here it's a $+\Delta H$, endothermic. |
| 48 | 3 | The number in front of an organic molecule tells the LOCATION of the functional group.  Here that's an  alcohol "—OH" group |
| 49 | 4 | Clearly the larger the molecule (the more carbon atoms) the higher the BP. Meth = 1 C, Eth = 2 C, Prop = 3 C, But = 4 C, Pent = 5C |
| 50 | 2 | Reaction time drops (rate increases) with higher concentration of acid, there will be more collisions per second |