

## AR Chemistry: Final Exam Review

### Semester 2, Second Exam, Part A

#### (Sections 3 and most of 4)

#### ANSWERS

1. Pressure = Force / Area
2. 1 atm, 14.7 lbs/in<sup>2</sup>, 760. mm Hg, 101.3 kPa
3. 0 C, 273 K
4. 22.4 L
5. curved, ½ of a hyperbola
6. straight line
7. straight line
8. Kelvin (absolute zero)
9. 273
10. 18.7
11. solute
12. solvent
13. ions (charged particles)
14. whole neutral molecules
15. Metal, NH<sub>4</sub>, or H
- 16a. 2
- 16b. 3
- 16c. 1
- 16d. 2
- 16e. 1
- 16f. 3
17. 3.0 M
18. 8.0 moles
19. 4.0 L
20. exothermic
21. endothermic
22. negative
23. positive
- 24a. endothermic
- 24b. exothermic
- 24c. endothermic
- 24d. exothermic
- 24e. endothermic
- 25a. E<sub>a</sub> = +50, ΔH = +20
- 25b. E<sub>a</sub> = +20, ΔH = -20
26. energy to melt / freeze: 80 cal / g
27. energy to boil / condense: 540 cal / g
28. energy to raise 1 gram of material 1 degree C  
1.00 cal / gC
29. 5000 cal
30. 2400 cal
31. 10800
32. H<sup>+</sup> or H<sub>3</sub>O<sup>+</sup>
33. OH<sup>-</sup>
- 34a. acid
- 34b. acid
- 34c. base
- 34d. base
- 34e. acid
- 34f. base
- 34g. base
- 34h. acid
35. NaCl + Heat
36. 1.0 x 10<sup>-14</sup>
37. pH = -log[H<sup>+</sup>], pOH = -log[OH<sup>-</sup>]
- 38a. 10<sup>-10</sup>
- 38b. 4
- 38c. acid
39. 1000 more concentrated H<sup>+</sup>
40. 0.067 M
41. concentration, surface area, temperature,  
catalysts
42. 6 times faster
43. 30 times faster
44. For each 10 degree change in temperature the  
reaction rate doubles (or halves)
45. Activation Energy (E<sub>a</sub>)
46. Activated Complex
47. enough energy (E<sub>a</sub>) and correct alignment
48. 4 times faster
49. lowers the E<sub>a</sub>
- 50a. shifts to the right
- 50b. shifts to the right
- 50c. doesn't shift
51. performance / time
52. M / sec