

## Review Packet Answer Key

### Solutions (Topic 7 in your review book)

- |      |       |
|------|-------|
| 1. 3 | 10. 3 |
| 2. 2 | 11. 4 |
| 3. 3 | 12. 3 |
| 4. 4 | 13. 2 |
| 5. 1 | 14. 3 |
| 6. 3 | 15. 4 |
| 7. 4 | 16. 4 |
| 8. 2 | 17. 4 |
| 9. 1 | 18. 2 |

19. The water molecules should be shown with their positive ends near the negatively charged  $\text{Cl}^-$  ion, or in other words, the hydrogen ends should be closest to the  $\text{Cl}^-$  ion.

20. This point when plotted falls below the solubility curve, so the solution is **unsaturated**.

21.  $\text{O}_2$  has a low solubility due to the fact that  $\text{O}_2$  molecules are nonpolar and water molecules are polar, hence they have little ability to attract each other, so  $\text{O}_2$  does not dissolve well.

22. Use the parts per million equation from Table T:

$$\text{ppm} = (0.0070 \text{ g}/1000.0070 \text{ g}) \times 1,000,000 = 7 \text{ ppm}$$

23. Pressure has **no effect** on the solubility of  $\text{KNO}_3$  (solid). Pressure over a solution only affects the solubility of gaseous solutes like  $\text{CO}_2$ .

24. At  $15^\circ\text{C}$ , the solubility of  $\text{KNO}_3$  is 30 g per 100 g of water. Since 65 grams of  $\text{KNO}_3$  are present in the system,  $(65-30) = 35 \text{ g}$  of  $\text{KNO}_3$  will settle to the bottom.

25. The “-ol” suffix on the name “1,2-ethanediol” tips you off that this compound is an **alcohol**.

26. Since water is polar, the fact that 1,2 ethanediol mixes well with water implies that the **molecules of 1,2 ethanediol are also polar**.

27. Use the “moles” equation from Table T:

$$\text{Moles} = 6690/62 = 108 \text{ moles}$$

28. Use the parts per million equation from Table T:

$$300 \text{ ppm} = (\text{mass of solute}/1000 \text{ g of solution}) \times 1,000,000$$

$$\text{Mass of KOH} = 0.300 \text{ grams}$$

29.  $97^\circ\text{C}$