

Aprenda Chemistry
proudly presents...

Solutions

Flash Cards

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Odd Answer

1. °F, Freezing: 32, Boiling: 212

1. Compare freezing and boiling points of water in the following temperature scale. (Fahrenheit)

3. K, Freezing: 273, Boiling: 373

2. Compare freezing and boiling points of water in the following temperature scale. (Celsius)

5. A sharply defined, uniform region in a mixture. Examples- oil and vinegar in salad dressing; ice and water in a frozen pond.

3. Compare freezing and boiling points of water in the following temperature scale. (Kelvin)

7. A process to separate water from its solutes. Water flows through resins which absorb the ions.

4. List the 3 states of matter in order of increasing density.

9. The number of moles of solute in a liter of solution.

5. What is phase?

Even Answers

6. Define ionic hydride and give examples.

2. °C, Freezing: 0, Boiling: 100

7. Define deionization.

4. Gas: neither definite shape nor volume. Liquid: definite volume; takes shape of container. Solid: definite size and shape.

8. What is distillation?

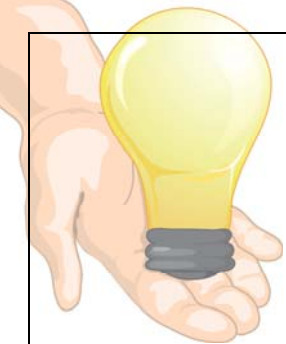
6. Hydrogen combines with active metals to form ionic compounds where the valence of hydrogen is -1. (NaH, CaH₂, LiH)

9. What is molarity?

8. A process used to separate a mixture based on different boiling points of the components. Components are separately vaporized then condensed.

10. Define solute. Give an example.

10. The substance dissolved in another (solvent). Salt is the solute in salt water.



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Odd Answer

11. A substance, usually a liquid, into which another substance (solute) is dissolved. Water is the solvent in iced tea.

11. Define solvent. Give an example.

13. $M = n/L$; molarity = $5/25 = 1/5 = 0.2M$

12. Define solution and give an example.

15. Non-metallic oxides which when reacted with water, form acid solutions. Example: $CO_2 + H_2O \leftrightarrow H_2CO_3$

13. Calculate the molarity when 5 moles of NaCl is dissolved in 25 liters of water to make salt water.

17. Due to hydrogen bonding, water is polar. The negative charge on oxygen attracts a cation and the positive charge on hydrogen an anion.

14. Calculate the moles of NaCl in 5 liters of a 2 molar solution.

19. Solubility usually increases with increasing temperature. Pressure has little effect.

15. What is acid Anhydride?

Even Answers

16. What is basic anhydride?

12. A liquid, gas or solid phase containing two or more components uniformly dispersed. (air, coffee, saltwater)

17. Why is water a good solvent for ionic compounds?

14. $M = n/L$; $2 M = n/5 L$; $10 = \text{moles of NaCl}$

18. What are solubility curves?

16. Metallic oxides which when reacted with water, form basic solutions.

19. How do temperature and pressure affect the solubility of a solid?

18. A curve for a given substance which shows how much dissolves in a given amount of solvent at different temperatures.

20. How do temperature and pressure affect the solubility of a gas?

20. Solubility usually decreases with decreasing temperature. Solubility increases in direct proportion to an increase in pressure.



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Odd Answer

21. pulverizing, stirring, heating

21. What three factors affect the rate of solubility?

23. all are soluble.

22. What is a general rule for solubilities of polar and nonpolar compounds?

25. All chlorides are soluble except Ag, Hg, Pb.

23. State the solubility rules of nitrates, acetates, chlorates in water.

27. All insoluble except Na, K, NH_4^+ .

24. State the solubility rules of Na, K, and NH_4^+ compounds in water.

29. A dissolved ion which is surrounded by water molecules. It is attracted electrostatically to the polar water molecule.

25. State the solubility rules of chlorides in water.

Even Answers

26. State the solubility rules of sulfates in water.

22. "Like dissolves like." Ionic and polar solvents dissolve ionic, polar solutes. (water dissolves salt)
Nonpolar solvents dissolve nonpolar solutes. (acetone dissolves gasoline)

27. State the solubility rules of carbonates, phosphates, sulfides, silicates in water.

24. all are soluble

28. State the solubility rules of hydroxides (OH^-) in water.

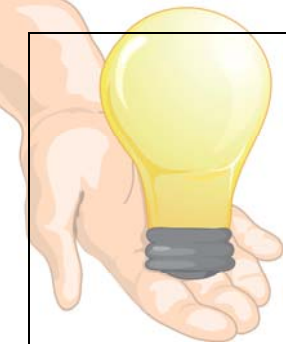
26. All sulfates are soluble except Pb, Ba, Sr, Ca.

29. What is a hydrated ion?

28. All insoluble except Na, K, NH_4^+ , Ca, Ba, Sr

30. What is Miscible?

30. Two liquids which dissolve in each other.
Example: water and alcohol.



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Odd Answer

31. Two liquids which do not dissolve in each other. Example: oil and vinegar.

31. What is immiscible?

33. 1) particles measure 1-1000 nanometers 2) particles don't pass through a membrane 3) show Brownian motion and the Tyndall effect 4) particles don't settle 5) clear and pass through filter paper

32. List some basic facts about solutions.

35. When light is shone through a colloid, the individual zig-zag paths of the particles in the dispersing medium can be observed. (like smoke in a dark theater)

33. List some basic facts about colloids.

37. Large amount of solute in the solvent.

34. List some basic facts about suspensions.

39. More solute can be dissolved in the solvent at that temperature.

35. What is Brownian motion?

Even Answers

36. What is dilute?

32. 1) particle size less than 1 nanometer 2) clear (may be colored) 3) particles don't settle 4) can pass through membranes 5) particles not visible

37. What is concentrated?

34. 1) no Brownian motion 2) don't pass through filter paper or a membrane 3) cloudy but particles settle on standing 4) particles visible with microscope or eye

38. What is saturated?

36. Small amount of solute in the solvent.

39. What is unsaturated?

38. The solution is holding all the solute possible at that temperature; in the presence of undissolved solute.

40. What is supersaturated?

40. Created by cooling a saturated solution. If cooled slowly the solute stays dissolved. The amount of solute in the solution is greater than the solubility at a given temperature.



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Odd Answer

$$41. \% \text{ Concentration} = (g_{\text{solute}}/g_{\text{solution}})(100\%)$$

41. State the formula for percent concentration of a solute in a solution (weight/weight).

43. The number of moles of solute dissolved in 1 kg of solvent. Molarity (m) = moles solute/ kg solvent

42. How many grams of NaCl are required to prepare 500g of a 5% solution?

45. The amount of substance which reacts with or displaces 1 mole of H⁺ ions.

43. What is molality?

$$47. M_1 \times V_1 = M_2 \times V_2; M = \text{molarity}, V = \text{volume}$$

44. Calculate the molality of 10 moles of H₂SO₄ dissolved in 4 kg of water.

49. Properties of solutions that depend primarily on the concentration of solute and not on the type of particle.

45. What is gram-equivalent weight?

Even Answers

46. What is normality?

$$42. \% \text{ Concentration} = (g_{\text{NaCl}}/g_{\text{solution}})(100\%); 5\% = (x/500g)(100\%); x = 25 \text{ g NaCl}$$

47. State the formula for molarity changes related to diluting a solution.

$$44. \text{ molality} = \text{moles solute}/ \text{kg solvent}; = 10/4 = 2.5 \text{ molal}$$

48. 10 liters of a 6 molar solution is diluted to 3 molar. What is the final volume?

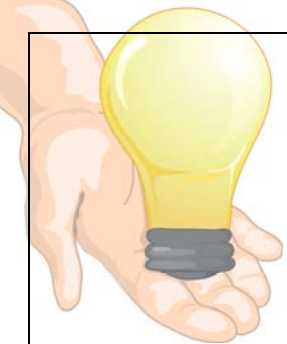
46. The number of gram-equivalent weights in a liter of solution.

49. What is colligative properties?

$$48. M_1 \times V_1 = M_2 \times V_2; (6) \times (10) = (3) \times V_2; V_2 = 20 \text{ liters}$$

50. State three basic colligative properties of solutions?

50. 1) Vapor pressure lowering 2) Boiling point elevation 3) Freezing point depression



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Odd Answer

51. 1.86°C for each molal of particles of solute.

51. In H₂O solutions - How many °C is the freezing point depressed for each molal of solute?

53. An equilibrium exists in a saturated solution between dissolved and undissolved solute. "K_{sp}" is the equilibrium constant for this reaction.

52. In H₂O solutions - How many °C is the boiling point depressed for each molal of solute?

55. Each molecule of BaSO₄ that ionizes produces equal concentrations of ions; therefore: [Ba⁺²] = [SO₄⁻²]; K_{sp} = [Ba⁺²][SO₄⁻²] = [2 × 10⁻⁵] [2 × 10⁻⁵] = 4 × 10⁻¹⁰

53. Define solubility product constant –K_{sp}.

57. According to the common ion effect, the reverse reaction will speed up, consuming Na⁺ and Cl⁻, and more NaCl will be formed.

54. State the solubility product expression for AgCl ↔ Ag⁺ + Cl⁻.

59.

55. In a standard solution of BaSO₄; [Ba²⁺] = 2 × 10⁻⁵, find K_{sp}.

Even Answers

56. What is common ion effect?

52. 0.51°C for each molal of particles of solute.

57. NaCl ↔ Na⁺ + Cl⁻; what happens when Cl⁻ is added to this system at equilibrium?

54. K_{sp} = [Ag⁺][Cl⁻]

58.

56. When an ionization reaction is at equilibrium and some additional ion is added, the reverse reaction rate increases to consume the added ion.

59.

58.

60.

60.