

8. A sample of carbon dioxide gas occupies 525 mL at 2.00 atm. If the volume is changed to 325 mL, what will be the pressure of this gas?

- a. 3.23 atm b. 1.24 atm c. 0.808 atm d. 0.310 atm

9. A sample of intestinal gas was found to contain 44% CO₂, 39% H₂, 16% N₂ and 1% O₂. What is the partial pressure of N₂ if the total pressure of the intestines is 830 mmHg?

- a. 122 mmHg b. 133 mmHg c. 952 mmHg d. 324 mmHg

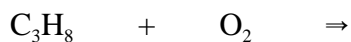
10. The solubility of a gas in a liquid

- a. increases with volume
b. decreases with volume
c. increases with temperature
d. decreases with temperature

11. Using general solubility rules, which one of the following is soluble in water?

- a. ZnCO₃ b. BaSO₄ c. CuCl₂ d. Li₂SO₄

12. Complete and balance the following equation:



13. What is the oxidation state of C in HCOOH?

- a. +4 b. +3 c. +2 d. +1 e. 0 f. -1 g. -2 h. -3 i. -4

14. In which of the following is hydrogen bonding not a factor?

- a. H₂O c. HF e. CH₃OH
b. NH₃ d. CCl₄ f. CH₃NH₂

15. What type of intermolecular attractions exist between HCl molecules?

- a. covalent bonds b. dipole forces c. hydrogen bonds d. dispersion forces

16. Bugs can walk on water because of water's

- a. high heat of vaporization
- b. high surface tension
- c. low heat of vaporization
- d. low surface tension

17. The vapor pressure of a liquid

- a. increases with temperature
- b. decreases with temperature
- c. remains the same

18. Water is a polar solvent. Which of the following is not very soluble in water?

- a. NaOH
- b. $(\text{NH}_4)_2\text{SO}_4$
- c. NH_3
- d. I_2

19. How many grams of NaCl (molecular weight 58.5) are required to prepare 250 mL of a 0.250 M solution?

- a. 3.66 g
- b. 936 g
- c. 1000 g
- d. 0.00107 g

20. What is the percent by mass of 10.0 g of NaCl dissolved in 100 g of water?

- a. 10.0 %
- b. 5.85 %
- c. 0.110 %
- d. 9.09 %

21. How many particles does each formula unit of $\text{Al}(\text{NO}_3)_3$ provide in solution?

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5
- f. other: _____

22. What is the osmolarity of 0.60 M Na_3PO_4 solution?

- a. 0.15 osmol/L
- b. 2.4 osmol/L
- c. 0.60 osmol/L
- d. 4.2 osmol/L

23. Which of the following solutions has the highest osmotic pressure?

- a. 2 M $\text{C}_6\text{H}_{12}\text{O}_6$
- b. 1.5 M NaCl
- c. 0.5 M $\text{Ca}(\text{NO}_3)_2$
- d. 2.5 M $\text{C}_6\text{H}_{12}\text{O}_6$

24. Which type of membrane allows only water molecules to pass through?

- a. colloidizing
- b. semipermeable
- c. dialyzing
- d. molecularizing

25. How many calories are required to raise the temperature of 45 g of water at 35°C to steam at 100°C?

Specific heat of ice = 0.50 cal/g °C
Specific heat of water = 1.00 cal/g °C

Heat of vaporization of water = 540 cal/g
Heat of fusion of water = 80 cal/g

WM 12/07/06