Sturman

Answer Ranges

Name _____ Date _____ Class _____

16-2 Practice Problems

1. What is the molarity of the solution produced when 145 g of sodium chloride (NaCl) is dissolved in sufficient water to prepare 2.75 L of solution?

0.8 - 1.0

2. How many grams of potassium chloride (KCl) are needed to prepare 0.750 L of a 1.50 *M* solution of potassium chloride in water?

80 - 85

3. What is the molarity of the solution produced when 85.6 g of hydrochloric acid (HCl) is dissolved in sufficient water to prepare 0.385 L of solution?

6.0 - 6.2

4. To produce 3.00 L of a 1.90 *M* solution of sodium hydroxide (NaOH), how many grams of sodium hydroxide must be dissolved?

220 - 230

5. If 8.77 g of potassium iodide (KI) are dissolved in sufficient water to make 4.75 L of solution, what is the molarity of the solution?

0.01 - 0.02

6. In order to prepare 2.00 L of a 3.00 *M* solution of ferric chloride ($FeCl_3$), how many grams of ferric chloride must be used?

970 - 980

7. What is the molarity of the solution produced when 14.1 g of ammonia (NH_3) is dissolved in sufficient water to prepare 0.100 L of solution?

8.1 - 8.3

8. To prepare 10.5 L of a 2.50 *M* solution of potassium hydroxide (KOH), how many grams of potassium hydroxide must be used?

1400 - 1500

9. What is the molality of a solution containing 75.2 g of silver perchlorate ($AgClO_4$) dissolved in 885 g of benzene?

0.40 - 0.45

10. What is the molality of a solid solution containing 0.125 g of chromium and 81.3 g of iron?

0.028 - 0.030

11. If 18.6 g of methanol is used to dissolve 2.68 g of $Hg(CN)_2$, what is the molality of the solution?

0.55 - 0.59

12. What is the molality of solid solder wire if it is made from 68.7 g of lead dissolved in 117 g of tin?

2.8 - 2.9

Sturman

Answer Ranges, continued

Name _____ Date _____ Class _____

16-2 *Practice Problems (continued)*

13. What is the molality of a solution made by dissolving 8.11 g of potassium sulfide (K_2S) in 47.6 g of ethanol?

1.5 - 1.6

14. What is the molality of a solution containing 1330 g of methanol (CH_3OH) and 16.6 g of sodium bromide (NaBr)?

0.11 - 0.13

15. What is the molality of a solid solution containing 867 g of aluminum and 14.9 g of copper?

0.25 - 0.29

16. Calculate the molality of a solution produced using 15.2 g of calcium chloride ($CaCl_2$) and 345 g of methanol (CH_3OH).

0.39 - 0.41

17. In order to prepare a 0.523 *m* aqueous solution of potassium iodide (KI), how many grams of potassium iodide must be added to 2.00 kg of water?

170 - 180

18. A gas mixture contains 45.6 g of carbon monoxide and 899 g of carbon dioxide. What is the mole fraction of carbon monoxide?

0.07 - 0.08

19. A gas mixture contains the following gases with the mole fractions indicated: CH_4 (0.510), C_2H_6 (0.431), C_3H_8 (0.011), and C_4H_{10} (0.013). The mixture also contains the gas acetylene (C_2H_2). What is the mole fraction of acetylene?

0.03 - 0.04

20. What is the mole fraction of oxygen in a mixture that contains 66.8 g of oxygen, 44.1 g of nitrogen, and 21.5 g of hydrogen?

0.14 - 0.15

21. What is the mole fraction of xenon in a mixture that contains 0.584 g of xenon, 86.40 g of argon, and 3.62 g of neon?

0.0015 - 0.0020

22. A gas mixture contains the following gases with the mole fractions indicated: NH_3 (0.214), Cl_2 (0.452), NH_2Cl (0.118), and N_2 (0.175). The mixture also contains HCl gas. What is the mole fraction of HCl gas?

0.039 - 0.042

23. A gas mixture contains the following gases with the mole fractions indicated: H_2O (0.164), H_2 (0.278), O_2 (0.455), and CO_2 (0.101). The mixture also contains carbon monoxide. What is the mole fraction of carbon monoxide?

0.001 - 0.003

24. A gas mixture contains 70.25 g of steam, 1.470 g of hydrogen, and 6.58 g of nitrogen. What is the mole fraction of steam?

0.7 - 0.9