

This print-out should have 14 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

Mlib 04 4003

17:04, general, multiple choice, > 1 min, fixed.

001

A decrease in temperature usually (increases, decreases, does not change) the solubility of salts in water.

1. decreases
2. does not change
3. increases

Mlib 04 4013

17:05, general, multiple choice, > 1 min, fixed.

002

For gases that do not react chemically with water, the solubility of the gas in water generally (decreases, increases) with an increase in the pressure of the gas and (decreases, increases) with increasing temperature.

1. increases; decreases
2. decreases; increases
3. increases; increases
4. decreases; decreases

Mlib 04 5059

17:08, general, multiple choice, > 1 min, fixed.

003

What is the Tyndall effect?

1. the ability to scatter light
2. the ability to form a gel
3. the ability to exist as a rainbow of colors
4. the ability to make fog

Mlib 50 6006

05:01, general, multiple choice, > 1 min, fixed.

004

Some water is added to an empty glass. A sugar cube is then dropped in and dissolved.

The water is the ? and the sugar is the ?.

1. solution; solute
2. solute; solution
3. solvent; solute
4. solvent; solution
5. acid; base

Brodbelt 03 13

05:03, general, multiple choice, > 1 min, fixed.

005

How many moles of HCl are present in 40.0 mL of a 0.035 M solution?

1. 0.0060 mol
2. 0.0014 mol
3. 0.012 mol
4. 0.0012 mol
5. 0.25 mol

Brodbelt 03 32

05:03, general, multiple choice, > 1 min, fixed.

006

How many grams of CaBr₂ are needed to prepare 4.65 L of a 7.65 M solution?

1. 7110 g
2. 0.00303 g
3. 122 g
4. 0.178 g

5. 4270 g

6. 5.26 g

Mlib 01 1007

05:03, general, multiple choice, > 1 min, fixed.

007

Calculate the molarity of a solution prepared by dissolving 11.5 g NaOH in enough water to make 1.5 L of solution.

1. 0.19 M

2. 7.6 M

3. 0.43 M

4. 2.3 M

Mlib 01 1207

05:07, general, multiple choice, > 1 min, fixed.

008

Find the molality of a solution of 58.5 g NaCl dissolved in 0.556 kg of water.

1. 1.80 *m*2. 105 *m*3. 32.5 *m*4. 0.00946 *m*

ChemPrin3e T08 54

05:07, general, multiple choice, < 1 min, fixed.

009

What is the molality of CrCl₃ in a solution prepared by dissolving 75.2 g chromium(III) chloride hexahydrate in 250.0 g of water.

1. 0.282 *m*2. 1.13 *m*3. 7.60 *m*4. 5.64 *m*5. 1.90 *m*

Mlib 04 5003

18:03, general, multiple choice, > 1 min, fixed.

010

30.2 g of glycerine (C₃H₈O₃) are dissolved in 150 g of water. What is the boiling point of the solution? (*K*_b of water = 0.515°C/*m*)

1. 1.13°C

2. 103.52°C

3. 100.10°C

4. 0.104°C

5. 101.13°C

ChemPrin3e T08 66

18:04, general, multiple choice, < 1 min, fixed.

011

Which of the following has the lowest freezing point and the highest boiling point?

1. 2.0 *m* potassium chloride2. 1.5 *m* magnesium phosphate3. 1.0 *m* sodium chloride4. 1.5 *m* aluminum nitrate5. 1.5 *m* calcium chloride

Mlib 04 5017

18:04, general, multiple choice, > 1 min, fixed.

012

How many grams of methanol (CH₃OH) are needed to lower the freezing point of 400 mL of water by 2.5°C? (*K*_f water = 1.86°C/molality)

1. 17.2

2. 18.3

3. 21.8

4. 9.71

5. 12.8

Mwt fpt dpssn benzene

18:04, general, multiple choice, > 1 min, normal.

013

When 57.5 g of an unknown compound are dissolved in 575 g of benzene, the freezing point of the resulting solution is 1.75°C . The freezing point of pure benzene is 5.48°C , and its freezing point depression constant is $5.12^{\circ}\text{C}/m$. What is the molecular weight of the unknown compound? Answer in units of g/mol.

Msci 14 1111B

18:03, general, multiple choice, > 1 min, fixed.

014

What is the boiling point elevation of a solution of Na_2SO_4 (142.1 g/mol) made by dissolving 5.00 g of Na_2SO_4 in 250 grams of water? Note that $K_b = 0.512^{\circ}\text{C}/m$. Assume 100 percent dissociation.

1. 0.018°C

2. 0.141°C

3. 0.363°C

4. 0.072°C

5. 0.216°C

6. 0.108°C