

This print-out should have 22 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

Mlib 07 0019

23:10, general, multiple choice, > 1 min, fixed.

001

A substance that is composed of a metal plus a hydroxide is

1. an acid.
2. a base.
3. a salt.
4. an oxide.

Mlib 07 0031

23:01, general, multiple choice, > 1 min, fixed.

002

Acids

1. taste bitter.
2. turn litmus paper red.
3. feel slippery and soapy.
4. produce OH^- in solution.

Mlib 72 0613

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

003

The equation for the neutralization of NaOH with HCl is

1. $\text{NaOH} + \text{HCl} \rightarrow \text{NaHCl} + \text{OH}^-$
2. $\text{NaOH} + \text{HCl} \rightarrow \text{HClO} + \text{NaH}$
3. $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
4. $\text{NaOH} + \text{HCl} \rightarrow \text{H}_2\text{OCl} + \text{Na}$

Mlib 76 1405

23:01, general, multiple choice, > 1 min, fixed.

004

Many medicines have a bitter taste which manufacturers attempt to disguise. These medicines are probably

1. bases.
2. acids.
3. salts.
4. neutral.

Mlib 76 1429

23:01, general, multiple choice, > 1 min, fixed.

005

HCN is classified as a weak acid in water. This means that it produces

1. a relatively small fraction of the maximum number of possible hydronium ions.
2. no hydronium ions.
3. a relatively large fraction of the maximum number of possible hydronium ions.
4. 100% of the maximum number of possible hydronium ions.

Sparks ex4 012

23:13, general, multiple choice, < 1 min, fixed.

006

A substance is amphoteric if

1. it can act as either an acid or a base.
2. it contains OH^- .
3. it contains H^+ .
4. it is a strong acid.
5. it is a strong base.

Mlib 07 0049

23:03, general, multiple choice, > 1 min, fixed.

007

An Arrhenius base must contain ? and dissociate in aqueous solutions to produce ? .

1. the hydroxide ion or hydroxyl group; hydroxide ions
2. hydrogen; hydrogen ions
3. an unshared pair of electrons; a nonelectrolytic solution
4. an unshared pair of electrons; an electrolytic solution
5. hydronium ions; a solution whose pH is less than 7.0

Broadbelt 013 408

23:05, general, multiple choice, < 1 min, fixed.

008

What is the conjugate acid of NO_3^- ?

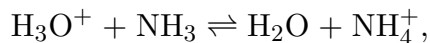
1. HNO_3
2. NO_2^-
3. NH_3
4. OH^-
5. H^+
6. NO_3^{2-}

Broadbelt 10 07

23:05, general, multiple choice, < 1 min, fixed.

009

In the reversible reaction



what two substances act as acids in the Bronsted-Lowry sense?

1. H_3O^+ and H_2O
2. NH_3 and H_2O

3. H_3O^+ and NH_4^+

4. NH_3 and NH_4^+

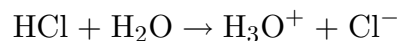
5. some other pair

Mlib 07 0127

23:05, general, multiple choice, > 1 min, fixed.

010

Using the Bronsted-Lowry definition for acids and bases, what is the function of water in the equation



1. acid
2. base
3. salt
4. solvent

Msci 10 0312

23:05, general, multiple choice, > 1 min, fixed.

011

Which is NOT a conjugate acid-base pair?

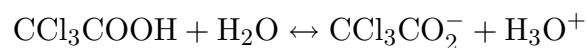
1. H_2SO_4 : SO_4^{2-}
2. H_2 : H^-
3. H_2O : OH^-
4. HCl : Cl^-
5. H_3SO_4^+ : H_2SO_4

Sparks ab 008

23:05, general, multiple choice, < 1 min, fixed.

012

Which statement is true for the following reaction?



1. Cl_3COOH is the conjugate base of $\text{CCl}_3\text{CO}_2^-$.

2. H_2O is the conjugate base of $\text{CCl}_3\text{CO}_2^-$. 1. 3
3. H_3O^+ is the conjugate base of $\text{CCl}_3\text{CO}_2^-$. 2. 7
4. CCl_3COOH is the conjugate acid of $\text{CCl}_3\text{CO}_2^-$. 3. 11
5. H_2O is the conjugate acid of $\text{CCl}_3\text{CO}_2^-$. 4. 4
6. H_3O^+ is the conjugate acid of $\text{CCl}_3\text{CO}_2^-$. 5. Need to know the K_b of NaOH

Mlib 07 0007

23:04, general, multiple choice, > 1 min, fixed.

013

A sample of pure water is neutral because it contains

- only H_2O molecules.
- some hydronium ions.
- some hydroxide ions.
- equal amounts of hydroxide and hydronium ions.

Msci 18 0337

23:04, general, multiple choice, > 1 min, fixed.

014

What is $[\text{H}_3\text{O}^+]$ when $[\text{OH}^-] = 8.1 \times 10^{-5} \text{ M}$?

- $8.1 \times 10^{-9} \text{ M}$
- $1.0 \times 10^{-7} \text{ M}$
- $1.2 \times 10^{-10} \text{ M}$
- $3.5 \times 10^{-6} \text{ M}$
- $8.1 \times 10^{-5} \text{ M}$

Msci 18 0310

23:09, general, multiple choice, > 1 min, fixed.

015

The pH of a 0.001 M NaOH solution is

Msci 18 0306

23:08, general, multiple choice, > 1 min, fixed.

016

The pH of a solution is 4.0. What is the H_3O^+ concentration in this solution?

- $1.0 \times 10^{-4} \text{ M}$
- $4.0 \times 10^{-10} \text{ M}$
- 4.0 M
- $1.0 \times 10^{-10} \text{ M}$

Mlib 07 1053

23:09, general, multiple choice, > 1 min, fixed.

017

If a solution has $[\text{OH}^-] = 10^{-13} \text{ M}$, what would be its pH?

- 1
- 13
- 2
- 12

Mlib 07 1061

23:09, general, multiple choice, > 1 min, fixed.

018

If the pH of a solution is 8, what is the $[\text{OH}^-]$ concentration?

- 10^{-8} mol/L
- 10^{-6} mol/L

3. 10^6 mol/L

4. 10^{-4} mol/L

Mlib 07 1011

23:09, general, multiple choice, > 1 min, normal.

019

A solution has a $\text{pOH} = 8.85$. Find the $[\text{H}_3\text{O}^+]$.

1. Can't get $[\text{H}_3\text{O}^+]$ from pOH

2. 5.15 M

3. 8.85 M

4. 1.41254×10^{-9} M

5. 7.07946×10^{-6} M

6. 8.49535×10^{-6} M

Msci 11 0203

23:14, general, multiple choice, > 1 min, fixed.

020

A 35.0 mL sample of sulfuric acid (H_2SO_4) is neutralized by 25.0 mL of 0.20 M NaOH. Calculate the molarity of the sulfuric acid solution.

1. 0.14 M

2. 0.29 M

3. 0.071 M

4. 0.10 M

5. 0.40 M

Msci 11 0219

23:14, general, multiple choice, > 1 min, fixed.

021

A 20 mL sample of 0.20 M nitric acid solution is required to neutralize 40 mL of barium hydroxide solution. What is the molarity of

the barium hydroxide solution?

1. 0.200 M

2. 0.100 M

3. 0.025 M

4. 0.050 M

5. 0.0025 M

Msci 11 0211

23:12, general, multiple choice, > 1 min, fixed.

022

What is the normality of a 0.40 M $\text{Sr}(\text{OH})_2$ solution (for use as a base)?

1. 0.40 N

2. 0.20 N

3. 0.80 N