

This print-out should have 23 questions. Multiple-choice questions may continue on the next column or page – find all choices before answering. The due time is Central time.

CIC Bond type 710

10:01, general, multiple choice, < 1 min, fixed.

001

Select the set of bonds below that lists in order an ionic bond, polar covalent bond, and a nonpolar covalent bond.

1. Na — S, C — H, Br — Br
2. Br — Br, C — H, Na — S
3. Na — S, Br — Br, C — H
4. K — O, H — F, C — H
5. N — O, O — H, C — H

Campion 05 Ex 01 12

10:02, general, multiple choice, < 1 min, fixed.

002

The bonding in LiF is predominantly

1. ionic.
2. covalent.
3. polar covalent.
4. There is no predominant mode of bonding for this compound.
5. nonbonding.

Msci 02 1222

10:02, general, multiple choice, > 1 min, fixed.

003

Ionic compounds involve a (share, transfer) of electrons and typically involve atoms that have (large, similar, very different) electronegativities.

1. transfer; similar

2. transfer; very different

3. share; similar

4. share; very different

5. transfer; large

Brodbelt 8200445

10:50, general, multiple choice, > 1 min, fixed.

004

The electronegativity of an atom generally ? going down columns and ? going left to right across rows. An element like fluorine would most likely form a(n) ? bond with an element like oxygen.

1. decreases; increases; ionic
2. decreases; increases; covalent
3. decreases; decreases; ionic
4. decreases; decreases; covalent
5. increases; decreases; ionic
6. increases; decreases; covalent
7. increases; increases; ionic
8. increases; increases; covalent

Msci 07 0400

10:03, general, multiple choice, > 1 min, fixed.

005

Which of the following is the best description of covalent bonding?

1. Bonding that occurs between elements with very different electronegativities, and with transfer of electrons.
2. Bonding that occurs between elements with very different electronegativities, and with sharing of electrons.

3. Bonding that occurs between elements with similar electronegativities, and with transfer of electrons.

4. Bonding that occurs between elements with similar electronegativities, and with sharing of electrons.

5. Bonding that occurs between ions and elements, and with the sharing of electrons.

Msci 02 1223

10:07, general, multiple choice, > 1 min, fixed.

006

A polar bond indicates that

1. electrons are shared equally between the two atoms.

2. the two atoms have different electronegativities.

3. the two atoms are connected by a covalent bond.

4. the two atoms are connected by an ionic bond.

5. the presence of lone pair (non-bonding) electrons.

Mlib 03 1157

10:09, general, multiple choice, > 1 min, fixed.

007

Which of the following is most likely to form multiple (double or triple) bonds?

1. Li

2. H

3. N

4. Cl

5. F

Brodbelt018

11:01, general, multiple choice, > 1 min, fixed.

008

The Lewis dot structure for sulfur has

1. three pairs of electrons.

2. two pairs of electrons and two lone electrons.

3. three pairs of electrons and one lone electron.

4. one pair of electrons and three lone electrons.

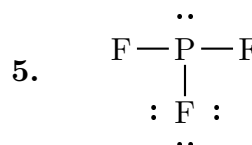
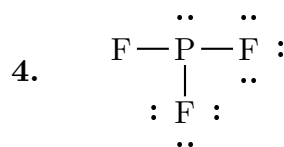
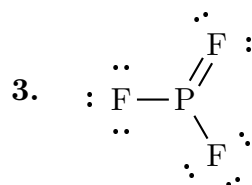
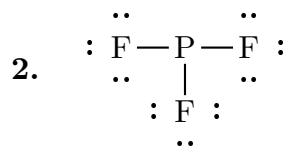
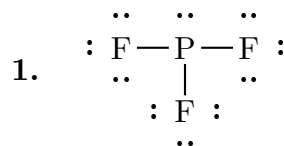
5. two pairs of electrons and one lone electron.

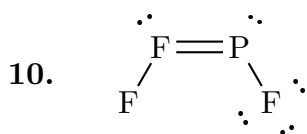
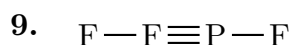
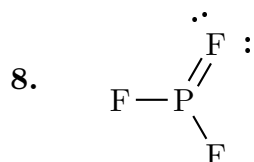
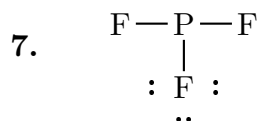
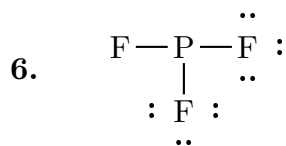
Lewis PF3 dash

11:04, general, multiple choice, < 1 min, fixed.

009

Which of the following is the correct Lewis formula for phosphorus trifluoride (PF₃)?





Mlib 03 1059

11:04, general, multiple choice, > 1 min, fixed.

010

The carbon-oxygen bonds in a molecule of carbon dioxide (CO₂) are what kind of bonds?

1. single
2. double
3. triple
4. ionic

Mlib 03 1057

11:04, general, multiple choice, > 1 min, fixed.

011

The carbon-nitrogen bond in a molecule of hydrogen cyanide (HCN) is what kind of bond?

1. single
2. double
3. triple

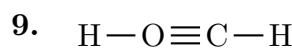
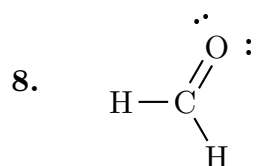
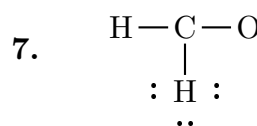
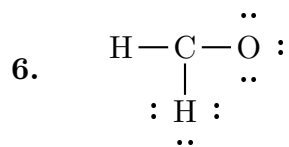
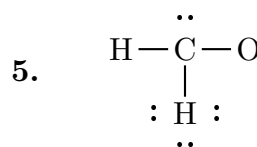
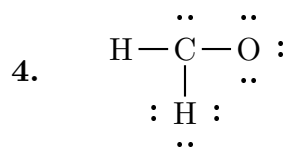
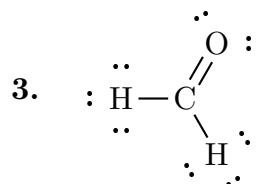
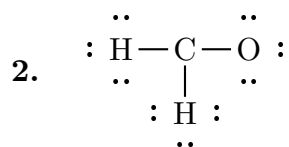
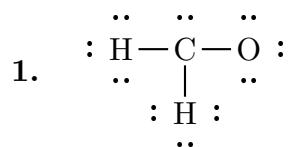
4. ionic

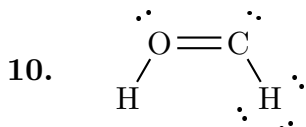
Lewis CH₂O dash

11:04, general, multiple choice, < 1 min, fixed.

012

Which of the following is the correct Lewis formula for formaldehyde (CH₂O)?





Lewis H2S dash

11:04, general, multiple choice, < 1 min, fixed.

013

Which of the following is the correct Lewis formula for hydrogen sulfide (H₂S)?

1. $\begin{array}{c} \cdot\cdot \\ \text{H}=\text{S}=\text{H} \\ \cdot\cdot \end{array}$
2. $\text{H}-\text{S}\equiv\text{H} :$
3. $\begin{array}{c} \cdot\cdot \\ :\text{H}-\text{S}\equiv\text{H} : \\ \cdot\cdot \end{array}$
4. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ :\text{H}-\text{S}=\text{H} \\ \cdot\cdot \quad \cdot\cdot \end{array}$
5. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ :\text{H}-\text{S}-\text{H} : \\ \cdot\cdot \quad \cdot\cdot \end{array}$
6. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ :\text{H}-\text{S}-\text{H} : \\ \cdot\cdot \quad \cdot\cdot \end{array}$
7. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ :\text{H}-\text{S}-\text{H} : \\ \cdot\cdot \quad \cdot\cdot \end{array}$
8. $\begin{array}{c} \cdot\cdot \\ \text{H}-\text{S}-\text{H} \\ \cdot\cdot \end{array}$
9. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ \text{H}-\text{S}-\text{H} : \\ \cdot\cdot \quad \cdot\cdot \end{array}$
10. $\begin{array}{c} \cdot\cdot \quad \cdot\cdot \\ :\text{H}-\text{S}-\text{H} : \\ \cdot\cdot \quad \cdot\cdot \end{array}$

JJL 70401a

11:05, general, multiple choice, > 1 min, wording-variable.

014

Which of these substances has a formula incorporating a triple bond?

1. C₂F₂
2. BI₃
3. AlCl₃

4. HOI

5. H₂CO

6. H₂Se

7. H₂O

8. HOF

9. HOBr

10. HOCl

Brodbelt 820043

11:03, general, multiple choice, > 1 min, fixed.

015

The compound ClF₅ (where Cl is the central atom) has an electronic geometry of octahedral. What would be the quantities for the Lewis dot formula? *N* (needed electrons), *A* (available electrons) and *S* (shared electrons)

1. *N* = 52; *A* = 42; *S* = 8
2. *N* = 52; *A* = 42; *S* = 10
3. *N* = 52; *A* = 42; *S* = 12
4. *N* = 50; *A* = 42; *S* = 8
5. *N* = 50; *A* = 42; *S* = 10
6. *N* = 50; *A* = 42; *S* = 12
7. *N* = 48; *A* = 42; *S* = 8
8. *N* = 48; *A* = 42; *S* = 10
9. *N* = 48; *A* = 42; *S* = 12

Mlib 72 0056

12:01, general, multiple choice, > 1 min, fixed.

016

The basic fact that determines molecular shapes is that

1. nuclei attract each other.
2. electrons attract each other.
3. electron pairs repel each other.
4. nuclei attract electrons.
5. nuclei repel each other.

Mlib 03 2095

12:02, general, multiple choice, > 1 min, fixed.
017

Which of the following molecules would have linear molecular geometry?

1. H₂O
2. HCN
3. SO₂
4. All of the molecules listed
5. None of the molecules listed

Mlib 03 2021

12:02, general, multiple choice, > 1 min, fixed.
018

OCS has what molecular geometry?

1. angular
2. linear
3. trigonal
4. tetrahedral
5. T-shaped

Mlib 03 2047

12:03, general, multiple choice, > 1 min, fixed.
019

The F-C-F bond angle in CF₄ is closest to

which of the following angles?

1. 90°
2. 105°
3. 109.5°
4. 120°
5. 180°

Mlib 03 2093

12:03, general, multiple choice, > 1 min, fixed.
020

Which of the following molecules would be trigonal planar?

1. N₂O
2. O₃
3. SiH₄
4. BCl₃
5. NH₃

DAL 08 001

12:08, general, multiple choice, < 1 min, fixed.
021

Which of the following molecules is polar?

1. CH₄
2. H₂
3. CF₄
4. NH₃
5. BH₃

Mlib 72 0084

12:08, general, multiple choice, > 1 min, fixed.
022

Which of the following is a nonpolar molecule?

1. H_2O
2. HCl
3. CHCl_3
4. CCl_4
5. NH_3

Mlib 03 3017

12:08, general, multiple choice, > 1 min, fixed.

023

Methane (CH_4) is NOT a polar compound because

1. it contains no polar bonds.
2. The statement is false; methane is a polar molecule.
3. carbon and hydrogen bonds are too similar in electronegativity to form polar bonds.
4. it contains no unpaired electrons.
5. the symmetry of the molecule causes the bond dipoles to cancel one another.