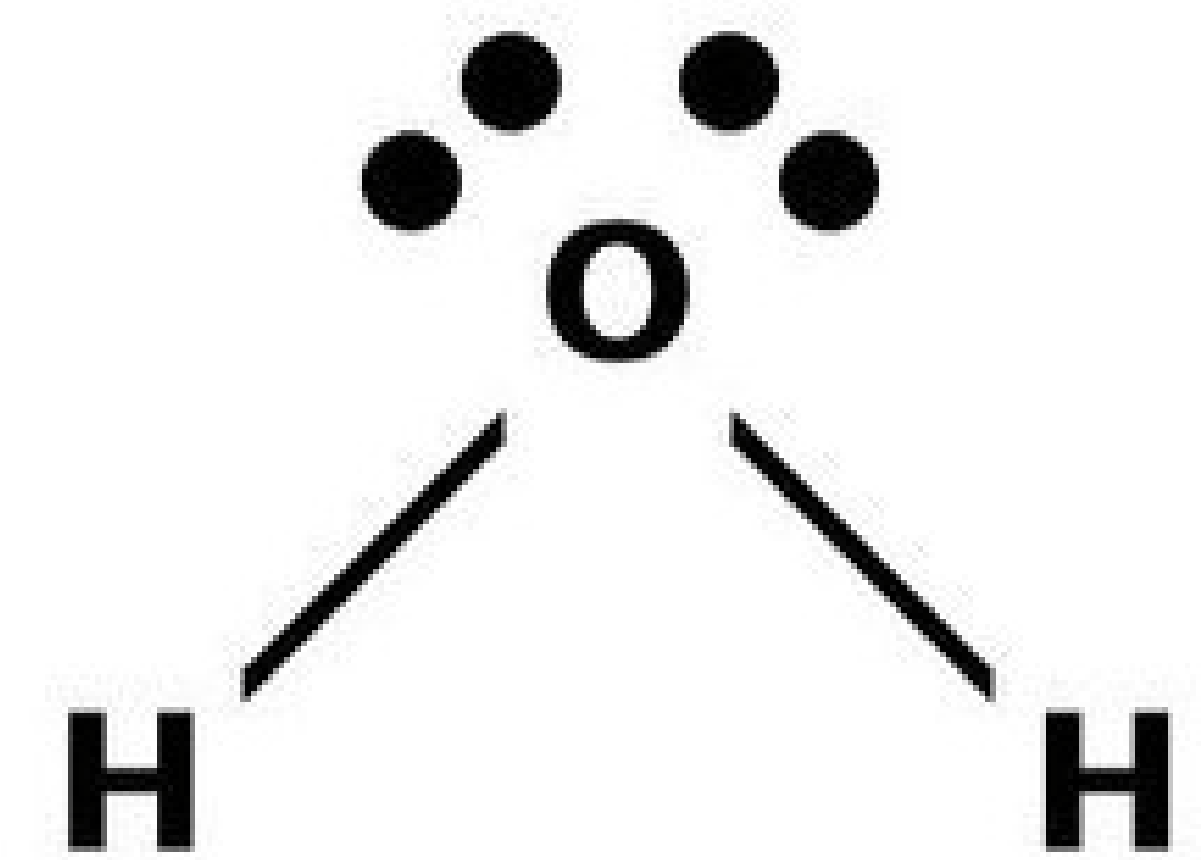
CHEMICAL BONDING, MOLECULAR SHAPE (VSEPR THEORY), INTERMOLECULAR FORCES, AND PROPERTIES - PRACTICE TEST | NEW BRUNSWICK CHEMISTRY 111-112 · UNIT B · 25 QUESTIONS

Chemical Bonding, Molecular Shape (VSEPR Theory), Intermolecular Forces, and Properties — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The Lewis diagram shows water, with oxygen bonded to two hydrogen atoms and lone pairs on oxygen. The shape of the water molecule is**



A bent

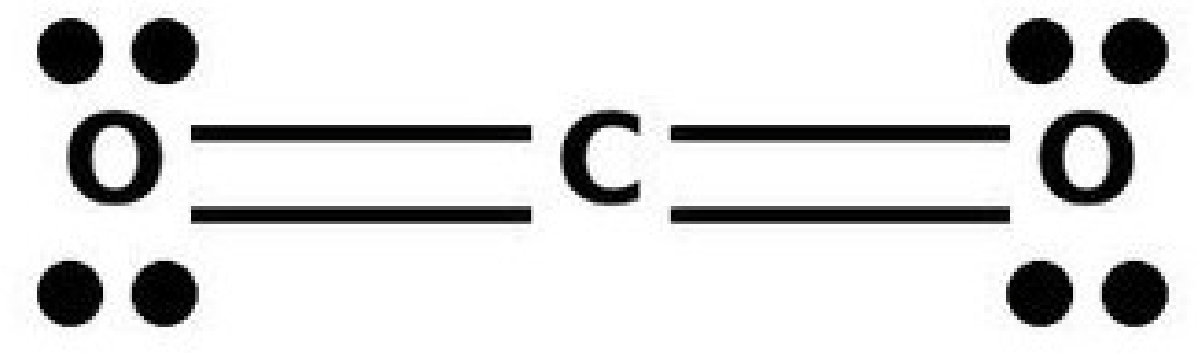
B linear

C tetrahedral

D trigonal planar

Understand It with Pulse | Flag a mistake

2 **The Lewis diagram shows carbon dioxide, with carbon double bonded to two oxygen atoms in a straight line. The shape of the carbon dioxide molecule is**



A bent

B linear

C tetrahedral

D pyramidal

Understand It with Pulse | Flag a mistake

3 **An ionic bond forms between a metal and a nonmetal by**

A transfer of electrons

B sharing electrons equally

C sharing electrons unequally only

D melting

Understand It with Pulse | Flag a mistake

4 **A covalent bond forms by**

A transfer of electrons

B sharing electrons

C melting

D dissolving

Understand It with Pulse | Flag a mistake

5

A polar covalent bond has electrons shared

A equally

B not at all

C unequally

D only in metals

Understand It with Pulse | Flag a mistake

6

Water is polar because oxygen attracts shared electrons

A less strongly than hydrogen

B equally to hydrogen

C not at all

D more strongly than hydrogen

Understand It with Pulse | Flag a mistake

7 **Hydrogen bonding is a strong intermolecular force between molecules containing hydrogen bonded to**

A oxygen, nitrogen, or fluorine

B carbon only

C any metal

D any noble gas

Understand It with Pulse | Flag a mistake

8 **London dispersion forces are present in**

A only polar molecules

B all molecules

C only ionic compounds

D only metals

Understand It with Pulse | Flag a mistake

9 **Ionic compounds generally have**

- A low melting points
- B no melting point
- C high melting points
- D low boiling points only

Understand It with Pulse | Flag a mistake

10 **VSEPR theory predicts molecular shape from the repulsion of**

- A protons in the nucleus
- B neutrons in the nucleus
- C outer electrons only
- D electron pairs around the central atom

Understand It with Pulse | Flag a mistake

11 **A molecule with 4 bonding pairs and no lone pairs on the central atom is**

- A tetrahedral
- B linear
- C bent
- D pyramidal

Understand It with Pulse | Flag a mistake

12 **A molecule with 2 bonding pairs and no lone pairs on the central atom is**

- A bent
- B linear
- C tetrahedral
- D pyramidal

Understand It with Pulse | Flag a mistake

13 **A molecule with 3 bonding pairs and no lone pairs on the central atom is**

- A linear
- B bent
- C trigonal planar
- D tetrahedral

Understand It with Pulse | Flag a mistake

14 **Carbon dioxide is nonpolar overall because its polar bonds are**

- A absent
- B ionic
- C very weak
- D symmetrical and cancel

Understand It with Pulse | Flag a mistake

15 **Methane is nonpolar because its bonds are arranged**

- A symmetrically around carbon
- B in a line only
- C with lone pairs
- D unevenly

Understand It with Pulse | Flag a mistake

16 **The electronegativity difference is largest in a bond that is most**

- A nonpolar
- B polar
- C metallic
- D weak

Understand It with Pulse | Flag a mistake

17 **A bond between atoms with electronegativity values 3.5 and 2.1 has a difference of**

ANSWER _____

Understand It with Pulse | Flag a mistake

18 **A bond between atoms with electronegativity values 3.0 and 2.5 has a difference of**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **A bond between atoms with electronegativity values 3.2 and 2.4 has a difference of**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **A bond between atoms with electronegativity values 3.6 and 2.8 has a difference of**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **A bond between atoms with electronegativity values 2.6 and 2.2 has a difference of**

ANSWER

Understand It with Pulse | Flag a mistake

22 **A bond between atoms with electronegativity values 3.1 and 2.3 has a difference of**

ANSWER

Understand It with Pulse | Flag a mistake

23 **A bond between atoms with electronegativity values 3.9 and 2.1 has a difference of**

ANSWER

Understand It with Pulse | Flag a mistake

24 **A bond between atoms with electronegativity values 2.9 and 2.5 has a difference of**

ANSWER

Understand It with Pulse | Flag a mistake

25

A bond between atoms with electronegativity values 3.4 and 2.0 has a difference of

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. B
3. A
4. B
5. C
6. D
7. A
8. B
9. C
10. D
11. A
12. B
13. C
14. D
15. A
16. B
17. 1.4
18. 0.5
19. 0.8
20. 0.8
21. 0.4
22. 0.8
23. 1.8
24. 0.4
25. 1.4

© 2026 Brett Robbins. All Rights Reserved.