ONTARIO CHEMISTRY, GRADE 11, UNIVERSITY PREPARATION (SCH3U) · UNIT A · 25 QUESTIONS

Matter, Chemical Trends, and Chemical Bonding — 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 **An atom of sodium has 11 protons. A neutral sodium atom has**

- **A** 11 electrons
- **B** 10 electrons
- **C** 12 electrons
- **D** 23 electrons

Understand It with Pulse | Flag a mistake

2 **An atom has 6 protons and 6 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **An atom has 11 protons and 12 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **An atom has 17 protons and 18 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **An atom has 20 protons and 20 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **An atom has 8 protons and 8 neutrons. What is its mass number?**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **An ion has 11 protons and 10 electrons. Its charge is**

- A 1-
- B 2+
- C 2-
- D 1+

Understand It with Pulse | Flag a mistake

8 **An ion has 17 protons and 18 electrons. Its charge is**

- A 1-
- B 1+
- C 2+
- D 2-

Understand It with Pulse | Flag a mistake

9 **An ion has 20 protons and 18 electrons. Its charge is**

A 2-

B 2+

C 3+

D 3-

Understand It with Pulse | Flag a mistake

10 **An ion has 9 protons and 10 electrons. Its charge is**

A 1+

B 2+

C 1-

D 2-

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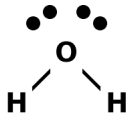
11 **The diagram shows a water molecule. How many lone pairs are shown on the central oxygen atom?**



- **A** 0
- **B** 1
- **C** 3
- **D** 2

Understand It with Pulse | Flag a mistake

12 **Isotopes of an element have the same number of protons but different numbers of**

- **A** neutrons
- **B** electrons
- **C** protons
- **D** atoms

Understand It with Pulse | Flag a mistake

13 **Across a period from left to right, atomic radius generally**

A increases

B decreases

C stays the same

D increases then decreases randomly

Understand It with Pulse | Flag a mistake

14 **Down a group, atomic radius generally**

A decreases

B stays the same

C increases

D becomes zero

Understand It with Pulse | Flag a mistake

15 **Ionization energy is**

A energy released when an atom gains an electron

B energy of a chemical bond

C energy released in a reaction

D energy required to remove an electron from an atom

Understand It with Pulse | Flag a mistake

16 **Electronegativity is a measure of**

A how strongly an atom attracts shared electrons in a bond

B how many electrons an atom has

C atomic mass

D how easily an atom loses protons

Understand It with Pulse | Flag a mistake

17 **An ionic bond forms mainly by**

A sharing electrons equally

B transfer of electrons from a metal to a nonmetal

C sharing electrons unequally only

D weak forces between molecules

Understand It with Pulse | Flag a mistake

18 **Sodium chloride is best described as**

A a covalent molecular compound

B a metallic element

C an ionic compound

D a polar molecule only

Understand It with Pulse | Flag a mistake

19 **A covalent bond forms when atoms**

A transfer electrons completely

B lose all electrons

C gain protons

D share pairs of electrons

Understand It with Pulse | Flag a mistake

20 **A polar covalent bond occurs when**

A electrons are shared unequally because the atoms have different electronegativities

B electrons are shared equally

C electrons are transferred

D no electrons are involved

Understand It with Pulse | Flag a mistake

21 **Water is a polar molecule mainly because**

A it has ionic bonds only

B oxygen attracts shared electrons more strongly than hydrogen, and the molecule is bent

C it has no lone pairs

D hydrogen is more electronegative than oxygen

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22 **Hydrogen bonding is strongest between molecules containing hydrogen bonded to**

A carbon only

B any metal

C nitrogen, oxygen, or fluorine

D sulfur only

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23 **London dispersion forces are present**

- A only in polar molecules
- B only in ionic compounds
- C only in metals
- D between all molecules, and are stronger in larger molecules

Understand It with Pulse | Flag a mistake

24 **Which substance would have the highest boiling point, based on intermolecular forces?**

- A A molecule with strong hydrogen bonding
- B A small nonpolar molecule
- C A noble gas atom
- D A small polar molecule with weak forces

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25 **Ionic compounds generally have**

A low melting points and do not conduct when molten

B high melting points and conduct electricity when molten or dissolved

C low melting points and conduct as solids

D no definite structure

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	A	**10.**	C	**19.**	D
2.	12	**11.**	D	**20.**	A
3.	23	**12.**	A	**21.**	B
4.	35	**13.**	B	**22.**	C
5.	40	**14.**	C	**23.**	D
6.	16	**15.**	D	**24.**	A
7.	D	**16.**	A	**25.**	B
8.	A	**17.**	B		
9.	B	**18.**	C		

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