

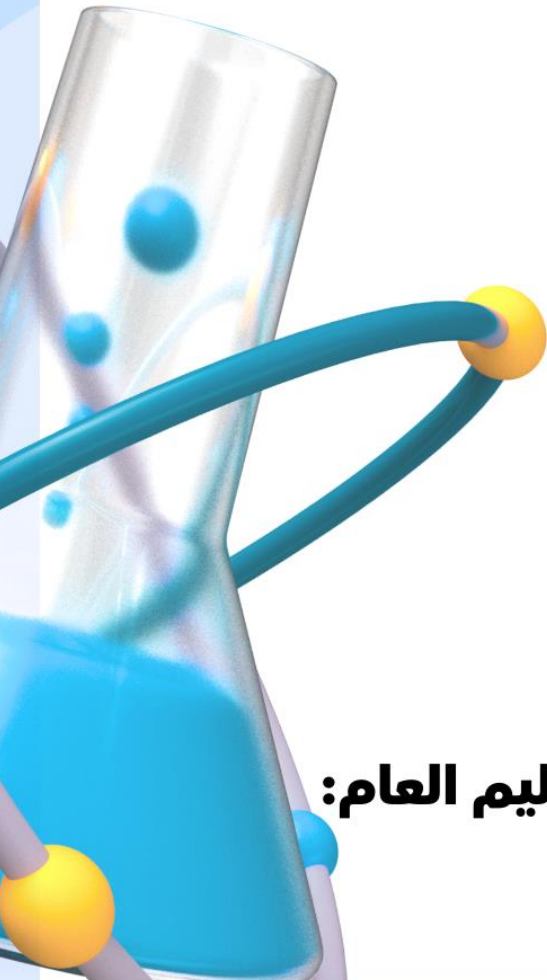
الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم



CHEMISTRY

2nd secondary
Second term

HOME PERFORMANCE



إعداد:

أ. سامح منصور

أ. عبدالله عبدالواحد

مستشار مادة العلوم:

د. عزيزة رجب خليفة

رئيس الإدارة المركزية للتعليم العام:

د. هالة عبدالسلام خفاجي

2026

week

5

Home performance (Week 5)

Q1/ choose the correct answer:-

1- Which of the following expresses a central atom that cannot form a Coordinate bond?

- (a) AX_2E_2
- (b) AX_3
- (c) AX_2E
- (d) AX_3E

2- Which of the following expresses the coordinate bond in a fluoroborate ion (BF_4^-)?

	Donor atom or ion	Acceptor atom or ion
A	Boron atom donates ($2e^-$) from orbital (sp^2)	Fluoride ion accept ($2e^-$) in orbital ($3s$)
B	Fluoride ion donates ($2e^-$) from sublevel ($2p$)	Boron atom accept ($2e^-$) in orbital ($2P_z$)
C	Boron atom donates ($2e^-$) from orbital ($2s$)	Fluoride ion accept ($2e^-$) in orbital ($2s$)
d	Fluoride ion donates ($2e^-$) from level ($2s$)	Boron atom accept ($2e^-$) in orbital (sp^2)

3-Which of the following bonds do chemists consider being the “bond of life” and the Reason for the continuation of life on Earth?

- (a) Metallic bond
- (b) Covalent bond
- (c) Ionic bond
- (d) Hydrogen bond

4. The following table shows the boiling points of hydrogen halides:

Hydrogen halide	Boiling point
HF	19
HCl	-85
HBr	-67
HI	-35

-Which of the following choices explains why hydrogen fluoride has a high Boiling point?

- (a) HF molecules have a smaller dipole moment.
- (b) HF is a stronger acid.
- (c) HF is less soluble in water.
- (d) HF molecules are bound by hydrogen bonds.



5-Which of the following expresses the type and number of bonds in a Molecule of liquid aluminum chloride Al_2Cl_6 ?

- (a) Six covalent bonds and two coordinate bonds
- (b) Six coordinate bonds and two covalent bonds
- (c) Three covalent bonds and one coordinate bond
- (d) Six covalent bonds and one coordinate bond

6. The atom of element (X) has only four completely filled subshells, so a sample of this element has bonds that are...

- (a) Pure covalent
- (b) Ionic
- (c) Metallic
- (d) Polar covalent

7- Three organic compounds (X, Y, Z) have the following chemical formulas:

X: $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_3$

Y: $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH}$

Z: $\text{HO-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH}$

- Based on your study of polarity and hydrogen bonding.

- Which of the following choices expresses the correct order of these compounds According to their degree of solubility in water?

- (A) $Z < Y < X$
- (B) $Y < Z < X$
- (C) $X < Y < Z$
- (d) $X < Z < Y$

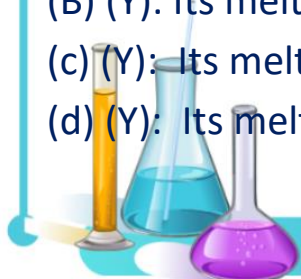
8- Elements (X, Y) are from the third period:

(X): The number of valence electrons is half the number of electrons in the first energy level.

(Y): Its electron distribution ends with $3p^1$

- Which of the following is correct?

- (A) (Y): Its melting point is higher and its crystal is softer than (X)
- (B) (Y): Its melting point is lower and its crystal is harder than (X)
- (c) (Y): Its melting point is lower and its crystals are softer than (X).
- (d) (Y): Its melting point is higher and its crystals are harder than (X).



9- Which of the following expresses the relationship between bonds in a sample Of hydrogen fluoride (HF)?

- (a) The bond between (H, F) atoms in the molecule is “shorter and stronger” Than the bond between its molecules.
- (b) The bond between (H, F) atoms in the molecule is “longer and weaker” than The bond between its molecules.
- (c) The bond between (H, F) atoms in the molecule is “shorter and weaker” than The bond between its molecules.
- (d) The bond between (H, F) atoms in the molecule is “longer and stronger” than The bond between its molecules.

10- The following table shows the degree of hardness values of three metallic elements (X, Y, and Z) located in the third period of the periodic table according to the Mohs scale:

degree of hardness Mohs scale	Metallic element
2.75	(X)
0.5	(Y)
2.5	(Z)

-Which of the following choices correctly represents the groups to which these elements belong?

	(X)	Y	Z
A	Group (3A)	Group (2A)	Group (2A)
B	Group (1A)	Group (1A)	Group (3A)
C	Group (2A)	Group (3A)	Group (1A)
d	Group (3A)	Group (2A)	Group (1A)



الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم

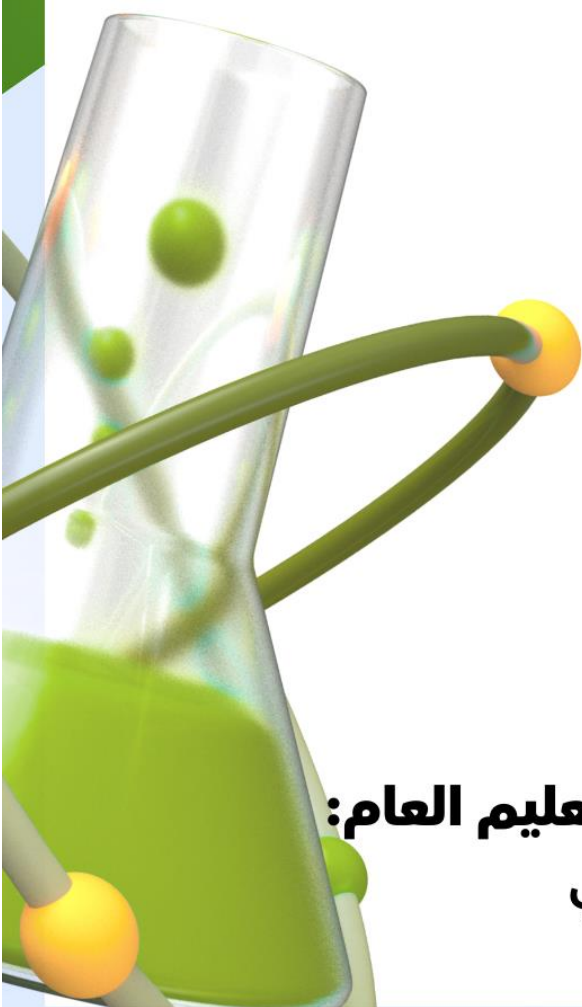


CHEMISTRY

2nd secondary

Second term

WEEKLY ASSESSMENTS



إعداد:

أ. سامح منصور

أ. عبدالله عبدالواحد

مستشار مادة العلوم:

د. عزيزة رجب خليفة

رئيس الإدارة المركزية للتعليم العام:

د. هالة عبدالسلام خفاجي

2026

week

5

Weekly assessment (Week-5)

A

Q1/ Compare (CH_4 - BeF_2) in terms of:

(The spatial shape of the molecule, the number of free electron pairs and bonding electron pairs – the abbreviated formula)

Q2/ State the scientific reason:

- Dry hydrogen chloride gas does not affect on dry litmus paper, but it turns litmus paper wet with water to red

Q3/ Choose the correct answer: -

1-When ammonia molecules combine with hydrogen protons H^+ to form hydronium ions NH_4^+

-Which of the following changes occur in the spatial shape and angle value between the bonds?

- (a) The shape changes from (angular) to (Triagonal triangle) and the angle value Decreases.
- (b) The shape changes from (linear) to (angular) and the angle increases.
- (c) The shape changes from (angular) to (Tribase pyramid) and the angle increases.
- (d) The shape changes from (Tribase pyramid) to (tetrahedral) and the angle decreases.

2- Which of the following expresses the type and number of bonds in the ammonium hydroxide molecule NH_4OH ?

- (a) 1 ionic bond, 1 coordinate bond, 3 polar covalent bonds.
- (b) 1 ionic bond, 1 coordinate bond, 4 polar covalent bonds.
- (c) 2 ionic bonds, 2 coordinate bonds, 3 polar covalent bonds.
- (d) 1 ionic bond, 4 coordinate bonds, 1 nonpolar covalent bond.

3- Which of the following compounds can form hydrogen bonds between their molecules?

- (a) PH_3
- (b) AsH_3
- (c) NH_3
- (d) CH_4



Q1/ Compare ($\text{SO}_2 - \text{BF}_3$) in terms of:

(The spatial shape of the molecule, the number of free electron pairs and bonding electron pairs – the abbreviated formula)

Q2/ State the scientific reason:

- Hydrogen chloride gas dissolved in benzene does not conduct electricity, whereas its solution in water conduct electricity.

Q3/ Choose the correct answer: -

1-When a third phosphorus fluoride molecule PF_3 combines with a fluorine atom (or proton) to form a phosphorus tetrafluoride ion PF_4^+ , which of the following Changes occur in the spatial configuration and angle value of the central atom?

- (a) The shape changes from a (Triagonal planar) to (Tribase pyramid), and the angle Value decreases.
- (b) The shape changes from an (Angular) to a (Tribase pyramid), and the angle value Increases.
- (c) The shape changes from a (Tribase pyramid) to a (tetrahedron) and the angle Value increases.
- (d) The shape changes from a (Tribase pyramid) to an (angular) shape and the Angle value remains constant.

2- Which of the following expresses the type and number of bonds in the ammonium chloride molecule NH_4Cl ?

- (a) 1 ionic bond, 2 coordinate bonds, 2 polar covalent bonds.
- (b) 2 ionic bonds, 1 coordinate bond, 2 polar covalent bonds.
- (c) 1 ionic bond, 1 coordinate bond, 3 polar covalent bonds.
- (d) 1 ionic bond, 1 coordinate bond, 3 nonpolar covalent bonds.

3. Which of the following molecules can have its central atom accept a “Free electron pair” to form a covalent bond?

(Atomic numbers: H=1, N=7, Al=13, P=15, Cl=17)

- (a) CH_4
- (b) NH_3
- (c) AlCl_3
- (d) PH_3



Q1/ Compare (AsH_3 - CCl_2F_2) in terms of:

(The spatial shape of the molecule, the number of free electron pairs and bonding electron pairs – the abbreviated formula)

Q2/ State the scientific reason:

- Hydrogen proton cannot be found free in water

Q3/ Choose the correct answer: -

1- When a water molecule H_2O combines with a hydrogen proton H^+ to form a Hydronium ion H_3O^+

- Which of the following changes occur in the spatial shape and angle value Between the bonds?

- (a) The shape changes from (angular) to (Tribase pyramid) and the angle value Increases
- (b) The shape changes from (angular) to (Triagonal planar) and the angle value Decreases.
- (c) The shape changes from (linear) to (angular) and the angle value increases.
- (d) The shape changes from (Tribase pyramid) to (tetrahedron) and the angle value Decreases.

2-Which of the following expresses the type and number of bonds in the Ammonium bromide molecule NH_4Br ?

- (a) 1 ionic bond, 2 coordinate bonds, 2 polar covalent bonds.
- (b) 2 ionic bonds, 1 coordinate bond, 2 polar covalent bonds.
- (c) 1 ionic bond, 1 coordinate bond, 3 polar covalent bonds.
- (d) 1 ionic bond, 1 coordinate bond, 3 nonpolar covalent bonds.

3-Which of the following molecules has the least repulsion between the pairs of Valence electrons around its central atom?

- (a) CH_4
- (b) NH_3
- (c) H_2O
- (d) SO_2

