الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم

الواجب المنزلي
الأسبوع الرابع

2026

الصف الأول الثانوي

الفصل الدراسي الأول

العلوم المتكاملة

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Ch (1) Lesson 4: Aqueous Solutions and Their Properties

First: Choose the correct answer: -

1 - If pure water freezes at 0°C, so dissolving amount of salt in water causing its freezing point will be …….

A- less than 0°C
B- equal to 0°C
C- greater than 0°C
D- between 0°C and 4°C

2- Two liquids X and Y are separated by a semipermeable membrane. If the boiling point of X > boiling point of Y, then water...

a) moves from liquid X to liquid Y.
b) remains stationary in both liquids.
c) moves from liquid Y to liquid X.
d) moves between both liquids at the same rate.

3- Colligative properties of a solution...

a) Depend only on the type of solute.
b) Depend only on the type of solvent.
c) Depend on both the type and concentration of the solute.
d) Depend on the concentration of solute, not its type.

4- If the boiling point of water at the base of a mountain is 100°C, its boiling point at the top of the mountain is...

d) 95°C
b) 120°C
c) 373 K
d) 0 K

5- As the freezing point of a solution increases, its osmotic pressure...

A- increases
B- decreases
C- does not change
D- becomes zero

6- If atmospheric pressure = 1 atm, the boiling point of a liquid at 0.8 atm pressure is…….. that at 1 atm.

A- equal to
B- lower than
C- higher than
D- Any of the above

7- Decreasing which of the following leads to increase the vapor pressure of a solution?

A- Number of solvent molecules
B- Number of solute particles
C- Temperature
D- Boiling point

Solution	The amount of dissolved table salt
X	50 g
Y	10 g
Z	80 g

8- Three aqueous solutions of equal volume X, Y, and Z, each containing different amounts of sodium chloride, as shown in the opposite table.
The correct order of the freezing points of Tx, Ty, and Tz is .....

a) Tx > Ty > Tz
b) Tx = Ty = Tz
c) Ty > Tx > Tz
d) Ty < Tx < Tz

9- Dissolving table salt in distilled water, so the osmotic pressure of the solution ……

A- increases
B- decreases
C- becomes zero
D- remains constant

10- When a water sample is left exposed to the atmospheric air, then part of water is evaporated, so its boiling point ……..

A- decreases
B- becomes zero
C- increases
D- does not change

11- Salt is sprinkled on roads in frozen areas after snowfall .....
A. To lower the melting point of ice
B. To raise the melting point of ice
C. To reduce the amount of evaporation
D. To reduce the vapor pressure produced by water

12- The decrease in freezing point is ……proportional to number of solute particles, while increase in boiling point is …….. proportional to solution concentration

A- direct / direct
B- direct / inversely
C- inversely / inversely
D- inversely / direct

Second: Essay Questions:

1- Define vapor pressure of a solution.

2- What happens to boiling point of an aqueous solution when going up a mountain, and why?

3- Give reasons for:

Pure water evaporates faster than aqueous solutions.

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العلوم المتكاملة

2025-2026

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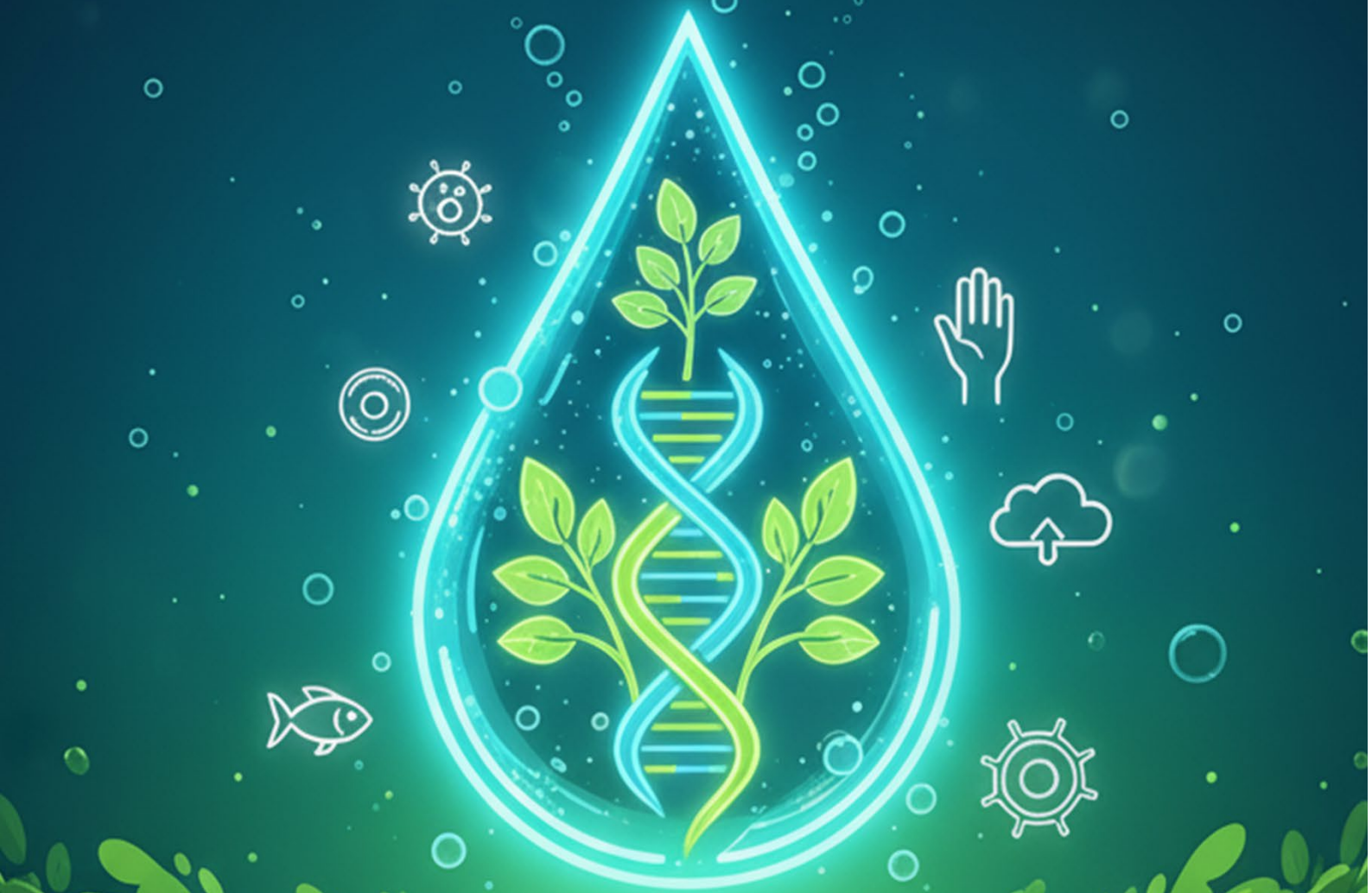
الفصل الدراسي الأول

التقييم الأسبوعي
الأسبوع الرابع



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Ch (1) Lesson 4: Aqueous Solutions and Their Properties

First: Choose the correct answer: -

1) What does the term " the concentration of solution " express?

a) Total volume of solution

b) Type of solute and solvent

c) Amount of solute in a given volume of solvent

d) Temperature of the solution

2) Which of the following is not an example of an aqueous solution?

a) A solution of table salt in water

b) Lemon juice

c) Tea

d) A mixture of sand and water

3) What is the effect of increasing the concentration of dissolved substances in water on its density?

A) decreases.

B) increases.

C) does not change.

D) changes randomly.

4) What is the main effect of adding solute to water; on its vapor pressure?

a) decreases.

b) increases.

c) is not affected.

d) increases then decreases.

5) Why are water molecules less likely to evaporate in solutions than in pure water?

A) Because of the attractive forces between water molecules increases

B) Because of the attractive forces between water molecules decreases

C) Because of the attractive forces between water molecules and the solute increases

D) Because of the attractive forces between water molecules and the solute decreases

6) What is the relationship between the number of solute molecules in a solution and its vapor pressure?

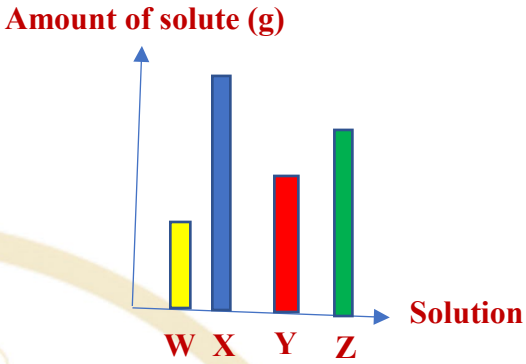
A) Inverse relationship.

B) Direct relationship.

C) No relationship.

D) Variable relationship.

7) The opposite graph represents four solutions of sodium chloride salt of equal volumes and different concentration:



First: Which solution has the highest concentration?

a. W b. X c. Y d. Z

Second: Which solution has the highest density?

a. W b. X c. Y d. Z

Third: Which solution has the highest boiling point?

a. W b. X c. Y d. Z

Forth: Which solution has the highest freezing point?

a. W b. X c. Y d. Z

8) The colligative properties of solutions depend on…….

a. nature of solvent b. nature of solute

c. volume of solution d. number of solute particles

9) Which of the following does its increase lead to decreasing the vapor pressure of solutions?

a. Temperature b. Freezing point

c. Number of solvent particles d. Number of solute particles

10) What happens to vapor pressure of solution with increasing the concentration of the solute?

a. Increases b. Decreases

c. Vanishes d. Remains constant

11) Liquid starts to boil when its vapor pressure is…….

a. greater than the pressure affecting it

b. three times the pressure affecting it

c. less than the pressure affecting it

d. equal to the pressure affecting it

12) If the boiling point of water at 1 atm pressure is 100°C, it is expected that its boiling point at 0.7 atm pressure pressure equals…….

a. 100°C b. 102°C c. 93°C d. 103°C

13) Which of the following factors doesn't affect the boiling point of solution?

a. Volume of solution b. Density of solution

c. Atmospheric pressure d. Concentration of solution

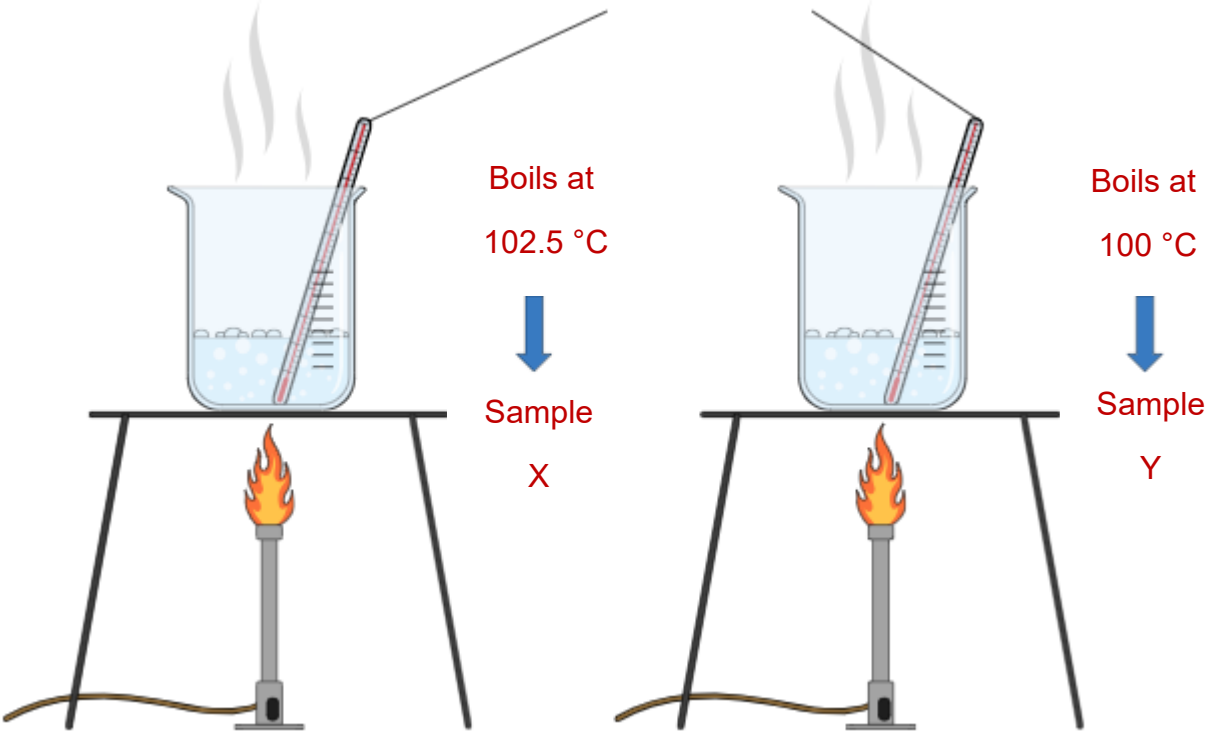
14) What is the effect of increasing the number of solute molecules in solution on the boiling point of the solution and its density?

	On the boiling point	On the density
A	increases	increases
B	decreases	decreases
C	decreases	increases
D	increases	decreases

Essay Questions

1) The figure shows two equal samples, one is pure water and the other is salt water.

When both are heated to boiling, sample X is observed to boil at 102.5 °C, while sample Y boils at 100 °C. Indicate with an explanation which sample is pure water and which is salt water.



2) Explain: The boiling point of a solution is higher than that of pure water at normal atmospheric pressure.

3) What is the effect of the increase in the concentration of the dissolved substances in the pure water on each of the following:

1- its density

2- its boiling point

3- its freezing point

4- its vapor pressure

5- the decrease in its vapor pressure

4) Correct the underlined word(s):

1- The colligative properties of a solution depend on the **type** of the solute particles.

2- The liquid vapor exerts a pressure on the surface of its liquid called the **osmotic** pressure of the liquid.

3- The decrease in the liquid vapor pressure of a solution is **inversely** proportional to the number of solute molecules or ions in.

4- The freeing point of a solution is always **equal to** that of the pure water at normal atmospheric pressure.

5- The boiling point of a solution is **equal to** that of the pure water at normal atmospheric pressure.

6- A liquid boils when its vapor pressure is **less than** that of atmospheric air pressure at the surface of the liquid.

5) The following data table shows: Three samples of equal masses of impure water

(X, Y, and Z) and the boiling point of each sample under the normal atmospheric pressure.

The sample	Its boiling point
Sample X	101.5 °C
Sample Y	100.5 °C
Sample Z	102.5 °C

Arrange the three samples in ascending order by the number of molecules dissolved in the water.

6) The following data table shows: Three samples of equal masses of impure water (X, Y, and Z) and the boiling point of each sample under a different atmospheric pressure.

The sample	Its boiling point
Sample X	103 °C
Sample Y	98 °C
Sample Z	101 °C

Arrange the three samples in ascending order by the value of the acting atmospheric pressure.