



Science

Prep.2

First Term 2023-2024

November Revision

Mr. Ahmed Elbasha

Unit 1 (L:3,4) – Unit 2 (L:1)

* طبقاً لأخر تعديل في المادة للعام الدراسي 2023-2024



November Revision

Mr. Ahmed Elbasha

✱ (1) Write the scientific term:

- 1) The halogen which exists in a liquid state.

- 2) The apparatus which is used in water electrolysis.

- 3) A bond that exists between water molecules.

- 4) A liquid metal acts as a heat conductor in nuclear reactors for generating electricity.

- 5) The kind of bond which binds oxygen atom with hydrogen atom in water molecule.

- 6) The strongest metal in group (1A)

- 7) A bond that exists between water molecules.

- 8) Weak electrostatic attraction that arises between the molecules of the polar compounds.

- 9) The halogen which exists in a solid state.

- 10) Adding any substance to the water which changes its properties, affects the health and life of living organisms.

- 11) The apparatus which is used for water electrolysis.

- 12) A charged layer reflects radio waves.

- 13) The region between stratosphere and mesosphere at which the temperature remains constant.

- 14) The weight of air column of an atmospheric height above a unit area.

15) Colored bright curtains seen at the two poles.

16) A layer which plays an important role in wireless communications.

17) An atmospheric layer at which the air moves vertically.

18) An area where the atmospheric envelope is inserted in outer space.

19) A device used to measure the elevations above sea level.

20) Two magnetic belts surrounding ionosphere and play an important role in scattering harmful charged cosmic radiations.

*** (2) Choose the right answer:**

1. The gas which is evolved on reacting alkali metals with water is

- a. oxygen. b. nitrogen. c. hydrogen. d. helium.

2. The volume of hydrogen gas evolving from water electrolysis is the volume of oxygen gas .

- a. equal to b. twice c. half d. four times

3. Elements of group (1A) are known as

- a. inert gases. b. alkali metals.
c. halogens. d. alkaline Earth metals.

4. is a polar compound.

- a. Petrol b. Water c. Alcohol

5. The elements of group (7A) are known as

- a. alkali metals. b. halogens. c. alkaline earth metals.

6. Each period in the periodic table starts with a/an

- a. metal. b. metalloid. c. nonmetal. d. inert gas.

7. is considered from halogens.

- a. Sodium b. Chlorine c. Helium d. Calcium

8. The density of ice is the density of water.

- a. less than b. more than c. equal to

9. Eating fish, which contain high concentration of causes the death of brain cells.

- a. mercury b. arsenic c. lead d. iron

10. Ice crystals have shape.

- a. tetragonal b. pentagonal c. hexagonal

11. Which of the following is a radioactive element which is used in food preservation ?

- a. Liquid sodium. b. Liquefied nitrogen.
c. Cobalt 60. d. Water.

12. Water has high boiling point due to the presence of bonds between its molecules.

- a. hydrogen b. ionic c. covalent d. metallic

13. Which of the following is the halogen that exists in a solid state ?

- a. Fluorine. b. Chlorine. c. Bromine. d. Iodine.

14. When putting a glass bottle completely filled with water in the freezer, it breaks because when water freezes its increases.

- a. temperature b. density c. volume d. acidity

15. What is the volume of hydrogen gas evolved from electrolysis of acidified water if you know that the volume of oxygen gas evolved is 2 cm^3 ?

- a. 1 cm^3 . b. 2 cm^3 . c. 4 cm^3 . d. 6 cm^3

16. When sodium reacts with water gas evolves.

- a. N_2 b. O_2 c. H_2

17. is considered from halogens.

- a. Sodium b. Chlorine c. Helium

18. The elements of group (1A) are known as

- a. alkali metals. b. halogens. c. alkaline Earth metals.

19. Meteors are burnt in layer.

- a. ionosphere b. stratosphere c. mesosphere d. thermosphere

20. The coldest atmospheric layer is

- a. troposphere. b. stratosphere. c. mesosphere. d. thermosphere.

21. The first layer in the atmospheric envelope above the sea level is

- a. mesosphere. b. stratosphere. c. troposphere.

22. Satellites orbit in layer.

- a. stratosphere b. exosphere c. mesosphere d. thermosphere

23. is located between stratosphere and mesosphere.

- a. Tropopause b. Stratopause c. Mesopause d. Thermopause

24. The normal atmospheric pressure at the sea level equals millibar.

- a. 1013.25 b. 76 c. 1.013

25. The air in troposphere layer moves

- a. horizontally. b. vertically. c. inclined. d. no right answer.

26. The second layer of atmosphere is called

- a. mesosphere. b. troposphere. c. stratosphere. d. thermosphere.

27. The device that is used for determining the elevation from sea level is

- a. aneroid . b. altimeter. c. thermometer.

28. The atmospheric pressure on the top of a mountain is the atmospheric pressure at the sea level.

- a. more than b. less than c. equal to

29. Luminous meteors are formed in layer.

- a. ionosphere b. stratosphere c. exosphere d. mesosphere

***(3) Complete the following :**

1. is an example of polar compounds.
2. Increasing of mercury concentration in drinking water causes
3. Fluorine and chlorine exist in state.
4. Eating fish which contains high concentration of lead causes, but drinking water which contains high concentration of mercury leads to
5. Alkali metals are good conductors of and
6. There are bonds between water molecules.
7. andare examples of polar compounds.
8. The valency of alkali metal elements is
9. Pure water boils at and freezes at
10. Elements in group (1A) are called alkali metals as their elements react with formingsolutions.
11. Elements of group (1A) are called, but elements of group (7A) are called
12. The bond between hydrogen atom and oxygen atom in water molecule is bond, while bonds among water molecules are bonds.
13. Sodium is kept under the surface of so , as not to react with
14. is used in food preservation.
15. Cobalt 60 has the ability to kill
16. The strongest nonmetal lies in group
17.is from the examples of polar compounds because the difference in electronegativity between its elements is relatively
18. During the electrolysis of acidified water by Hofmann's voltammeter, the gas evolves at the anode, while the gas evolves at the cathode.

19. Sodium reacts with water to producegas.
20. Elements of group (1A) are called
21. There are bonds between molecules of water
22. The angle between water molecules
23. The highest temperature layer in the atmosphere is and the least temperature one is
24. The height of atmospheric envelope above sea level is km, while the normal atmospheric pressure equals millibar.
25. The thickness of mesosphere layer is about km.
26. The normal atmospheric pressure at the sea level equals mb.
27. The highest temperature layer in the atmosphere is and the lowest temperature one is
28. The hottest atmospheric layer is, but the coldest atmospheric layer in the atmospheric envelope is
29. The thickness of stratosphere is, while that of mesosphere is

*(4) **Correct the underlined words:**

1	Ice crystals have <u>round</u> shape	(.....)
2	<u>Fluorine</u> is the only liquid halogen.	(.....)
3	<u>Oil</u> is a covalent compound dissolves in water.	(.....)
4	Mixing animals and human wastes with water causes <u>chemical</u> pollution.	(.....)
5	Eating food containing high percentage of lead causes <u>blindness</u> .	(.....)
6	<u>Hydrogen</u> used in preserving eye cornea.	(.....)
7	Pure water has <u>acidic</u> effect on litmus paper.	(.....)
8	<u>Sodium</u> is used in making electronic slides.	(.....)
9	Cobalt 60 is used in preservation of <u>cornea of eye</u> .	(.....)
10	When the temperature of water decreases to less than <u>0°C</u> , its density decreases and, so it floats on water surface in the form of ice crystals.	(.....)
11	Elements of group 1A are known as <u>halogens</u> .	(.....)
12	<u>Covalent</u> bond is a weak electrostatic attraction force which arises among water molecules.	(.....)
13	<u>Aneroid</u> is an instrument used to determine the elevation of aeroplanes above sea level.	
14	Meteors burn in <u>thermosphere</u> layer.	
15	The <u>thermometer</u> is an instrument used to measure the atmospheric pressure.	
16	Radio waves are reflected and transmitted by communication centers in <u>stratosphere</u> .	
17	All weather phenomena like rains, wind and clouds occur in the <u>ionosphere</u> .	

***(5) Give reason for:**

1. Water molecule is from polar compounds.

.....

2. Dissolving of sugar in water although it is among covalent compounds.

.....

3. Water has high boiling point.

.....

4. Bromine cannot replace chlorine in sodium chloride.

.....

5. Silicon slides are used in making electronics as computers .

.....

6. Sugar dissolves in water.

.....

7. Liquefied nitrogen is used in preservation of the eye cornea.

.....

8. Cobalt 60 is used in food preservation.

.....

9. Water density decreases on freezing.

.....

10. Chlorine replaces bromine in potassium bromide solution.

.....

11. Adding drops of dilute acid to water during its electrolysis.

.....

12. Van-Allen belts play an important role in atmosphere.

.....

13. The lower part of stratosphere is suitable for flying aeroplanes.

.....

*** (6) What happen if:**

1. Storing drinking water in plastic bottles.

.....

2. Eating fish contains high concentration of lead.

.....

3. passage of electricity in Hofmann's voltammeter containing acidic water.

.....

4. The pollution of water with animals and human wastes.

.....

5. Decreasing water temperature to less than 4°C.

.....

6. There is no ionosphere layer at the end of thermosphere.

.....

*** (7) Put (\checkmark) or (X) :**

- | | |
|---|-----|
| 1. Silicon slides are good conductors of electricity. | () |
| 2. Ice crystals have pentagonal shapes. | () |
| 3. Halogens are monovalent elements. | () |
| 4. Water and ammonia are non-polar compounds. | () |
| 5. Liquefied sodium is used in preservation of cornea of the eye. | () |
| 6. Halogens are from monovalent metals. | () |
| 7. Water and ammonia are from polar compounds. | () |
| 8. Water molecules are linked together by ionic bond. | () |
| 9. Hydrogen evolves at positive pole in Hofmann's voltameter. | () |
| 10. Density of ice is more than that of water. | () |
| 11. The air moves vertically in the bottom part of the stratosphere. | () |
| 12. The troposphere is the first layer in the atmospheric envelope. | () |
| 13. The millibar is the unit of measuring the ozone degree. | () |
| 14. Mesosphere is the layer which is responsible for burning of meteors. | () |
| 15. Altimeter is a kind of barometers. | () |
| 16. The satellites revolve around the Earth in a region called the troposphere. | () |
| 17. Meteors are burnt in thermosphere layer. | () |
| 18. The pilots prefer to fly in mesosphere. | () |

*** (8) Write the balanced chemical equations which express the following reactions :**

- Bromine with potassium iodide.
.....
- Decomposition of acidified water by electricity into two elements hydrogen and oxygen.
.....
- Reaction of chlorine gas with potassium bromide solution.
.....
- Potassium iodide with bromine.
.....

4

Calculate the temperature at the top of a mountain, which its height is 4 km. If the temperature at the base of that mountain is 24°C.

.....

.....

.....

.....

.....

5

If the temperature at the sea level is 20.6°C. Find the temperature at the top of a mountain of height 2 km above Earth's surface.

.....

.....

.....

.....

Mr. Ahmed ElBasha

Model Answer

✱ (1) Write the scientific term:

- | | | |
|---|--|--|
| <ol style="list-style-type: none"> 1. Bromine 2. Hofmann voltmeter 3. Hydrogen bond 4. Sodium 5. Single covalent bond 6. Cesium 7. Hydrogen bond | <ol style="list-style-type: none"> 8. Hydrogen bond 9. Iodine 10. Water pollution 11. Hofmann voltmeter 12. Ionosphere 13. Stratopause 14. Atmospheric pressure | <ol style="list-style-type: none"> 15. Aurora phenomenon 16. Ionosphere 17. Troposphere 18. Exosphere 19. Altimeter 20. Van Allen belt |
|---|--|--|

✱ (2) Choose the right answer:

- | | | | | | |
|--|---|---|---|---|--|
| <ol style="list-style-type: none"> 1. C 2. B 3. B 4. B 5. B | <ol style="list-style-type: none"> 6. A 7. B 8. A 9. C 10. C | <ol style="list-style-type: none"> 11. C 12. A 13. D 14. C 15. C | <ol style="list-style-type: none"> 16. C 17. B 18. A 19. C 20. C | <ol style="list-style-type: none"> 21. C 22. B 23. B 24. A 25. B | <ol style="list-style-type: none"> 26. C 27. B 28. B 29. D |
|--|---|---|---|---|--|

✱ (3) Complete the following :

- | | | |
|---|---|---|
| <ol style="list-style-type: none"> 1. Water 2. Blindness 3. Gas 4. Death of brain cells - Blindness 5. Heat – electricity 6. Hydrogen 7. Water – ammonia 8. Monovalent 9. 100°C – 0°C. 10. Water – alkaline | <ol style="list-style-type: none"> 11. Alkali metals – halogen 12. Single covalent bond – hydrogen 13. Kerosene – air 14. Cobalt 60 15. Microbes 16. 7A 17. Water – high 18. Oxygen – hydrogen 19. Hydrogen 20. Alkali metals | <ol style="list-style-type: none"> 21. Hydrogen 22. 104.5° 23. Thermosphere – mesosphere 24. 1000 - 1013.25 25. 35 26. 1013.25 27. Thermosphere – mesosphere 28. Thermosphere – mesosphere 29. 37 – 35 |
|---|---|---|

✱ (4) Correct the underlined words:

- | | | |
|---|--|---|
| <ol style="list-style-type: none"> 1. Hexagonal 2. Bromine 3. Sugar 4. Biological 5. Death of brain cells 6. Liquefied nitrogen | <ol style="list-style-type: none"> 7. Neutral 8. Silicon 9. Food 10. 4°C. 11. Alkali metals 12. Hydrogen | <ol style="list-style-type: none"> 13. Altimeter 14. Mesosphere 15. Barometer 16. Ionosphere 17. Troposphere |
|---|--|---|

*(5) Give reason for:

- 1- Because of the electronegativity difference between its elements is relatively high
- 2- Because sugar forms a hydrogen bond with water.
- 3- Due to the presence of hydrogen bonds between water molecules
- 4- Because bromine is less active than chlorine
- 5- Because it is semi-conductor
- 6- Because sugar forms a hydrogen bond with water
- 7- Due to the decrease of its boiling point.
- 8- Because it radiates (produces) gamma rays which prevent the reproduction of microbes
- 9- Because it's volume increase
- 10- Because it is more active than bromine
- 11- Because pure water is bad conductor of electricity
- 12- Because these two belts play an important role in dispersing harmful charged cosmic radiation away from the Earth
- 13- Because it doesn't contain clouds or suffer from any weather disturbances and the air moves in this part horizontally

*(6) What happen if:

1. Plastic will react with chlorine gas leading to the increase in the infection rates by cancer
2. It causes the death of brain cells.
3. **1. Acidified water decomposes by electricity into:**
Oxygen gas evolves at the anode (because oxygen ions are negative)
Hydrogen gas evolves at the cathode (because hydrogen ions are positive)
2- The volume of hydrogen is twice the volume of oxygen.
Because water molecule H₂O is composed of two hydrogen atoms and one oxygen atom
$$\text{H}_2\text{O} \xrightarrow{\text{electrolysis}} \text{O}_2 + \text{H}_2$$
4. It causes many diseases such as: Bilharzia, typhoid and hepatitis.
5. Water molecules are collected and form crystal of hexagonal shape
6. We can't make wireless communications and broadcasting

*(7) Put (√) or (X) :

- | | | | | | |
|--------|--------|--------|---------|---------|---------|
| 1. (√) | 4. (X) | 7. (√) | 10. (X) | 13. (X) | 16. (X) |
| 2. (X) | 5. (X) | 8. (X) | 11. (X) | 14. (√) | 17. (X) |
| 3. (√) | 6. (X) | 9. (X) | 12. (√) | 15. (√) | 18. (X) |

*(8) Write the balanced chemical equations which express the following reactions :

- 1- $\text{Br}_2 + 2\text{KI} \rightarrow 2\text{KBr} + \text{I}_2$
- 2- $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
- 3- $\text{Cl}_2 + 2\text{KBr} \rightarrow 2\text{KCl} + \text{Br}_2$
- 4- $\text{Br}_2 + 2\text{KI} \rightarrow 2\text{KBr} + \text{I}_2$

*(9) Problems

1	1. a 2. d 3. c	4	<p>– The temp. at the top of the mountain = the temp. at its base – the decrease in temp.</p> $= 24 - (4 \times 6.5) = 24 - 26 = -2^{\circ}\text{C}$
2	<p>a. L and M</p> <p>b. N and O</p> <p>c. B</p> <p>d. D , E , F and G</p>	5	<p>- The temp. at the top of the mountain = the temp. at sea level – the decrease in temp.</p> $= 20.6 - (2 \times 6.5)$ $= 20.6 - 13 = 7.6^{\circ}\text{C}$
3	1. c 2. d 3. a 4. b	6	