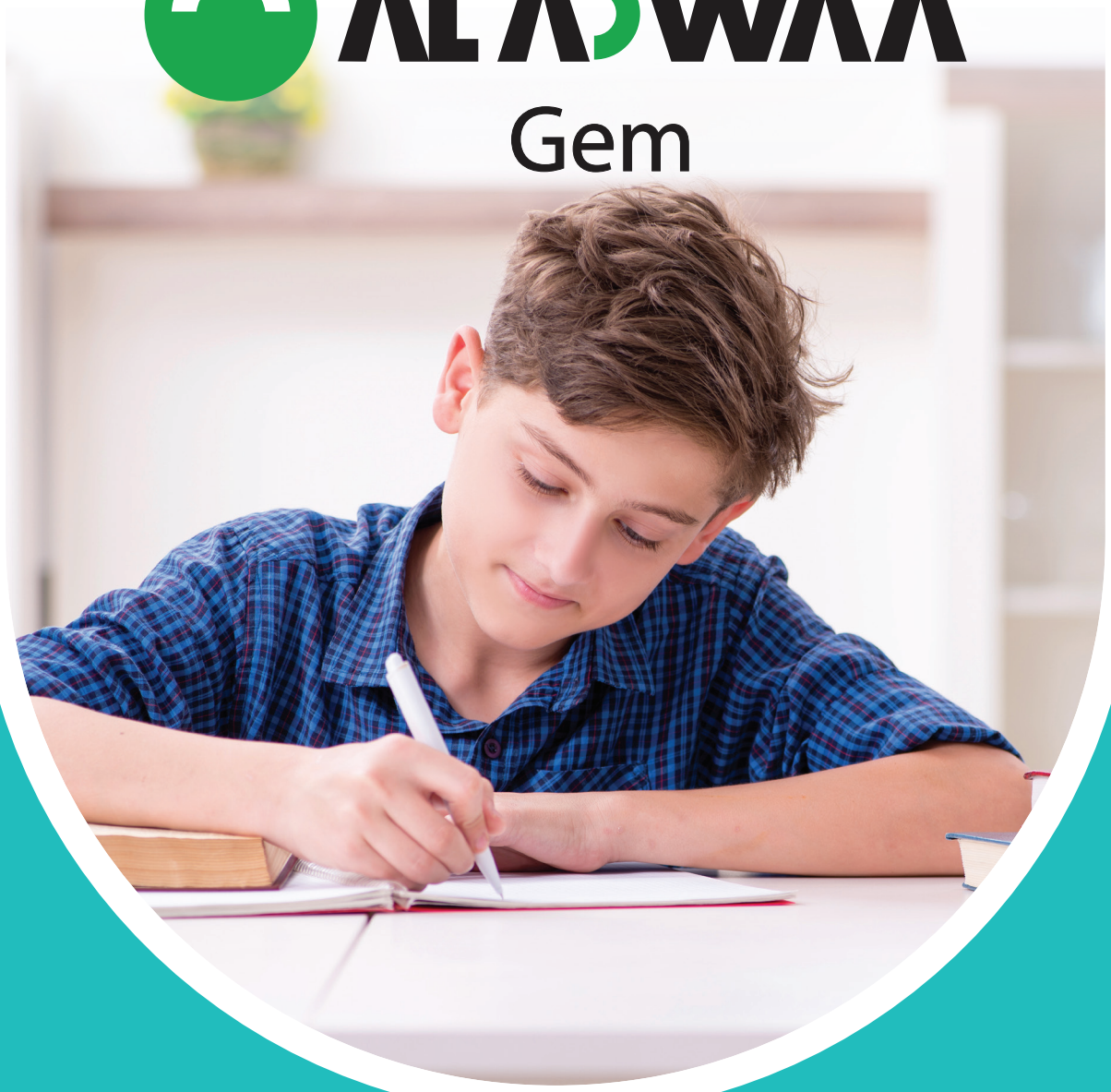
ALAWAA

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Science

الصف 1 الإعدادى

إجابات النماذج النهائية للفصل الدراسى الأول

العام الدراسى

2024 - 2025

Model (1) Answer

24 Marks

1 A) Choose the correct answer:

1. The nucleus of an oxygen atom ($_8O$) contains ..... protons.

   a) 2 b) **8** c) 16 d) 24

2. Which of the following is considered a field force?

   a) Friction. b) Collision. c) **Magnetism.** d) Elasticity.

B) First: What happens when ...?

1. The Moon is found completely inside the Earth's shadow.

   - **A total lunar eclipse occurs.**

2. Keeping yogurt out of the refrigerator.

   - **The lactic acid bacteria will continue its action and increase the yogurt acidity which spoils its taste.**

Second: Compare between the following:

1. Mammals and fish (with respect to their respiratory organs)

Mammals	Fish
They respire oxygen gas using two lungs.	They respire oxygen gas using gills.

2. Iron and copper (with respect to their chemical symbols and their ability to be attracted to the magnet)

Points of comparison	Iron	Copper
Chemical symbols	**Fe**	**Cu**
The ability to be attracted to the magnet	**Magnetic material**	**Non-magnetic material**

2 A) Write the scientific term:

1. Electrostatic attraction between a positive ion and a negative ion. (**Ionic bond**)
2. The simplest pure form of matter that cannot be separated into components by physical or chemical methods. (**Element**)

B) Give a reason:

1. Fuel transport vehicles must be in contact with the ground using metal chains.

   - **To discharge the electric charges produced by the friction of the fuel with the surface of the fuel tank to prevent fuel consumption.**

2. The nodular bacteria have great importance for leguminous plants.

   - **Because they provide them with nitrogen in a usable form to produce proteins.**

3 The length of the shadow at noon is the shortest.

- **Because the Sun's apparent height is the highest at noon**.

4 The atom is electrically neutral.

- **Because the number of protons (positive charges) inside the nucleus of an atom equals the number of electrons (negative charges) that revolve around the nucleus**.

3 A) Put (✓) or (X):

1 Elements in the same group have similar chemical properties. (✓)

2 The mass of a body on Earth = weight × gravitational field strength. (X)

B) Mention the importance of each of the following:

1 Hofmann Voltmeter:

- **It is used in water electrolysis into its elements.**

2 Penicillium notatum fungus.

- **It secretes a substance that stops the growth and reproduction of a certain type of bacteria.**

3 Helium gas:

- **It is used to fill balloons**.

4 Stem cells in humans:

- **They have the ability to be transformed and differentiated into all differentiated cells of the body**.

4 A) Complete the following sentences:

1 The group of **inner** planets are described as rocky planets such as Earth.

2 The valency of alkaline earth metals is **divalent**, while the valency of halogens is **monovalent**.

B) Answer the following questions:

1 An element (M) whose nucleus contains 12 neutral particles and has 23 nucleons:

(A) Calculate the number of protons and neutrons.

(B) Write the symbol of the element, including Z and A.

Solution:

A) No. of protons = No. of nucleons - No. of neutrons

= 23 – 12 = 11

No. of neutrons = 12

B) $_{11}M^{23}$

2 Classify the following living organisms according to what you have studied, then mention the similarities between them:

1- Bacteria 2- Euglena

	Bacteria	Euglena
Classification	**Prokaryotes - Unicellular organisms**	**Eukaryote - Unicellular organism**
Similarities	**Both of them are unicellular organisms.**	

ONLINE Teen

Model (2) Answer

24 Marks

1 A) Write the scientific term:

1. The electric charges accumulate on the surfaces of objects when they lose or gain electrons.

(**Static electricity**)

2. The phase of the Moon when it appears as a completely dark disk at the end of the lunar month.

(**New Moon**)

B) Give a reason:

1. The weight of an object changes from one planet to another.

- Because the gravitational field intensity varies from one planet to another.

2. Nitrogen is used to fill car tires instead of air.

- Because nitrogen is not affected by temperature changes and does not react with rubber.

3. Classifying living organisms is important.

- To facilitate their studying and identification.

4. An atom becomes a positive ion when it loses one or more electrons.

- Because the number of positively charged protons becomes greater than the number of negatively charged electrons.

2 A) Correct the underlined words:

1. The sand and salt solution mixture can be separated by condensation followed by evaporation.

(**filtration**)

2. The mathematical relation $2n^2$ determines the number of neutrons in the main energy levels.

(**electrons**)

B) First: Compare between each of the following:

- Mercury and Earth (With respect to the atmosphere and volcanic activity).

Points of comparison	Mercury	Earth
Atmosphere	Very thin, composed of hydrogen and helium gases	Composed mainly of nitrogen and oxygen gases
Volcanic activity	No active volcanoes	Many active volcanoes

Second: Mention one use for each of the following:

1. Aluminum-titanium alloy:

- It is used in the construction of military aircraft frames.

2. Electroscope:

- It is used to detect if an object is electrically charged and the type of charge on a charged object.

3 A) Cross out the odd word:

1. Arteries – Veins – Heart – Phloem Rissues (**phloem tissues**)
2. Number of Protons – Number of Electrons – Atomic Number – Mass Number (**Mass Number**)

B) What happens when ...?

1. The angle at which sunlight falls on the different areas of Earth's surface changes.
   - **The intensity of sunlight that falls on Earth differs from one place to another.**
2. A sodium atom ($_{11}$Na) loses an electron from its outermost energy level.
   - **It becomes a positively charged ion with a single positive charge.**
3. An ebonite rod is rubbed with wool (With respect to types of charges).
   - **The ebonite rod gains electrons and has a negative charge, while the wool loses electrons and has a positive charge.**
4. The human body lacks vitamin D.
   - **The person will suffer from osteoporosis.**

4 A) Choose the correct answer:

1. Gravity is a type of ..... .

   a) energy b) matter c) **force** d) speed

2. The difference between the mass number (A) and atomic number (Z) equals the number of ..... .

   a) electrons b) protons c) nucleons d) **neutrons**

B) Answer the following questions:

First: Answer the following problem:

- A body has a mass of 100 kg on Earth. Calculate the following:

(1) Its mass on the Moon:

- **The mass remains 100 kg because mass doesn't change by changing the place.**

(2) Its weight on Earth, given that the gravitational field strength is 10 N/kg:

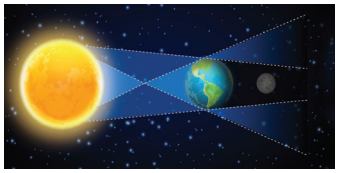
- **Weight on Earth = mass × gravitational field strength = 100 × 10 = 1000 N.**

Second: (1) Write the electronic configuration for ($_{19}$K), then determine:

The type of atom, the valency and the type of ion.

	Electronic configuration	Type of atom	Valency	Type of ion
$_{19}$K	2,8,8,1	Metal	Monovalent	Positive ion

(2) Look at the opposite figure, then answer:



- What is the name of the region where the Moon is located?
  - **Umbra shadow.**
- What phenomenon is shown in the diagram? - **Total lunar eclipse.**

ALPOWNA Gem

Model (3) Answer

24 Marks

1 A) Complete the following sentences:

1. The oxygen molecule O_2 is an example of **element** molecule, while methane CH_4 is an example of **compound** molecule.
2. Yogurt bacteria convert lactose sugar in the milk into **lactic acid**, which gives yogurt its distinctive taste and texture.

B) Give a reason:

1. The mass number is often greater than the atomic number.
   - **Because the mass number equals the sum of protons and neutrons, whereas the atomic number equals only the number of protons.**
2. The difference in the angle at which sunlight falls on different areas of Earth's surface.
   - **Due to the tilt of Earth's axis.**
3. A glass rod and an ebonite rod attract each other when rubbed with silk.
   - **As by rubbing both rods with silk, the glass rod loses electrons and has positive charges, which attract the negative charges on the ebonite rod that gains electrons through rubbing.**
4. Bacteria differ from amoebas although both are unicellular organisms.
   - **Because bacteria are prokaryotic organisms, while amoebas are eukaryotic organisms.**

2 A) Put (✓) or (X):

1. The Moon appears as a partial disk during a total lunar eclipse. (×)
2. Elements were arranged in Mendeleev's table in ascending order according to their atomic number. (×)

B) Answer the following questions:

First: Mention the importance of:

1. Guard cells in plants:
   - **They control the opening and closing of stomata on plant leaves.**
2. The coulometer:
   - **It measures weak electric charges.**

Second: Write the electronic configuration for the following elements, then determine their location in the modern periodic table:

1. $_{10}Ne$
2. $_{20}Ca$

Element	Electronic configuration	No. of period	No. of group
$_{10}Ne$	2,8	Period 2	Group (0)
$_{20}Ca$	2,8,8,2	Period 2	Group 2A

3 A) Cross out the odd word:

1. Iron – Copper – Cobalt – Nickel (**Copper**)
2. Prokaryote – Relatively Small – Multicellular – Unicellular (**Multicellular**)

B) Answer the following questions:

First: Mention one difference between:

1. Yeast fungus and penicillium notatum fungi (with respect to the use):

Using of yeast fungus	Using of lactic acid bacteria
It is used in making bread and ethyl alcohol production.	They convert lactose, "Milk sugar" into lactic acid, which gives yogurt its sour taste and thickness.

2. Mars and Jupiter (with respect to atmospheric composition):

Mars	Jupiter
Its atmosphere is composed mainly of carbon dioxide gas.	It is a gaseous planet, its atmosphere composed of hydrogen and helium gases.

Second: An element with a mass number of 40 and 20 neutrons in its nucleus. Determine:

1. The number of occupied energy levels in the atom. (**4 energy levels**)
2. The number of electrons in the outermost energy level. (**2 electrons**)

4 A) Write the scientific term:

1. Compounds with high melting points that dissolve in water. (**Ionic compounds**)
2. The arrangement of materials according to their ease of losing electrons when rubbed together. (**Electrostatic series**)

B) What happens when ...?

1. A glass rod is brought close to an ebonite rod after rubbing both with cotton cloth.
   - **They attract each other.**
2. A freely moving magnet is suspended from its center.
   - **It takes north and south direction of the Earth.**
3. A part of the moon enters Earth's shadow.
   - **A partial lunar eclipse occurs.**
4. The atomic number increases within the same group (regarding atomic radius).
   - **The atomic radius increases.**

Model (4) Answer

24 Marks

1 A) Choose the correct answer:

1. Paramecieum and bacteria are similar in that both are ..... .

   a) multicellular b) **unicellular** c) prokaryotes d) eukaryotes

2. An element located in the third period and group 5A has an atomic number of ..... .

   a) 5 b) 8 c) 13 d) **15**

B) Compare between each of the following:

1. S-block and P-block elements (with respect to their location in the periodic table and the number of groups):

Points of comparison	S block elements	P block elements
Location	**Left side of the table**	**Right side of the table**
Number of groups	**2 groups**	**6 groups**

2. Photosynthesis process and cellular respiration (with respect to their products and the organelle responsible for each):

Points of comparison	Photosynthesis process	Cellular respiration
Products	**Oxygen gas** **Glucose sugar**	**Carbon dioxide gas** **Water** **Energy**
Responsible organelles	**Green plastids**	**Mitochondria**

2 A) Write the scientific term:

1. An imaginary line passing through Earth from the North Pole to the South Pole through Earth's center. (**Earth's axis**)
2. The unit that is used to measure electric charge. (**Coulomb**)

B) What happens when ...?

1. Contaminated food is ingested with the Entamoeba histolytica microbe.
   - **The person will be infected with dysentery disease.**
2. The apparent height of the Sun increases in the sky during the day.
   - **The length of the shadow cast by an object decreases.**
3. The nucleus of an atom doesn't contain neutrons.
   - **The atomic number equals the mass number.**
4. A non-metal atom gains one or more electrons during a chemical reaction.
   - **It becomes a negatively charged ion.**

3 A) Correct the underlined words:

1. All inner planets have a thick crust except Mars. (**Mercury**)
2. The molecule of Egyptian blue dye is composed of three elements. (**Four**)

B) Mention one importance for each of the following:

1. Tide: **It is used to generate electricity**.
2. Penicillium roqueforti fungus:

   It is used in making Roquefort cheese.
3. Aerogel and its exceptional insulation ability:

   It's used in making jackets for researchers in Antarctica.
4. Stainless steel: **It's used to make cooking utensils**.

4 A) Mention the number for each of the following:

1. The number of gaseous planets in the solar system. (**4 planets**)
2. The number of electrons in an ion of an element with an atomic number of 13. (**10 electrons**)

B) Answer the following questions:

1. Write two properties of electric field lines.

   1- Imaginary lines that do not intersect.

   2- Start with positive charges and end with negative charges.
2. Classify the following materials into two groups: (Copper – Cobalt – Silver – Iron)

Magnetic materials	Non-magnetic materials
Iron - Cobalt	Copper - Silver

3. Compare between plant and animal cells (with respect to the presence of centrioles and chloroplasts):

Points of comparison	Plant cell	Animal cell
Centrioles	Absent	Present
Chloroplasts	Present	Absent

4. In light of your understanding of electric field lines, indicate the type of positive charge or negative charge that is placed in the red and blue circles.



- The red circle contains a positive charge, while the blue circle contains negative charges.

Model (5) Answer

24 Marks

1 A) Choose the correct answer:

1. ..... is an example of a heterogeneous mixture.
   a) Milk b) **Oil in water** c) Mineral water d) Atmospheric air
2. All the following are from the components of an animal cell except ..... .
   a) centriole b) plasma membrane c) **cell wall** d) nucleus

B) What happens when ...?

1. Two objects with different electric charges are brought close to each other.
   - They attract each other.
2. Methane gas is found in the atmosphere of Uranus planet.
   - The planet appears bluish-green in color.
3. The atomic number equals the mass number in a hydrogen atom.
   - The nucleus of the hydrogen atom has no neutrons.
4. The roots of leguminous plants are left in the soil after harvest.
   - Soil fertility increases.

2 A) Put (✓) or (X):

1. Helium is a flammable gas used to fill balloons. (×)
2. A person's weight on the Moon is greater than their weight on Earth. (×)

B) Give a reason:

1. The compass needle takes a fixed direction in the same place.
   - Because it is a magnet that takes the north and south direction of the Earth.
2. The phenomenon of the Moon's phases occurs.
   - Due to the Moon's elliptical orbit around Earth.
3. Green plants and algae perform photosynthesis.
   - Because they have chloroplasts that help them make their own food.
4. Ionic bonds only produce compound molecules.
   - Because they are formed by the combination of two different elements: a metal and a non-metal.

3 A) Complete the following sentences:

1. **Root nodule bacteria** and **lactic acid bacteria** are considered a prokaryotic beneficial microbe.
2. The symbol for the element carbon is **C**, and the symbol for sodium is **Na**.

B) Define the following:

1. Ion:

   - An atom of an element that has lost or gained one or more electrons during a chemical reaction.

2. Apparent motion of the Sun:

   - The apparent change in the Sun's position in the sky from east to west due to Earth's rotation on its axis.

3. Law of attraction and repulsion:

   - Magnetic poles of the same type repel each other, while opposite poles attract each other.

4. Valence electrons:

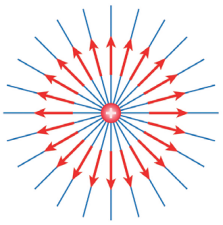
   - They are the electrons in the last energy level.

4 A) State the number for each of the following:

1. The total number of elements in the modern periodic table: (**118**)
2. The number of particles in the nucleus of a hydrogen atom: (**1**)

B) Answer the following questions:

1. Draw the electric field lines of a positive charge.



2. How can microbes enter the human body?

   - Through breathing, eating contaminated food, or skin penetration to reach the bloodstream.

3. What is meant by the atomic number?

   - The number of positively charged protons in the nucleus of an atom or negatively charged electrons revolving around the nucleus.

4. Calculate the weight of an object with a mass of 6 kg, given that the Earth's gravitational field strength is 10 N/kg.

   - Weight = mass X 10 = 6 X 10 = 60 N.