نماذج امتحانات النخبة

فريق أساتذة النخبة

طبقاً لمواصفات الورقة الامتحانية

بنك اسئلة Science

الفصل الدراسي الثاني-2026

Science



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3 Prep

Trust Academy Online

مراجعات النخبة
من
تراست أكاديمى اونلاين
2026



أكاديمية تراست
اونلاين
ابتدائي-إعدادي-ثانوي

لغات -تجريبي- عربي-أزهري

ناشيونال-انترناشيونال

(مناهج امريكي-كامبردج-مناهج خليجية)

- متاح حجز مجموعات الشرح الشهرية
مع فريق اساتذة اعداد مراجعات النخبة
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Exam 1

Q.1 A- Complete the following sentences

1- Most metal carbonates decompose to ..... and .....

2- Electrical resistance is measured in units of ..... while current intensity is measured in units of .....

3- When the amount of iodine in the diet decreases, the secretion of the ..... hormone from the ..... gland decreases.

4- The trait that appears in all individuals of the first generation according to Mendel's law is the ..... trait while the trait that disappears in all individuals of the first generation is .....

B Write down what the following sentences mean

1- A chemical message that controls and regulates the activities and functions of most of the body's organs. (.....)

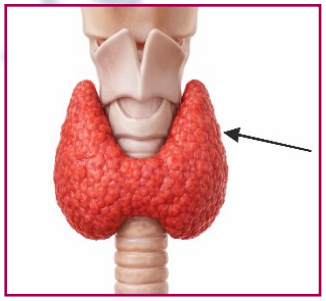
2- The change in the concentration of reactants and products at a unit time. (.....)

3- The opposition that the electric current faces during its passage through conductors. (.....)

4- The genetic map of the genes found in human chromosomes. (.....)

C Various questions

1. In the opposite figure :-



1- What is the name of the gland indicated by the arrow?

.....

2- Mention the hormones secreted by this gland.

.....

Q.2 A- Correct the underlined word in the following statements

1- Ionic compounds react <u>slower</u> than covalent compounds. (.....)

2- The unit of measurement for electromotive force is <u>the coulomb</u>. (.....)

3- The gamete ratio (TR) in a pea plant with the genotype (TtRr) is <u>75%</u>. (.....)

4- Dwarfism is caused by a deficiency in the secretion of the <u>insulin</u> hormone in the human body. (.....)

B Mention the name of the hormone whose increased or decreased secretion causes the following conditions

1) Gigantism : .....

2) Dwarfism : .....

3) Simple goiter : .....

4) Exophthalmic goiter : .....

C compare between each of the following

1- the products of decomposition of metal oxide and metal hydroxide.

.....

Q.3 A- Choose the correct answer for each of the following

1. The substance that changes the rate of a reaction without being changed is called the .....

Ⓐ oxidizer Ⓑ reductant Ⓒ reactive Ⓓ catalyst

2. Nuclear reactions taking place in ..... cannot be controlled

Ⓐ nuclear reactors Ⓑ turbines

Ⓒ nuclear bombs Ⓓ medical laboratories

3. According to Mendel's second law, the recessive trait appears in the second generation at a rate of .....

Ⓐ 50% Ⓑ 100% Ⓒ 75% Ⓓ 25%

4. The only way for hormones to reach their target cells is .....

Ⓐ saliva Ⓑ blood Ⓒ water Ⓓ duct

B Give reasons for the following

1. It is preferable to use fractionated nickel in the hydrogenation of oils.

.....

2. Exposure to radiation has cellular effects.

.....

3. A free ear lobe dominates an attached ear lobe.

.....

4. The pituitary gland is called the master gland.

.....

C Answer the following questions

1) Mention the cause of diabetes mellitus and what are its main symptoms?

.....

Q.4 A- Use symbols to express the product of a cross

1- Two red-flowered pea plants are hybrids.



Explain with symbolic equations the effect of heat on each of the following

1- Red mercury oxide

.....

2- Sodium nitrate

.....



Define the following (what is meant by)

Positive catalytic reactions	.....
Electromotive force.	.....

فريق أساتذة النخبة

Exam 2

Q.1 A- Mark (✓) or (✗) for each statement, with correction

1- Oxidation and reduction reactions occur individually. ( )

2- A voltmeter is connected in series in electrical circuits. ( )

3- Gigantism is the continuous growth of the limbs during childhood. ( )

4- Genes control the appearance of an individual's hereditary traits. ( )

B Write down what the following sentences mean

1- Breaking the bonds between the molecules of the reactants and forming new bonds between the molecules of the products. (.....)

2- The cells affected by the hormone are located far from the site of the gland that secretes it. (.....)

3- The trait that appears in an individual when one carries two genes, one dominant and the other recessive. (.....)

4- The forces necessary to bind the components of the nucleus together and overcome the repulsive forces between the positive protons. (.....)

C compare between each of the following

1- Estrogen and testosterone in terms of :

(1) Secretory gland (2) Importance

Comparison	Estrogen	Testosterone
Secretory gland	.....	.....
Importance	.....	.....

Q.2 A- Choose the correct answer for each of the following

1. The reducing agent is a substance that ..... during a chemical reaction.

(A) take oxygen (B) removes oxygen
(C) removes hydrogen (D) gains electrons

2. volt is equivalent to .....

(A) Coulomb/Joule (B) Coulomb/Second
(C) Ohm/Ampere (D) Joule/Coulomb

3. The chromosome is chemically composed of DNA and .....

(A) carbohydrates (B) proteins (C) fats (D) starches

4. The ..... hormone releases the energy of the body which needs from nutrients.

(A) growth (B) estrogen (C) thyroxin (D) testosterone

B Correct the underlined word in the following statements

1- When 5 grams of a catalyst is used in a chemical reaction, its mass after the reaction completed is <u>less than</u> 5 grams. (.....)

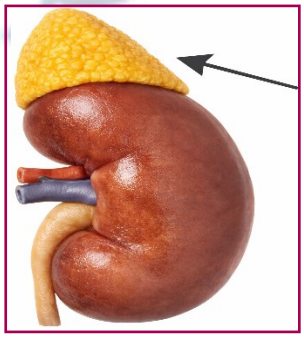
2- A voltmeter is connected in <u>series</u> in electrical circuits. (.....)

3- Mendel removed the stamens in his experiments to prevent <u>cross</u> pollination. (.....)

4- <u>The insulin hormone</u> stimulates the release of glucose from the liver. (.....)

C Various questions

1. In the opposite figure :-



1- What is the name of the gland indicated by the arrow?

.....

2- Mention the hormone that secreted by this gland and its importance.

.....

Q.3 A- what can be observed when (what happen if)

1) Heating red mercury oxide

.....

2) Heating copper sulfate

.....

3) Heating silver nitrate

.....

4) The reaction of magnesium with copper sulfate

.....

B Complete the following sentences

1- Glucagon stimulates liver cells to convert stored ..... into glucose.

2- sweet potato contain the ..... enzyme, which increases the rate of breakdown of .....

3- The sliding rheostat is used to control ..... by controlling .....

4- The scientific idea of the dominance of curly hair over straight hair is the principle of .....

C What means that?

1- The current flowing through a conductor in an electrical circuit in 10 seconds is 2 amperes.

.....

2- The potential difference between the two ends of a conductor is 5 volts.

.....

Q.4 A- Explain

based on genetic principles, the result of mating a curly hair man (Bb) with a woman with straight hair (bb).

B Give one example of each of the following

1. A very fast chemical reaction

.....

2. A relatively slow chemical reaction

.....

3. A very slow chemical reaction

.....

4. A very, very slow chemical reaction

.....

C Answer the following questions

1) If the amount of work done to move an electric charge of 480 coulombs between two points in a time of two minutes is equal to 960 joules, calculate the electric current intensity and the potential difference between the two points.

.....

.....

Exam 3

Q.1 A- Mark (✓) or (✗) for each statement, with correction

1- When hydrochloric acid is added to copper turnings, no reaction occurs. ( )

2- The transfer of electric charge between two touching conductors depends on the current intensity of the conductors. ( )

3- Removing the stamens of pea plants prevents them from cross-pollinating. ( )

B Clarify with symbolic equations the effect of heat on each of the following

1- Red mercury oxide

.....

2- Sodium nitrate

.....

C What means that?

1- the electric potential difference across a conductor is 5 volts.

.....

.....

Q.2 A- what can be observed when (what happen if)

1) The body's cells are unable to absorb glucose sugar.

.....

2) Adding an acid to an alkali.

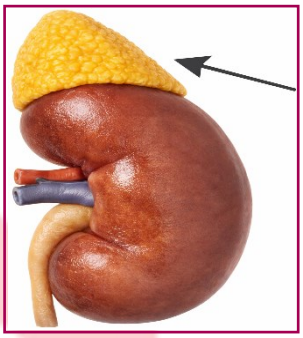
.....

3) Increased secretion of growth hormone during childhood.

.....

Various questions

1. In the opposite figure :-



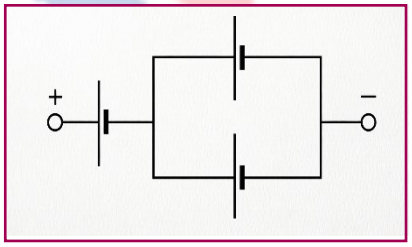
1- What is the name of the gland indicated by the arrow?

.....

2- State the name of the hormone secreted by this gland? And what is its importance?

.....

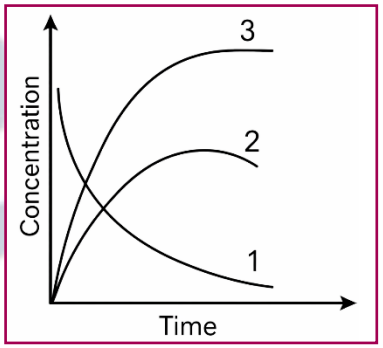
2. In the opposite figure (battery calculation) :



If the electromotive force (emf) of one cell is 1.5 volts, calculate the total emf of the battery.

.....

3. The following figure shows the decomposition of sulfur trioxide into sulfur dioxide and oxygen according to the following equation :



$$2SO_3 \xrightarrow{\Delta} 2SO_2 + O_2$$

1- After the end of the reaction, the concentration of SO_3 is

.....

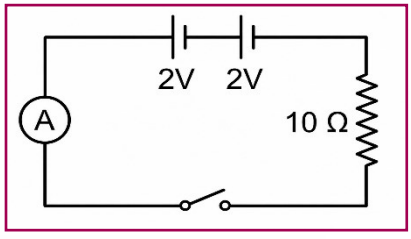
2- State what each graph line represents of the elements and compounds in the previous equation?

Graph line (1) represents : .....

Graph line (2) represents : .....

Graph line (3) represents : .....

4. Calculate the ammeter reading :



.....

.....

C Give reasons for the following

1. Radioactivity has natural and artificial sources.

.....

Q.3 A- Write down what the following sentences mean

1- A hormone that has the element iodine in its structure. (.....)

2- The resistance of a conductor through which an electric current of 1 ampere passes when the potential difference between its ends is 1 volt (.....)

3- Discovered the emission of invisible rays from the uranium element that have the ability to penetrate solid materials. (.....)

B compare between each of the following

1- Ammeter and voltmeter in terms of the method of connection in the electric circuit.

Ammeter	Voltmeter
.....	.....

2- Positive catalysis reactions and negative catalysis reactions.

Positive catalysis reactions	Negative catalysis reactions
.....	.....

C Complete the following sentences

1- Learning to swim is an ..... while blood type is an ..... trait.

2- Electric cells produce ..... current, while generators produce ..... current.

3- The ..... is considered one of the most important safety features in modern cars, as it fills with nitrogen gas.

Q.4 A- Answer the following questions

1) Calculate the current intensity resulting from the passage of an electrical quantity of 3000 coulombs through a cross-section of a conductor in 3 minutes.

.....

2) What are the results of : Increasing the number of electric cells connected in series with respect to the electromotive force.

.....

3) What is meant by each of :

- The gene:

.....

- Mendel's Second Law :

.....

4) The speed of a chemical reaction increases by increasing the concentration of the reactants.

.....

5) Genetic information is found in DNA.

.....

6) Clarify on a scientific basis the result of mating a pure red-flowered pea plant with a white-flowered pea plant. Mentioning the ratio between the resulting individuals up to the second generation, clarifying the gametes.

.....

B Choose the correct answer for each of the following

1- If the quantity of electricity passing through a conductor decreases to half, then the electric current intensity ..... at a constant time.

(A) decreases to half
(B) doubles
(C) increases to four times
(D) does not change

2- The substance that changes the speed of the reaction and does not change is called the .....

Ⓐ oxidizing Ⓑ reducing Ⓒ active Ⓓ catalytic

3- The recessive trait appears in one of the offspring if they inherit from the parents .....

Ⓐ two dominant genes
Ⓑ one dominant gene
Ⓒ two recessive genes
Ⓓ one recessive and one dominant gene

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3 Prep

Exam 1

Q.1 A- Complete the following sentences

1- Most metal carbonates decompose to Metal oxide and Carbon dioxide gas

2- Electrical resistance is measured in units of ohm while current intensity is measured in units of ampere

3- When the amount of iodine in the diet decreases, the secretion of the thyroxin hormone from the thyroid gland decreases.

4- The trait that appears in all individuals of the first generation according to Mendel's law is the Dominant trait while the trait that disappears in all individuals of the first generation is recessive

B Write down what the following sentences mean

1- A chemical message that controls and regulates the activities and functions of most of the body's organs. (Hormone)

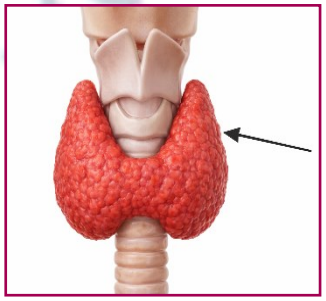
2- The change in the concentration of reactants and products at a unit time. (Speed of chemical reaction)

3- The opposition that the electric current faces during its passage through conductors. (The electric resistance)

4- The genetic map of the genes found in human chromosomes. (The human genome)

C Various questions

1. In the opposite figure :-



1- What is the name of the gland indicated by the arrow?
Thyroid gland

2- Mention the hormones secreted by this gland.
Thyroxin hormone — Calcitonin hormone

Q.2 A- Correct the underlined word in the following statements

1- Ionic compounds react slower than covalent compounds. (Faster)

2- The unit of measurement for electromotive force is the coulomb. (volt)

3- The gamete ratio (TR) in a pea plant with the genotype (TtRr) is 75%. (25%)

4- Dwarfism is caused by a deficiency in the secretion of the insulin hormone in the human body. (growth)

B Mention the name of the hormone whose increased or decreased secretion causes the following conditions

1) Gigantism : Increase in the secretion of the growth hormone at the childhood.

2) Dwarfism : Decrease in the secretion of the growth hormone at the childhood.

3) Simple goiter : Decrease in the secretion of thyroxin hormone.

4) Exophthalmic goiter : Increase in the secretion of thyroxin hormone.

C compare between each of the following

1- the products of decomposition of metal oxide and metal hydroxide.

- Decompose into metal and oxygen gas

$$2HgO \xrightarrow{\Delta} 2Hg + O_2 \uparrow$$

- Decompose into metal oxide and water vapour

$$Cu(OH)_2 \xrightarrow{\Delta} CuO + H_2O \uparrow$$

Q.3 A- Choose the correct answer for each of the following

1. The substance that changes the rate of a reaction without being changed is called the .....

Ⓐ oxidizer Ⓑ reductant Ⓒ reactive Ⓓ catalyst

2. Nuclear reactions taking place in ..... cannot be controlled

Ⓐ nuclear reactors Ⓑ turbines
Ⓒ nuclear bombs Ⓓ medical laboratories

3. According to Mendel's second law, the recessive trait appears in the second generation at a rate of .....

Ⓐ 50% Ⓑ 100% Ⓒ 75% Ⓓ 25%

4. The only way for hormones to reach their target cells is .....

Ⓐ saliva Ⓑ blood Ⓒ water Ⓓ duct

B Give reasons for the following

1. It is preferable to use fractionated nickel in the hydrogenation of oils.
Because the speed of chemical reaction increases by increasing the surface area exposed to reaction.

2. Exposure to radiation has cellular effects.
Because they are changes in the cells' composition which lead to destroy the cells.

3. A free ear lobe dominates an attached ear lobe.
Because the gene for free earlobes is a dominant trait that dominates over the gene for attached earlobe.

4. The pituitary gland is called the master gland.
Because it secretes hormones that regulate the activities of most of other endocrine glands.

C Answer the following questions

1) Mention the cause of diabetes mellitus and what are its main symptoms?
Diabetes : Caused by the decrease in the secretion of the insulin hormone.

Symptoms :

Feeling very thirsty.

Multiple urination times.

Q.4 A- Use symbols to express the product of a cross

1- Two red-flowered pea plants are hybrids.

P : $Rr \times Rr$

G : $R \quad r \quad R \quad r$

F_1 : $RR \quad Rr \quad Rr \quad rr$

Results :

75% red (impure)

25% pure white

B Explain with symbolic equations the effect of heat on each of the following

1- Red mercury oxide

$2HgO \xrightarrow{\Delta} 2Hg + O_2 \uparrow$

2- Sodium nitrate

$2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2 \uparrow$

C Define the following (what is meant by)

Positive catalytic reactions	**They are chemical reactions in which the catalyst increases their speeds.**
Electromotive force.	**It is the potential difference between the two poles of the battery when the electric circuit is open (no current passes through the circuit).**

Exam 2

Q.1 A- Mark (✓) or (✗) for each statement, with correction

1- Oxidation and reduction reactions occur individually. (✗)

2- A voltmeter is connected in series in electrical circuits. (✗)

3- Gigantism is the continuous growth of the limbs during childhood. (✓)

4- Genes control the appearance of an individual's hereditary traits. (✓)

B Write down what the following sentences mean

1- Breaking the bonds between the molecules of the reactants and forming new bonds between the molecules of the products. (Chemical reaction)

2- The cells affected by the hormone are located far from the site of the gland that secretes it. (Target cell)

3- The trait that appears in an individual when one carries two genes, one dominant and the other recessive. (Dominant trait)

4- The forces necessary to bind the components of the nucleus together and overcome the repulsive forces between the positive protons. (Nuclear binding forces)

C compare between each of the following

1- Estrogen and testosterone in terms of :

(1) Secretory gland (2) Importance

Comparison	Estrogen	Testosterone
Secretory gland	Two ovaries gland (reproductive glands)	Two testes gland (reproductive glands)
Importance	It responsible for the appearance of the female Secondery sex characters	It responsible for the appearance of the male Secondery sex characters

Q.2 A- Choose the correct answer for each of the following

1. The reducing agent is a substance that ..... during a chemical reaction.

Ⓐ take oxygen Ⓑ removes oxygen
Ⓒ removes hydrogen Ⓓ gains electrons

2. volt is equivalent to .....

Ⓐ Coulomb/Joule Ⓑ Coulomb/Second
Ⓒ Ohm/Ampere Ⓓ Joule/Coulomb

3. The chromosome is chemically composed of DNA and .....

Ⓐ carbohydrates Ⓑ proteins Ⓒ fats Ⓓ starches

4. The ..... hormone releases the energy of the body which needs from nutrients.

Ⓐ growth Ⓑ estrogen Ⓒ thyroxin Ⓓ testosterone

B Correct the underlined word in the following statements

5- When 5 grams of a catalyst is used in a chemical reaction, its mass after the reaction completed is less than 5 grams. (equal to)

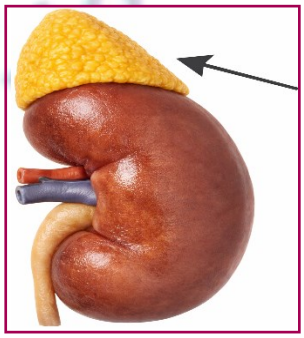
6- A voltmeter is connected in series in electrical circuits. (Parallel)

7- Mendel removed the stamens in his experiments to prevent cross pollination. (Self)

8- The insulin hormone stimulates the release of glucose from the liver.
(Glucagon hormone)

C Various questions

1. In the opposite figure :-



1- What is the name of the gland indicated by the arrow?
Adrenal gland

2- Mention the hormone that secreted by this gland and its importance.

Adrenalin hormone

It stimulates body's organ to respond to emergencies like : Fear, anger and emotion.

Q.3 A- what can be observed when (what happen if)

1) Heating red mercury oxide

Red mercury oxide decomposes by heat into mercury (silvery) and oxygen gas evolve.

$$2HgO \xrightarrow{\Delta} 2Hg + O_2 \uparrow$$

2) Heating copper sulfate

Copper sulfate decomposes by heat into Copper oxide (black) and sulphur trioxide gas evolves.

$$CuSO_4 \xrightarrow{\Delta} CuO + SO_3 \uparrow$$

3) Heating silver nitrate

Sodium nitrate decomposes by heat into Sodium nitrite (yellowish white color) and oxygen gas evolves.

$$2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2 \uparrow$$

4) The reaction of magnesium with copper sulfate

Magnesium (more active) substitutes copper in copper sulphate solution forming magnesium sulphate (colourless) and copper precipitates (red ppt).

$$Mg + CuSO_4 \rightarrow MgSO_4 + Cu \downarrow$$

B Complete the following sentences

1- Glucagon stimulates liver cells to convert stored glycogen into glucose.

2- sweet potato contain the oxidase enzyme, which increases the rate of breakdown of H_2O_2

3- The sliding rheostat is used to control The electric current intensity by

controlling length of metallic wire

4- The scientific idea of the dominance of curly hair over straight hair is the principle of complete dominance

C What means that?

1- The current flowing through a conductor in an electrical circuit in 10 seconds is 2 amperes.

This means that the quantity of electric charge that flows through across section of conductor in 10 seconds is 20 Coulomb.

$(q = 2 \times 10)$

2- The potential difference between the two ends of a conductor is 5 volts.

This means that the amount of work done to transfer an electric charge of 1 Coulomb between the two ends of this conductor is 5 Joules.

Q.4 A- Explain

based on genetic principles, the result of mating a curly hair man (Bb) with a woman with straight hair (bb).

$P: Bb \times bb$

$G: B \quad b \quad b \quad b$

$F_1: Bb \quad Bb \quad bb \quad bb$

50% 50%

impure curly hair straight hair

B Give one example of each of the following

1. A very fast chemical reaction

Fireworks

2. **A relatively slow chemical reaction**
Reaction of oil with Caustic Soda $(NaOH)$ to form Soap

3. **A very slow chemical reaction**
Rusting of iron

4. **A very, very slow chemical reaction**
Reaction of Petroleum oil formation inside the Earth

Answer the following questions

1) If the amount of work done to move an electric charge of 480 coulombs between two points in a time of two minutes is equal to 960 joules, calculate the electric current intensity and the potential difference between the two points.

$I = \frac{q}{t}$

$= \frac{480}{120} = 4\ ampere$

$V = \frac{w}{q}$

$= \frac{960}{480} = 2\ volt$

$q = 480\ coulomb$

$t = 2\ min \quad 2 \times 60 = 120\ Sec$

$w = 960\ Joule$

$I = ??$

$V = ??$

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Exam 3

Q.1 A- Mark (✓) or (✗) for each statement, with correction

1- When hydrochloric acid is added to copper turnings, no reaction occurs. (✓)

2- The transfer of electric charge between two touching conductors depends on the current intensity of the conductors. (✗)

3- Removing the stamens of pea plants prevents them from cross-pollinating. (✗)

B Clarify with symbolic equations the effect of heat on each of the following

1- Red mercury oxide

$2HgO \xrightarrow{\Delta} 2Hg + O_2 \uparrow$

2- Sodium nitrate

$2NaNO_3 \xrightarrow{\Delta} 2NaNO_2 + O_2 \uparrow$

C What means that?

1- the electric potential difference across a conductor is 5 volts.

This means that the work done to transfer an electric charge of 1 coulomb between the two ends of this conductor is equal to 5 Joules

Q.2 A- what can be observed when (what happen if)

1) The body's cells are unable to absorb glucose sugar.

The person defect with diabetes disease.

2) Adding an acid to an alkali.

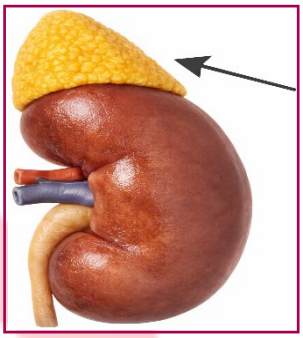
A neutralization reaction occurs: The acid and the alkali react to produce salt and water.

3) Increased secretion of growth hormone during childhood.

It leads to a continuous growth in the limbs' bones so the person becomes a giant.

Various questions

1. In the opposite figure :-



1- What is the name of the gland indicated by the arrow?

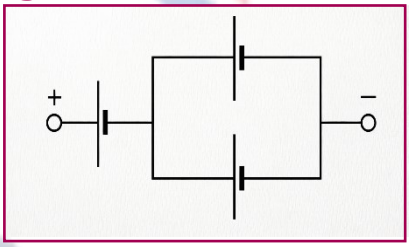
Adrenal gland

2- State the name of the hormone secreted by this gland? And what is its importance?

Adrenalin hormone :

It stimulates body's organs to respond to emergencies like fear, anger and emotion.

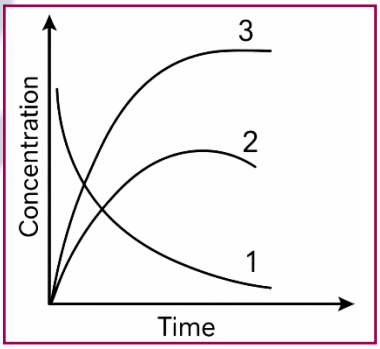
2. In the opposite figure (battery calculation) :



If the electromotive force (emf) of one cell is 1.5 volts, calculate the total emf of the battery.

$e.m.f\ of\ battery\ =\ 1.5\ (Parallel)+\ 1.5\ (series)=3\ volt$

3. The following figure shows the decomposition of sulfur trioxide into sulfur dioxide and oxygen according to the following equation :



$$2SO_3 \xrightarrow{\Delta} 2SO_2 + O_2$$

1- After the end of the reaction, the concentration of SO_3 is

$Concentration\ of\ SO_3\ =\ 0$

2- State what each graph line represents of the elements and compounds in the previous equation?

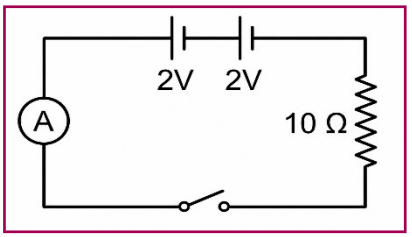
Graph line (1) represents : $2SO_3$

Graph line (2) represents : O_2

Graph line (3) represents : $2SO_2$

4. Calculate the ammeter reading :

$$Ammeter\ reading = 0.4\ Ampere$$



C Give reasons for the following

1. Radioactivity has natural and artificial sources.
   - Natural Sources they are represented by :

a- Natural radioactive materials found on the Earth's surface.

b- Cosmic radiation that comes from the outer space.

   - Artificial Sources they take place due to :

a- The explosion of nuclear bombs that some countries do as experiments from time to time.

b- The nuclear reactors.

Q.3 A- Write down what the following sentences mean

1- A hormone that has the element iodine in its structure. (Thyroxin hormone)

2- The resistance of a conductor through which an electric current of 1 ampere passes when the potential difference between its ends is 1 volt (Ohm)

3- Discovered the emission of invisible rays from the uranium element that have the ability to penetrate solid materials. (Henri Becquerel)

B compare between each of the following

1- Ammeter and voltmeter in terms of the method of connection in the electric circuit.

Ammeter	Voltmeter
Series	Parallel

2- Positive catalysis reactions and negative catalysis reactions.

Positive catalysis reactions	Negative catalysis reactions
They are chemical reactions in which the calalyst in creases their speeds	They are chemical reactions in which the calalyst in decreases their speeds

C Complete the following sentences

1- Learning to swim is an acquired traits while blood type is an Hereditary traits trait.

2- Electric cells produce direct current, while generators produce Alternating current.

3- The airbag is considered one of the most important safety features in modern cars, as it fills with nitrogen gas.

Q.4 A- Answer the following questions

1) Calculate the current intensity resulting from the passage of an electrical quantity of 3000 coulombs through a cross-section of a conductor in 3 minutes.

$I = \frac{q}{t}$ $q = 3000\ coulomb$ $I = ??$

$= \frac{3000}{180} = 16.7\ ampere$ $t = 3\ min$ $3 \times 60 = 180\ Sec$

2) What are the results of : Increasing the number of electric cells connected in series with respect to the electromotive force.

electromotive Force of battery will increase

3) What is meant by each of :

- The gene:

Gene : They are parts of DNA present on chromosomes; they are responsible for appearing the individual's hereditary traits.

- **Mendel's Second Law :**

When two pure different individuals bearing two pairs or more of alternative (contrasting) traits are crossed, the trait of each pair is inherited independently of the others and appears in second generation at a ratio of 3 (dominant) : 1 (recessive trait).

4) **The speed of a chemical reaction increases by increasing the concentration of the reactants.**

Because by increasing the number of reactant molecules, the number of probable collisions between them increases.

5) **Genetic information is found in DNA.**

Because DNA carry all genetic traits and it exist in the cell nucleus in chromosomes.

6) **Clarify on a scientific basis the result of mating a pure red-flowered pea plant with a white-flowered pea plant. Mentioning the ratio between the resulting individuals up to the second generation, clarifying the gametes.**

P : RR rr

G : R R r r

F_1 : Rr Rr Rr Rr

impure red flower 100%

P : Rr Rr

G : R r R r

F_2 : RR Rr Rr rr

impure red 75%

25% white flower

B Choose the correct answer for each of the following

1- **If the quantity of electricity passing through a conductor decreases to half, then the electric current intensity ..... at a constant time.**

Ⓐ decreases to half
Ⓑ doubles
Ⓒ increases to four times
Ⓓ does not change

2- The substance that changes the speed of the reaction and does not change is called the .....

Ⓐ oxidizing Ⓑ reducing Ⓒ active Ⓓ catalytic

3- The recessive trait appears in one of the offspring if they inherit from the parents .....

Ⓐ two dominant genes
Ⓑ one dominant gene
Ⓒ two recessive genes
Ⓓ one recessive and one dominant gene

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