EL-MOASSER

April Tests

2026



إهداء
من سلسلة كتب
المعاصر
غير مخصصة
للبيع

INTEGRATED SCIENCE

1st SEC.

SECOND TERM

Test 1 Answered

Choose the correct answers (1 : 12):

1 During depolarization, charges are reversed because .....

(a) negative proteins exit from the cell
(b) the nucleus stops its activity
(c) the sodium pump stops working completely
(d) sodium ions (Na^+) that move inside exceeds the potassium ions (K^+) that move out

2 The difference between a regular neuron and a Purkinje cell lies in .....

(a) the type of ions used
(b) the presence of a nucleus
(c) the number of neural synapses
(d) the method of impulse transmission along the axon

3 "Nano-chips" implanted in the brain allow paralyzed patients to .....

(a) walk by relying on their damaged muscles
(b) see distant objects
(c) treat bone fractures
(d) communicate via devices merely by thinking

4 In a biofuel cell, glucose is oxidized at .....

(a) the positive electrode (cathode)
(b) inside the wires only
(c) in the light lamp
(d) negative electrode (anode)

5 The Earth's magnetic field is generated by the movement of molten material in the .....

(a) lower mantle (b) outer core (c) oceanic crust (d) upper mantle

6 The primary function of the enzyme that breaks down acetylcholine is .....

(a) stimulating the cell
(b) transporting sodium
(c) returning the cell to the resting state
(d) synthesizing acetylcholine

7 The movement of smart prosthetics limbs depends on .....

(a) nano-chip commands
(b) large external batteries
(c) wind movement
(d) automatic muscle response

8 Which chemical bonds make a mineral most resistant to weathering (e.g., quartz)?

(a) Ionic bonds. (b) Covalent bonds. (c) Metallic bonds. (d) Hydrogen bonds.

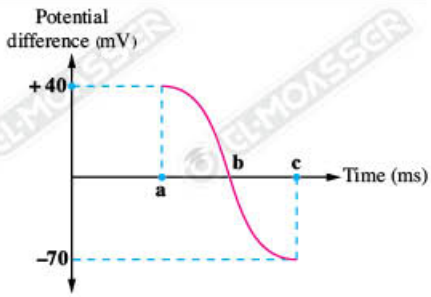
9 Thin films appear as examples of ..... materials.

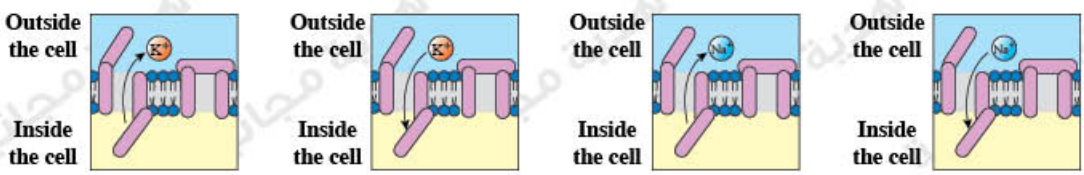
(a) one-dimensional nanomaterials
(b) three-dimensional nanomaterials
(c) zero-dimensional nanomaterials
(d) two-dimensional nanomaterials

10 The famous "San Andreas Fault" is an example of which plate movement?

(a) Continental convergence
(b) Oceanic divergence
(c) Transform (sliding) movement
(d) Destructive

11 Which of the following figures represents the flow of a large amount of ions during the period (ab) of the nerve impulse in the opposite curve?

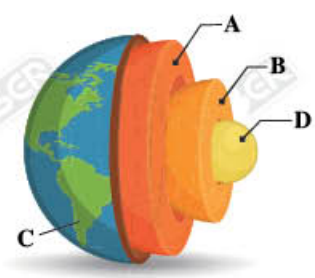




(a) (b) (c) (d)

12 The opposite model represents the Earth's layers.
What is the letter that refers accurately to sial rocks?

(a) A
(b) B
(c) C
(d) D



Answer the following questions (13 : 15):

13 **Explain:** Dendrites contribute to increasing the efficiency of recieving data.

.....

14 Describe (using equations or explanation) how the lithosphere helps regulate the carbon cycle and reduce atmospheric CO_2 levels.

.....

15 **Explain:** why conventional cancer treatments are called a double-edged sword.

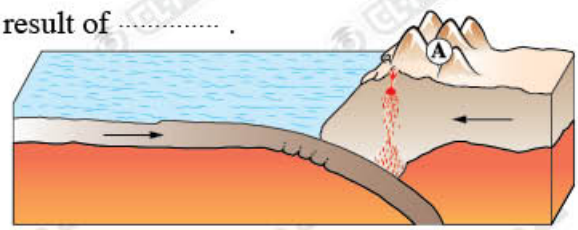
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Test 2 Answered

Choose the correct answers (1 : 12):

1 Which of the following represents the most accurate explanation of the term "Nanotechnology"?
(a) The study of dwarfs in ancient Greek times
(b) The practical application of knowledge to control materials at the nanoscale
(c) Measuring the lengths of materials using the traditional meter
(d) The study of large molecules in their normal state

2 Part (A) in the opposite figure is formed as a result of ..... .
(a) convergent movement
(b) divergent movement
(c) vibrational movement
(d) transform movement



3 The complexity of brain functions compared to the spinal cord is due to the cells such as ..... .
(a) sensory cells only
(b) long, unbranching axons
(c) purkinje cells with massive synapses
(d) surface calcium receptors

4 The use of nano-gold in biofuel cells aims to .....
(a) act as an electrical catalyst
(b) prevent corrosion only
(c) produce red light
(d) make the device expensive

5 What is the correct ratio of ion exchange across the sodium-potassium pump per ATP molecule?
(a) 3 sodium ions out against 2 potassium ions in
(b) 2 sodium ions out against 3 potassium ions in
(c) 1 sodium ion out against 1 potassium ion in
(d) 3 potassium ions out against 2 sodium ions in

6 The primary function of the enzyme that breaks down acetylcholine is .....
(a) stimulating the cell
(b) transporting sodium
(c) returning the cell to the resting state
(d) synthesizing acetylcholine

7 Which of the following represents the state of polarization?
(a) High permeability of sodium into the cell.
(b) Opening of calcium channels.
(c) Accumulation of positive charges outside the membrane and negative charges inside.
(d) Constriction of synaptic vesicles.

8 The primary fuel used in biofuel cells is .....

(a) gasoline (b) external hydrogen gas
(c) glucose (d) nano coal

9 The plate movement that led to the formation of the Himalayas is .....

(a) divergent (b) transform (sliding)
(c) convergent (d) lateral grinding

10 Chemical neurotransmitters are stored inside .....

(a) receptors (b) vesicles (c) mitochondria (d) sodium channels

11 The role of "carbon nanotubes" in biofuel cells is .....

(a) storing glucose
(b) coating the electrodes to increase surface area
(c) preventing protons from reaching the cathode
(d) cooling the medical device

12 Which of the following choices in the table is correct when comparing a mass of grinded (powdered) sugar with the same mass of a sugar cube?

	Grinded (powdered) sugar	Sugar cube
(a)	Faster dissolution	Slower dissolution
(b)	Larger volume	Smaller volume
(c)	Smaller surface area	Larger surface area
(d)	Smaller number of molecules	Larger number of molecules

Answer the following questions (13 : 15):

13 **Explain:** The nerve impulse is called an electrochemical change.

.....

14 **Explain:** Nanomaterials have a higher capacity for chemical interaction.

.....

15 **Explain:** Silicate rocks (such as quartz) are considered more resistant to weathering than limestone?

.....

Answers of April Tests

Answers of Test 1

Question no.	1	2	3	4	5	6	7	8
Answer	d	c	d	d	b	c	a	b

Question no.	9	10	11	12
Answer	d	c	a	c

13 Because they increase the surface area to receive the nerve impulse.

14 • Equation: $CaSiO_3 + 2CO_2 + 3H_2O \longrightarrow Ca(HCO_3)_2 + H_4SiO_4$

• Explanation: when rocks containing silicate minerals rich in calcium pyroxene are exposed to water and carbon dioxide, calcium ions are released that react with bicarbonate ions result from the reaction, which leads to the formation of calcium bicarbonate that dissolves in flowing water, which decreases the percentage of carbon dioxide gas in air.

15 They kill cancerous cells (chemically or by radiation) but cause severe side effects to the entire body.

Answers of Test 2

Question no.	1	2	3	4	5	6	7	8
Answer	b	a	c	a	a	c	c	c

Question no.	9	10	11	12
Answer	c	b	b	a

13 Because it is an electrical phenomenon depends on potential difference across the cell membrane which has a chemical nature arises from the movement of Na^+ and K^+ ions.

14 As the smaller the particles, the greater their active surface area relative to their volume and greater capacity for chemical interaction.

15 As silicate rocks such as quartz (SiO_2) have covalent bonds which make them dissolve very slowly. In contrast calcium carbonate found in limestone has ionic bonds which break down easily in water, for this reason silicate rocks remain more resistant to weathering.