

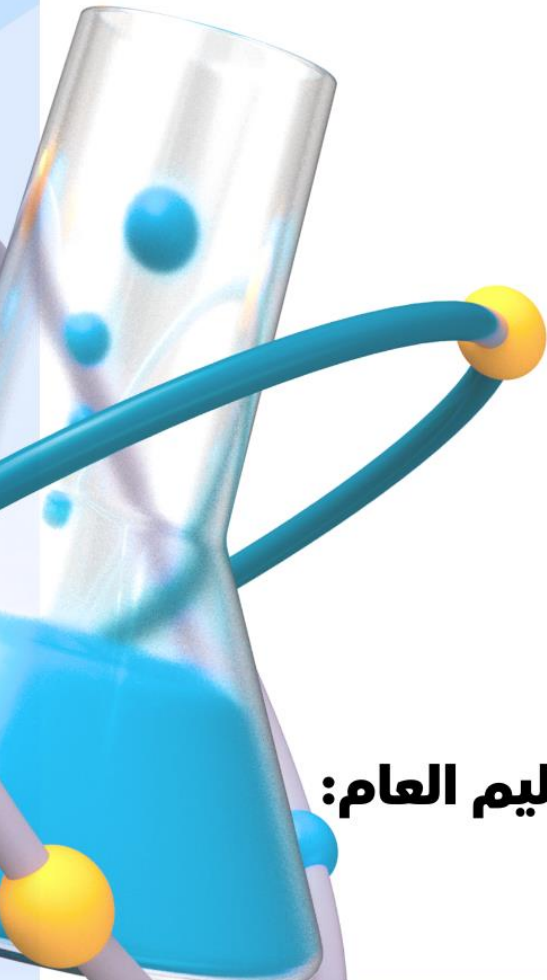
الإدارة المركزية للتعليم العام
مكتب تنمية مادة العلوم



CHEMISTRY

2nd secondary
Second term

HOME PERFORMANCE



إعداد:

أ. سامح منصور

أ. عبدالله عبدالواحد

مستشار مادة العلوم:

د. عزيزة رجب خليفة

رئيس الإدارة المركزية للتعليم العام:

د. هالة عبدالسلام خفاجي

2026

week

11

Home performance (Week 11)

Q1/ choose the correct answer:-

1- Which of the following does not describe isotopes of carbon?

- a) They have the same chemical properties
- B) They have the same atomic number
- C) They have the same number of protons
- d) They have the same nuclear reactions

2- Element $^{127}_{52}\text{X}$, which of the following options represents the nucleus of an Isotope of this element?

	Protons number	Neutrons number	Nucleons number
(a)	52	74	126
(b)	52	75	127
(C)	54	72	126
(d_)	50	74	124

3- Three isotopes of the same element (X), one of which has a nucleus containing 19 protons, the second has a nucleus containing 21 neutrons, and the third has a nucleus containing 39 nucleons.

-Which of the following options represents the isotopes of element (X)?

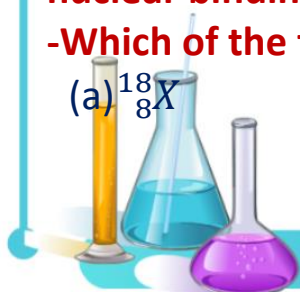
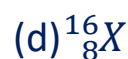
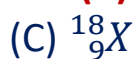
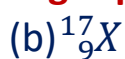
(a)	$^{39}_{21}\text{X}$	$^{39}_{20}\text{X}$	$^{39}_{19}\text{X}$
(b)	$^{39}_{19}\text{X}$	$^{40}_{19}\text{X}$	$^{41}_{19}\text{X}$
(C)	$^{39}_{21}\text{X}$	$^{40}_{20}\text{X}$	$^{41}_{19}\text{X}$
(d)	$^{41}_{19}\text{X}$	$^{40}_{19}\text{X}$	$^{39}_{19}\text{X}$

4- Which of the following is not affected by an electric field?

- (a) Gamma rays and beta particles
- (b) Beta particles and alpha particles
- (c) Helium atoms and gamma rays
- (d) Alpha particles and helium atoms

5 – Given that the nuclear binding energy of element (X) = 123.823 MeV and the nuclear binding energy per nucleon = 7.739 MeV

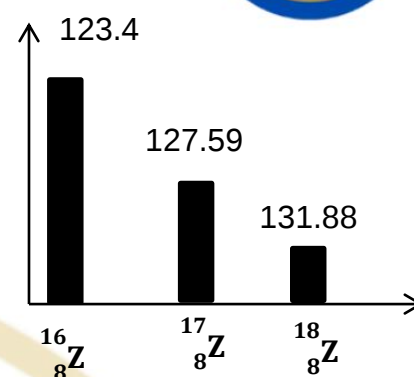
-Which of the following represents element (X)?



6-The following graph illustrates the relationship Between nuclear binding energy and the number Of nucleons in isotopes of element (Z).

-Which of the following statements is true?

- a) The nucleus of $^{17}_8\text{Z}$ is less stable than that of $^{18}_8\text{Z}$
- B) The nucleus of $^{16}_8\text{Z}$ is less stable than that of $^{18}_8\text{Z}$
- C) The nucleus of $^{18}_8\text{Z}$ is more stable than that of $^{16}_8\text{Z}$
- d) The nucleus of $^{17}_8\text{Z}$ is less stable than that of $^{16}_8\text{Z}$



7- If you know that the mass defect of an element's nucleus is 0.02 u, then the nuclear binding energy of this nucleus is:

- a) 18.62 joules
- b) 2.988×10^{-12} MeV
- c) 4.98×10^{-13} Joule
- d) 18.62 MeV

8- Which of the following represents an appropriate measure of nuclear Stability?

- a) Nuclear binding energy
- b) Average nuclear binding energy of the isotopes of the element
- C) Nuclear binding energy per nucleon
- d) The nuclear binding energy of the heaviest isotopes of the element

9- The effect of a magnetic field on gamma (γ) rays is similar to its effect on:

- a) Alpha (α) rays
- b) Beta (β) rays
- C) Neutrons (n)
- d) Protons (p)

10- Which of the following corresponds to a mass-to-energy conversion value of 931 MeV?

- a) 1 kg
- b) 1 gm
- C) 1 u
- d) 1 mgm



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WEEKLY ASSESSMENTS



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2026

week

11

Weekly assessment (Week-11)

A

Q1/ State the scientific reason: -

1- Photographic film get damaged when exposed to a uranium compound?

Q2/ From the following table:-

Isotope	Atomic number	Atomic mass	Actual mass
Isotope (1)	3	6	6.01512
Isotope (2)	3	7	7.01600

a) Calculate the nuclear binding energy of isotope (1).

b) Which of the two isotopes is less stable?

Q3/Choose the correct answer:

1- The isotopes of hydrogen are identical in all of the following except:

- a) The number of protons
- b) Their chemical properties
- c) All isotopes are equally stable
- d) Their position in the same group of the periodic table

2- Which of the following represents a mass-to-energy conversion value of 10 joules?

- a) 1.11×10^{-16} kg
- b) 1.11×10^{-15} kg
- c) 2.11×10^{-13} kg
- d) 0.0107 kg



B

Q1/ State the scientific reason: -

1- The actual mass of the nucleus is less than the sum of the masses of its constituents.

Q2/ From the following table:-

Isotope	Atomic number	Atomic mass	Actual mass
Isotope (1)	6	12	11.01512
Isotope (2)	6	13	12.01600

a) Calculate the nuclear binding energy of isotope (2).

b) Which of the two isotopes is more stable?

Q3/Choose the correct answer:

1-The most stable nucleus is the one in which:

- a) The total nuclear binding energy is as high as possible.
- b) The mass of the protons equals the mass of the neutrons.
- c) The nuclear binding energy per nucleon is as high as possible.
- d) The actual mass equals the theoretical mass

2- Which of the following represents the energy produced by converting 1.11×10^{-13} g into energy?

- a) 5 Joules
- b) 10 MeV
- c) 10 Joules
- d) 5 MeV



Q1/ State the scientific reason: -

1-Gamma particles unaffected when exposed to a magnetic field.

Q2/ From the following table:-

Isotope	Atomic number	Atomic mass	Actual mass
Isotope (1)	12	24	23.01512
Isotope (2)	12	25	24.01600

a) Calculate the mass defect of isotope (2).

b) Which of the two isotopes is more stable?

Q3/Choose the correct answer:

1- Which of the following represents the symbol for an atom of an element whose nucleus contains 5 protons and 6 neutrons?

- (a) ${}_5X^{11}$
- (b) ${}_6X^{11}$
- (c) ${}_5X^{12}$
- (d) ${}_6X^{12}$

2- If 1 gram of a substance is completely converted into energy, the Resulting energy is equal to:

- a) 9×10^{10} joules
- b) 9×10^{13} joules
- c) 9×10^{16} joules
- d) 931 joules

