

1. The atoms of an element which have the same number of protons and different number of neutrons are called_____

- (a) isotopes
- (b) isobars
- (c) isotones
- (d) isomers

2. Isotopes of an element have _____ atomic number but _____ mass numbers.

- (a) same, same
- (b) different, same
- (c) same, different
- (d) different, different

3. The electronic configuration of isotopes of an element is _____.

- (a) same
- (b) similar
- (c) different
- (d) none of these

4. An element with atomic number equal to one, exists in three isotopes namely $^1\text{H}_1$, $^2\text{H}_1$ and $^3\text{H}_1$. Which out of these has only one electron in its outermost shell?

- (a) $^1\text{H}_1$
- (b) $^2\text{H}_1$
- (c) $^3\text{H}_1$
- (d) all the three

5. The atoms which have the same mass number but different atomic numbers are called_____

- (a) isobars
- (b) isotopes
- (c) isotones
- (d) isomers

6. Atoms which have different atomic numbers, different mass numbers but the same number of neutrons are called _____

- (a) isotopes
- (b) isobars
- (c) isotones
- (d) isomers

7. Which of the following statement is true for $^{14}\text{C}_6$, $^{15}\text{N}_7$ and $^{16}\text{O}_8$?

- (a) they have equal number of protons
- (b) they have equal number of electrons
- (c) they have equal number of neutrons
- (d) they have equal mass number

8. Which of the following pairs represents isotones?

- (a) $^1\text{H}_1$ and $^2\text{H}_1$
- (b) $^{40}\text{Ar}_{18}$ and $^{40}\text{K}_{19}$
- (c) $^{14}\text{C}_6$ and $^{16}\text{O}_8$
- (d) $^{22}\text{Ne}_{10}$ and $^{23}\text{Na}_{11}$

9. Which of the following pairs represents isobars?

- (a) $^{17}\text{O}_8$ and $^{16}\text{O}_8$
- (b) $^{40}\text{K}_{19}$ and $^{40}\text{Ca}_{20}$
- (c) $^{15}\text{N}_7$ and $^{16}\text{O}_8$
- (d) $^{235}\text{U}_{92}$ and $^{238}\text{U}_{92}$

10. An isotope of $^{14}\text{C}_6$ is _____

- (a) $^{16}\text{O}_8$
- (b) $^{13}\text{C}_6$
- (c) $^{17}\text{O}_8$
- (d) $^{16}\text{N}_7$

The following table shows the number of protons, electrons and neutrons in a series of atoms and ions.

Symbol	Protons	Neutrons	Electrons
D	27	30	25
X	43	54	42
Q	35	44	35
L	27	32	26
M	35	46	36
Z	54	78	54

a Which symbols represent isotopes?

and

and

b Which symbols represent positive ions?

and