

**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 isotone 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