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 $^{1}H_{1}$, $^{2}H_{1}$ and $^{3}H_{1}$. Which out of these has only one electron in its outermost shell?

(a) $^{1}H_{1}$
(b) $^{2}H_{1}$
(c) $^{3}H_{1}$
(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

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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 $^{14}C_6$, $^{15}N_7$ and $^{16}O_8$?

(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) $^{1}H_1$ and $^{2}H_1$
(b) $^{40}Ar_{18}$ and $^{40}K_{19}$
(c) $^{14}C_6$ and $^{16}O_8$
(d) $^{22}Ne_{10}$ and $^{23}Na_{11}$

9. Which of the following pairs represents isobars?

(a) $^{17}O_8$ and $^{16}O_8$
(b) $^{40}K_{19}$ and $^{40}Ca_{20}$
(c) $^{15}N_7$ and $^{16}O_8$
(d) $^{235}U_{92}$ and $^{238}U_{92}$

10. An isotone of $^{14}C_6$is _____

(a) $^{16}O_8$
(b) $^{13}C_6$
(c) $^{17}O_8$
(d) $^{16}N_7$

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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 _____

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