

Chemistry Study Materials for Class 9 (NCERT Questions –Answers of Chapter -04)

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Structure of the Atom

EXERCISE QUESTIONS PAGE NO. 55, 56

Q13. Composition of the nuclei of two atomic species X and Y are given as

	under X	Y
Protons =	6	6
Neutrons =	6	8

Give the mass numbers of X and Y. What is the relation between the two species?

Answer: Mass number of X = Number of protons + Number of neutrons

$$= 6 + 6$$

$$= 12$$

Mass number of Y = Number of protons + Number of neutrons

$$= 6 + 8$$

$$= 14$$

These two atomic species X and Y have the same atomic number, but different mass numbers. Hence, they are isotopes.

Q14. For the following statements, write T for True and F for False.

(a) J.J. Thomson proposed that the nucleus of an atom contains only nucleons.

(b) A neutron is formed by an electron and a proton combining together.

Therefore, it is neutral.

(c) The mass of an electron is about $\frac{1}{2000}$ times that of a proton

(d) An isotope of iodine is used for making tincture iodine, which is used as a medicine.

Answer: (a) False (b) False (c) True (d) False

Put tick (\checkmark) against correct choice and cross (X) against wrong choice in questions Q15, Q16 and Q17

Q15. Rutherford's alpha-particle scattering experiment was responsible for the discovery of (a) Atomic Nucleus (b) Electron

(c) Proton

(d) Neutron

Answer: (a) Atomic nucleus

Q16. Isotopes of an element have

(a) the same physical properties (b) different chemical properties

(c) different number of neutrons (d) different atomic numbers.

Answer: (c) different number of neutrons

Q17. Number of valence electrons in Cl^- ion are;

(a) 16

(b) 8

(c) 17

(d) 18

Answer: (b) 8

Q18. Which one of the following is a correct electronic configuration of sodium? (a) 2,8 (b) 8,2,1 (c) 2,1,8 (d) 2,8,1.

Answer: (d) 2, 8, 1

Q19. Complete the following table.

Atomic number	Mass number	No. of neutrons	No. of Protons	No. of electrons	Name of the Atomic Species
9		10			
16	32				Sulphur
	24		12		
	2		1		
	1	0	1	0	

Answer:

Atomic number	Mass number	No. of neutrons	No. of Protons	No. of electrons	Name of the Atomic Species
9	19	10	9	9	Fluorine
16	32	16	16	16	Sulphur
12	24	12	12	12	Magnesium
1	2	1	1	1	Deuterium
1	1	0	1	0	Hydrogen ion
