R **Q. 1.** Define atomic number. **[Board Term-II 2016, Set-AJM39LT] (1)**

Ans. .....

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R **Q. 2.** What is an electron ? Who discovered it ? **[Board Term-II 2016, Set-06P08E8] (1)**

Ans. .....

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R **Q. 3.** Give one word for the following :

(i) Positively charged atom.

(ii) A group of atoms carrying a charge. **[Board Term-II 2011, Set-A] (2)**

Ans. .....

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A **Q. 4.** Which atom, Na^+ or He, has completely filled K and L shells ? Give reason to support your answer. **[Board Term-II 2011, Set-A]**

OR

Na^+ has completely filled K and L shells. Explain. **[NCERT] (2)**

Ans. .....

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R **Q. 5.** The discovery of subatomic particles led to a revolution in the study of matter. Name the scientists who discovered these sub-atomic particles. **[Board Term-II 2016, Set-77JLDBT] (3)**

Ans. .....

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U **Q. 6.** Illustrate that Na atom has completely filled K and L shells. **[Board Term-II 2016, Set-06P08E8] (3)**

Ans. .....

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R **Q. 7.** Hydrogen has three isotopes. State the composition of their nuclei and write their mass numbers. Also represent them in the form of symbols. **[Board Term-II 2016, Set-06P08E8] (5)**

Ans. .....

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R **Q. 1.** Name the particles which determine the mass of an atom. **[Board Term-II 2016, Set-77JLDBT] (1)**

Ans. .....

R **Q. 2.** What is charge / mass ratio of an electron ? **(1)**

Ans. .....

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A **Q. 3.** An atom of an element has three electrons in its 3rd orbit, which is the outermost shell. Write :

(i) the electronic configuration

(ii) atomic number

(iii) number of protons

(iv) valency **[Board Term-II 2011, Set-A] (2)**

Ans. .....

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A **Q. 4.** How many electrons, protons and neutrons will be there in an element $^{19}_{9}X$? What will be the valency of the element ? **[Board Term-II 2011, Set-A] (2)**

Ans. .....

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Q. 5. Write the electronic configuration and valency of the following :

(i) Chlorine

(ii) Sodium and

(iii) Silicon **[Board Term-II 2016, Set-77JLDBT] (3)**

Ans. .....

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A **Q. 4.** There are two elements A_{13}^{26} and B_{14}^{26}. Find the number of sub-atomic particles in each of these elements. What is the relationship between the two ? **[Board Term-II 2015, Set-ES80Q24] (3)**

Ans. .....

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A **Q. 7.** (i) Calculate the number of electrons, protons and neutrons in an atom of an element with atomic number 20 and mass number 40. Write electronic configuration and draw the structure of the atom.

(ii) An atom has complete K and L shells. Is this an atom of a metal, non-metal or noble gas ? Justify.

[Board Term-II 2014, Set-YBCM1R8] (5)

Ans. .....

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R **Q. 1.** Write the notation of an atom 'X', if the mass number is A and the atomic number is Z. **(1)**

Ans. .....

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A **Q. 2.** What will happen to an element 'Z' if its atoms gain three electrons ?

[Board Term-II 2010, Set-A] (1)

Ans. .....

A **Q. 3.** (a) J. Chadwick discovered a sub-atomic particle that has no charge and has mass nearly equal to that of a proton. Name the particle and give its location in the atom.

(b) If 'K' and 'L' shells of an atom are completely filled, then what would be :

(i) the total number of electrons in the atom and

(ii) its valency ?

[Board Term-II 2011, Set-B] (2)

Ans. .....

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A **Q. 4.** The electronic configuration of an element 'X' is 2, 8, 2 :

(i) Find the number of electrons present in the atom of element 'X'.

(ii) Write its atomic number.

(iii) Is element 'X' a metal or a non-metal ?

(iv) Find out the valency of the element 'X'.

[Board Term-II 2011, Set-A] (2)

Ans. .....

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R **Q. 5.** There are two elements A_{13}^{26} and B_{14}^{26}. Find the number of sub-atomic particles in each of these elements. What is the relationship between the two ? **[Board Term-II 2015, Set-ES80Q24] (3)**

Ans. .....

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R Q. 6. What are isotopes ? Write three isotopes of hydrogen. Why do isotopes show similar chemical properties ?

[Board Term-II 2012, Set-SC-1005, 1073] (3)

Ans.

R Q. 7. Describe Rutherford's α-particle scattering experiment and mention the important observations and conclusions drawn from this experiment. **[Board Term-II 2014, Set-804ASR9]**

[Board Term-II 2012, Set-SC-1009, 1079, 47024] (5)

Ans.

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[U] **Q. 1.** What is the valency of oxygen [Atomic number of oxygen = 8] ? **(1)**

Ans. .....

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[A] **Q. 2.** If the electronic configuration of an atom X is 2, 8, 1, calculate the total number of electrons and write the name of an atom. **(1)**

Ans. .....

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[A] **Q. 3.** An element 'Z' forms the following compound when it reacts with hydrogen, chlorine, oxygen and phosphorus. **[Board Term-II 2011, Set-B] (2)**

ZH_3, ZCl_3, Z_2O_3 and ZP

(i) What is the valency of element Z ?

(ii) Element 'Z' is metal or non metal ?

Ans. .....

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[A] **Q. 4.** Composition of the nuclei of two atoms 'X' and 'Y' are given below :

	X	Y
Protons	= 4	4
Neutrons	= 4	6

Give the mass number of X and Y. Mention the relationship between the two atoms.

[Board Term-II 2011, Set-B] (2)

Ans. .....

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R **Q. 5.** Define the terms (a) isotope, (b) isobar giving one example of each.
Name the element whose isotope is used in (i) nuclear reactor, (ii) treatment of cancer. (DDE 2017)
[Board Term-II 2012, Set-SC-1011] (3)

Ans.

R+U **Q. 6.** (i) Define valency. What conclusions can be drawn about the reactivity of an atom from its valency ?
(ii) Why does an atom of Argon have zero valency ? Explain using the electronic configuration of Argon.
[Board Term-II 2016, Set-JM39LT] (5)

Ans.

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A Q. 1. There are 15 protons and 16 neutrons in the nucleus of an element. Calculate its atomic number and its atomic mass. **(DDE 2017) [Board Term-II 2010, Set-A] (1)**

Ans. .....

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A Q. 2. What will be the number of neutrons if an atom has mass number = 23 and the number of electrons = 11 ? **(1)**

Ans. .....

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A Q. 3. An atom of an element has one electron in the outer most M shell. State its :

(i) Electronic configuration

(ii) Number of protons

(iii) Atomic number

(iv) Valency of this element **[Board Term-II 2011, Set-B] (2)**

Ans. .....

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A Q. 4. In the following table the mass number and the atomic number of certain elements are given :

Elements	Mass No.	Atomic No.
A	1	1
B	7	3
C	14	7
D	40	18
E	40	20

Making use of these data find. **[Board Term-II 2011, Set-B] (2)**

(i) cation

(ii) anion

(iii) a pair of isotopes

(iv) an atom of noble gas 2

Ans. :

A **Q. 5.** (i) Both Helium and Beryllium have two electrons in the valence shells. Helium is a noble gas whereas Beryllium is a metal, justify.

(ii) Hydrogen exists in three isotopic forms. Why are the isotopes of hydrogen chemically alike?

[Board Term-II 2014, Set-YBCM1R8] (3)

Ans.

R+U **Q. 6.** (a) Briefly explain Bohr-Bury scheme for the distribution of electrons in different shells.

(b) An atom has 2 electrons in its outermost shell M. What is the atomic number of the element ? Also mention its name.

(NCERT Exemplar)

[Board Term-II 2015, Set-FCI0L5A] (5)

Ans.

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R **Q. 1.** Name the particles that have no charge and their mass is equal to that of proton. Who discovered these particles ? **(1)**

Ans. .....

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A **Q. 2.** (a) $^{24}_{12}Mg$ and $^{26}_{12}Mg$ are symbols of two isotopes of magnesium.
Compare atoms of these isotopes with respect to :
(i) Composition of their nuclei.
(ii) Electronic configuration and valency.
(b) Give reason why two isotopes of magnesium have different mass numbers ?
[Board Term-II 2012, Set-SC-1074] (2)

Ans. .....

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A+R **Q.3.** (i) Calculate the average atomic mass of chlorine if it exists commonly in two isotopes $^{35}_{17}Cl$ (75%) and $^{37}_{17}Cl$ (25%)
(ii) Write the main drawback of Rutherford's model of an atom. **[Board Term-II 2012, Set-47011] (3)**

Ans. .....

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R **Q. 4.** (i) State the relative mass and charge of the three sub-atomic particles.
(ii) How many sub-atomic particles are found in an atom of Deuterium ?
[Board Term-II 2012, Set-47013] (3)

Ans. .....

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R Q. 5. Read the following passage and with your own knowledge answer the following question :
In order to overcome the objections raised against Rutherford's model of the atom, Neil Bohr put forward the following postulates about the model of an atom.

(i) Only certain special orbits known as discrete orbits of electrons are allowed inside the atom.

(ii) While revolving in discrete orbits the electrons do not radiate energy. Write the following statements in your answer book after completing them :

(a) Atoms are made up of ....., ... and ..... .
(b) ..... amended Rutherford's shortcomings.
(c) Electrons do not radiate energy while revolving in ..... orbits.
(d) Discrete orbits are also known as ..... .
(e) The K shell can accommodate ..... electrons whereas L can accommodate ..... electrons.
(f) Atomic mass of an element is the sum of the number of ..... and ..... .

[Board Term-II 2011, Set-B] (5)

Ans. .....

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