CBSE

ATOMS AND MOLECULES WS 3

Class 09 - Science

Section A

1. Atomicity of Chlorine and Argon is: **[1]**

   a) Monoatomic and diatomic respectively
   b) Diatomic and diatomic respectively.
   c) Diatomic and monoatomic respectively.
   d) Monoatomic and monoatomic respectively.

2. The chemical symbol for nitrogen gas is **[1]**

   a) Ni
   b) N
   c) N_2
   d) N^+

3. The number of molecules in $CuSO_4.5H_2O$ bonded by H-bond is **[1]**

   a) 5
   b) 3
   c) 2
   d) 1

4. **Assertion (A):** Atomicity of O_3 is 3. **[1]**

   Reason (R): 1 mole of an element contains 6.023×10^{23} atoms.

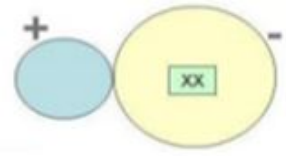
   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.

5. **Assertion (A):** A molecule is a group of two or more atoms chemically bonded together. **[1]**

   Reason (R): A molecule is the smallest particle of an element or a compound.

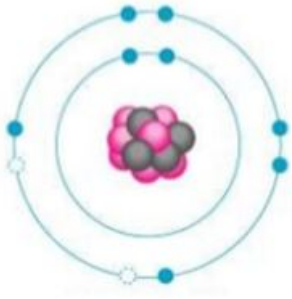
   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.

6. Which type of bond displace in the following figure. **[1]**



   a) Polar covalent bonds
   b) Covalent bond
   c) Hydrogen Bonding
   d) Ionic bond

7. Which atom shown in the following figure? **[1]**



a) Carbon

b) Nitrogen

c) Oxygen

d) Hydrogen

8. Match the following with the correct response. **[1]**

(a) Ions	(i) Polyatomic
(b) Anions	(ii) Negatively charged
(c) Cation	(iii) Charged particles
(d) Radical	(iv) Positively charged

a) (a) - (iv), (b) - (i),(c) - (iii), (d) - (ii)

b) (a) - (i), (b) - (iii),(c) - (ii), (d) - (iv)

c) (a) - (ii), (b) - (iv),(c) - (i), (d) - (iii)

d) (a) - (iii), (b) - (ii),(c) - (iv), (d) - (i)

9. Match the following with correct response. **[1]**

(a) Ozone	(i) Monoatomic
(b) Helium	(ii) Tetra atomic
(c) Oxygen	(iii) Diatomic
(d) Phosphorous	(iv) Triatomic

a) (a) - (i), (b) - (iii),(c) - (ii), (d) - (iv)

b) (a) - (ii), (b) - (iv),(c) - (i), (d) - (iii)

c) (a) - (iv), (b) - (i),(c) - (iii), (d) - (ii)

d) (a) - (iii), (b) - (ii),(c) - (iv), (d) - (i)

10. Match the following with the correct response: **[1]**

(1) Nitrate	(A) P^{3-}
(2) Phosphide	(B) $PO_4{}^{3-}$
(3) Nitrite	(C) $NO_2{}^-$
(4) Phosphate	(D) $NO_3{}^-$

a) 1-B, 2-D, 3-A, 4-C

b) 1-C, 2-B, 3-D, 4-A

c) 1-D, 2-A, 3-C, 4-B

d) 1-A, 2-C, 3-B, 4-D

11. Match the following with the correct response: **[1]**

(1) Ions	(A) Negatively charged
(2) Anions	(B) Polyatomic ion
(3) Cations	(C) Positively charged
(4) Radical	(D) Charged particles

a) 1-D, 2-A, 3-C, 4-B

b) 1-A, 2-C, 3-B, 4-D

c) 1-B, 2-D, 3-A, 4-C

d) 1-C, 2-B, 3-D, 4-A

12. Match the following with the correct response**:** **[1]**

(1) Ozone	(A) Monoatomic
(2) Helium	(B) Tetraatomic
(3) Oxygen	(C) Diatomic
(4) Phosphorous	(D) Triatomic

a) 1-C, 2-B, 3-D, 4-A

b) 1-D, 2-A, 3-C, 4-B

c) 1-A, 2-C, 3-B, 4-D

d) 1-B, 2-D, 3-A, 4-C

13. Complete the following table. **[1]**

Atomic number	Mass number	Number of neutrons	Number of protons	Number of electrons	Name of the Atomic species
_____	1	0	1	0	_____

a) 1, Hydrogen ion

b) 1, Deuterium

c) 2, Tritium

d) 9, Fluorine

14. Composition of nuclei of two atomic species X and Y are given as under **[1]**

	X	Y
Protons =	6	6
Neutrons =	6	8

The relation between the two species is _____.

a) Isotone

b) Isotope

c) Isobar

d) Isomer

15. Oxygen is a _____ element. **[1]**

a) Trivalent

b) Bivalent

c) Tetravalent

d) Monovalent

16. What are ions? What are its two types? **[1]**

17. Define atomicity. **[1]**

18. What is an ion? Give one example. **[1]**

19. Write the atomicity of the following molecules: **[1]**

(a) H_2SO_4

(b) CCI_4

20. Give an example of a triatomic molecule of an element. **[1]**

21. What is the atomicity of ammonia? **[1]**

Section B

22. Why is a cation so named? **[2]**

23. Give the names of the elements present in the following compounds :(a) Quick lime (b) Hydrogen bromide (c) **[2]**

Baking powder (d) Potassium sulphate

24. State the number of atoms present in each of the following chemical species **[2]**

a. CO_3^{2-}

b. PO_4^{3-}

c. P_2O_5

d. CO

25. Write the cations and anions present (if any) in the following compounds: **[2]**

a. CH_3COONa

b. NaCl

c. H_2

d. NH_4NO_3

26. You are provided with a fine white coloured powder which is either sugar or salt. How would you identify it without tasting? **[2]**

27. What are ionic and molecular compounds? Give examples. **[2]**

Section C

28. **Fill in the blanks:** **[6]**

(a) An _____ is a positively or negatively charged atom or group of atoms. **[1]**

(b) _____ is the total number of atoms present in one molecule. **[1]**

(c) A _____ is a group of two or more atoms chemically bonded together. **[1]**

(d) Clusters of atoms that act as an ion are called _____ ions. **[1]**

(e) Positively charged ions are called _____. **[1]**

(f) A group of atoms carrying a fixed charge on them is called _____. **[1]**

Section D

29. **State True or False:** **[8]**

(a) An ion is a positively or negatively charged particle. **[1]**

(b) Ionic compounds contain molecules. **[1]**

(c) Sulphate ion is a polyatomic ion. **[1]**

(d) Argon and Neon molecules are diatomic. **[1]**

(e) The formula of Calcium nitrate is $Ca(NO_3)_2$. **[1]**

(f) A molecule is made up of one, two, or more matter. **[1]**

(g) Radical is the group of atoms carrying a charge. **[1]**

(h) Atomicity is the number of atoms combined together to form a stable molecule of an element. **[1]**