

Instructions

- 15 minutes is given as cool-off time. This time is to be spent for reading the question paper.
- Answer according to the instruction
- Answer the questions after considering the score and time.

Questions 1 to 5 carry 1 score each. Answer any four only. (4x1=4)

1. Maximum number of electrons that can be occupied in 'L' shell is
2. The process of losing electron is called.....
3. The total mass of reactants and products in a reaction will always be the same. The law is known as
4. How does an atom become a negative ion?
5. The isotope of hydrogen used in nuclear reactors is

Questions 6 to 10 carry 2 scores each. Answer any four only. (4x2=8)

6. Aluminium atom is represented as ${}^{27}_{13}\text{Al}$. Complete the table.

Number of electrons
Number of neutrons

7. N_2 , HCl , O_2 , H_2O

Which among the above molecules do not show polar nature? Give reason.

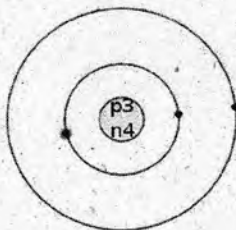
8. Choose appropriate one from the box and fill up

Triads, Law of octaves, Telluric helix, Atomic volume graph

Dobereiner : -----

Newlands : -----

9. Bohr model of an atom 'X' is given. (symbol is not real)



- a. What is the mass number of the atom?
- b. How many electrons are there in the shell having higher energy?

10. The atomic number of oxygen is 8.

- a. Represent the bonding in oxygen molecule (O_2) using electron dot diagram
- b. Which type of bond is present in it?

Questions 11 to 15 carry 3 scores each. Answer any four only. (4x3=12)

11. Two important isotopes of carbon are $^{12}_6C$ and $^{14}_6C$

- a. Isotopes differ in the number of which particles?
- b. Find out the number of proton in each of the above.
- c. Which isotope of carbon is used to determine the age of fossils?

12. The electronic configuration of some elements are given below.
(symbols are not real)

A. 2, 8, 8, 1

B. 2, 4

C. 2, 8, 7

D. 2, 8, 8

- a. Which among the above usually does not take part in chemical reaction? Why?
- b. Which pair of elements may form a covalent bond?

13. In a chlorine atom there are 17 protons

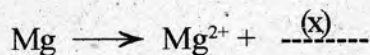
- a. Write down the atomic number of Chlorine atom.
- b. How many electrons are there in a Chlorine atom?
- c. How many shells are there in this atom?

14. Ionic bond is present in sodium fluoride molecule.

- What is meant by ionic bond?
- Which atom loses electron when Sodium combines with Fluorine?
- What is the valency of Fluorine?

(Hint: Atomic number - Na = 11, F=9)

15. Analyse the equation given below.

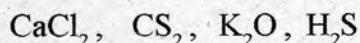


(Hint: Atomic number - Mg = 12, F=9)

- Complete the equations
- Write down the electronic configuration of Mg^{2+} ion.
- Name the element having higher electronegativity.

Questions from 16 to 20 carry 4 scores each . Answer any 4 only (4x4=16)

16 Formule of some compounds are given



- Which among the above are ionic compounds?
- Write down any two differences in properties of ionic and covalent compounds?

(Electronegativity : K=0.8, Cl= 3.2, S=2.6, C=2.5, H =2.2)

- According to Mendeleev's periodic law, what is the basis of properties of elements?
 - Where did Mendeleev place elements with similar properties in his periodic table.
 - Write down any one merit and demerit of Mendeleev's periodic table.

18. One of the earlier atom models was the planetary model.

- Who put forward the planetary model?
- Which is the important experiment conducted by him to arrive at this model?
- Write down any two inferences of his experiment.

19. The equation of a redox reaction is given below



- What is the oxidation state of Fe in Fe_2O_3 ?
- Conversion of Fe_2O_3 to Fe is a reduction reaction. Why?
- Which is the oxidizing agent in this reaction?
- Identify the product formed by oxidation.

(Oxidation state of Oxygen = -2)

20. Match the following

A	B	C
Chadwick	Electron	$2n^2$
Rutherford	Shell	Positive charge
Bohr	Neutron	Negative charge
Thomson	Proton	Neutral