

I. Choose the correct option (10)

- The valency shell of an atom having atomic number 12 is _____
a. K b. L c. M d. N
- The number of protons in an atom of an element is known as _____
a. atomic number. b. mass number.
c. atomic structure d. none of these
- The lower valency of tin is _____
a. 1. b. 2. c. 3 d. 4
- Hydrargyrum is the Latin name for _____
a. Water b. Hydrogen. c. Mercury. d. Silver
- Hydrogen was discovered by _____
a. Henry Cavendish. b. Isaac newton
c. Robert Boyle d. Dalton
- Air _____ times than Hydrogen.
a. 12 b. 41.4 atom c. 14.4 d. 13.4
- What is not true about H_2
a. it is colourless. b. It is lightest of all elements
c. it supports combustion. d. it is inflammable
- The form of water, H_2 and O_2 combine in the mass ratio of _____
a. 1:8 b. 8:1 c. 1:2 d. 2:1

9. Boiled water taste flat because it contain dissolved _____
- a. O₂ b. CO₂ c. NO₂ d. salts
10. It takes more time to cook at mountains due to _____
- a. low pressure b. high pressure.
c. low temperature d. high temperature

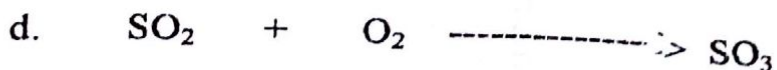
Question. I (carries 20)

1. What are nucleons?
2. Gas is a poor conductor of electricity. Under what conditions will a gas become conductive?
3. Carbon-12 and Carbon-14 are isotopes. How can they have same atomic number but different mass numbers?
4. Why do most alpha particles pass straight Rutherford scattering exper
5. Differentiate between cathode rays and anode rays.(2 differences)
6. From the element $_{13}^{27}\text{Al}$ find:
 - a. Atomic number.
 - b. Mass number
 - c. number of protons, electron and neutrons.
 - d. Electronic configurati
 - e. valence electrons
 - f. valency.
7. One of the given statement is not true which one is that?
 - a. Isotopes have same number of electrons and protons.
but different number of neutrons.
 - b. Mass number. = number of protons. + number of electrons
 - c. Neutrons are 1800 times heavier than protons.
 - d. Atomic number is the same as number of protons in the atom.

8. Name the scientist who discovered the following:
- Electrons.
 - Protons.
 - Nucleus of an atom.
 - Neutrons.
9. Why was the Plum Pudding Model of J.J Thomson not acceptable?
10. a. Draw diagrams to show atomic structure of Oxygen.
(Atomic number-- 8, Mass number--16)
- b. What do you understand by valence shell and valence electrons?

Questions--II(carries 10marks)

1. Write the chemical formulae of the following compounds:
- Potassium nitrate
 - Ferrous sulphate
 - Magnesium nitride
 - Calcium hydroxide
2. Find the valencies of the radicals in the given compounds:
- $Al_2(SO_4)_3$
 - Na_2CO_3
 - $Cu(NO_3)_2$
 - K_2SO_4
3. Write balanced chemical equations for the following reactions:
- Sodium chloride reacts with silver(I)nitrate giving silver(I)chloride and sodium nitrate
 - Aluminium oxide reacts with dil. hydrochloric acid giving Aluminium chloride and water.
4. Balance the following equations:
- $H_2 + Cl_2 \longrightarrow HCl$
 - $C + H_2O \longrightarrow CH_4$
 - $KOH + H_2SO_4 \longrightarrow K_2SO_4 + H_2O$
- Handwritten notes:*
 $KI + Cl_2 \longrightarrow KCl$
 (Note: The handwritten equation above is unbalanced and appears to be a correction or a different reaction.)



5. Write the variable valencies of

- a. Copper. b. Iron. c. Mercury. d. Lead

Questions-3 (carries 20 marks)

1. From the knowledge of activity series, name a metal which shows the following properties

- It reacts readily with cold water.
- It displaces hydrogen from hot water.
- It displaces hydrogen from dil. HCl.
- It forms a base which is insoluble in water

2. For under what conditions can hydrogen be made to combine with :

- a. Nitrogen. b. Chlorine. c. Oxygen. d. Sulphur

Also write the balanced equation for each reactions.

3. When hydrogen is passed over a black solid compound A the products are

- a. colourless liquid B and a reddish brown metal C.

a. Name the substances A, B, C and D

b. Give a test for the colourless liquid formed

c. What happens when A reacts with hydrogen?

d. Give a balanced equation for the above.

4. A mixture of H_2 and O_2 is used to produce a high temperature flame

a. Name the flame.

b. State the approximate temperature that is produced in the flame

c. In which process is the flame used?

d. What is the difference between 2O and O_2 .

5. Give reason.

a. Now a days ,balloons are filled with Helium and not hydrogen for the weather forecasting

b. Pure zinc is not used for the laboratory preparation of hydrogen.

6. a. When PbO reacts with hydrogen the products formed

are _____ and _____

b. When hydrogen reacts with boiling sulphur it forms a gas which has

_____ smell.

7. Write the increasing order of reactivity of metals from the given list.

Ca , Na , Mg , Zn , H , Cu , Au

8. Write the balanced equation for the following:

a. The reaction of hydrogen with sodium.

b. The reaction of water on sodium

c. The reaction of iron on steam

d. The reaction of Sulphuric acid and zinc.

9. a. Hydrogen cannot be produced from con. HNO_3 why?

b. Name the metal which gives hydrogen from cold dil. HNO_3

10. You are given three unlabelled gas jars .one of these contains hydrogen , the second oxygen ,and the third air.

How will you identify the gas jar containing hydrogen?

IV Questions-4 (carries 20 marks)

1. Give reason:

a. Ice floats on the surface of the cold drinks taken in a glass.

b. In colder countries , salt is spread on roads to remove ice.

8. a. What are the causes of temporary and permanent hardness of water?
b. Give equations to show what happens when
1. temporary hard water is boiled?
 2. Washing soda is added to permanent hard water.
9. Write the chemical name and formulae of the following salts
- a. Blue vitriol
 - b. Glauber's salt
 - c. Epsom salt
 - d. White vitriol
10. Explain why
- a. A solution is always clear and transparent and solute cannot be separated by filtration ?
 - b. Table salt becomes sticky on exposure to humid air during rainy season?
 - c. On heating blue vitriol which turns into white amorphous powder?
 - d. A lot of effervescence takes place when a soda water bottle is opened?