

Half Yearly Examination 2016-2017

Std. : VIII
Subject : CHEMISTRY

Full Marks : 80
Time : 2 Hrs.+15mins.

1.a. Name the following : [5]

- A chemical bond formed by sharing of valence electrons between atoms.
- The isotope of hydrogen with no neutron.
- Scientist who explained Modern atomic theory.
- The atmospheric layer where ozone is found.
- An acidic gas which gives dense white fumes with hydrogen chloride.

b. Write the chemical formulae for the following compounds : [5]

- Copper (II) Chloride
- Ammonium Carbonate
- Lead (II) Oxide
- Aluminium sulphate
- Magnesium carbonate

c. Write the chemical name of the followings : [5]

- $\text{Mg}(\text{HCO}_3)_2$
- Ag_2SO_3
- K_2CO_3
- Al_2S_3
- $\text{Pb}(\text{OH})_2$

d. Balance the following chemical equations : [5]

- $\text{Fe}_2\text{O}_3 + \text{CO} \rightarrow \text{Fe} + \text{CO}_2$
- $\text{Pb}_3\text{O}_4 \rightarrow \text{PbO} + \text{O}_2$
- $\text{PbS} + \text{O}_2 \rightarrow \text{PbO} + \text{SO}_2$
- $\text{Zn} + \text{KOH} \rightarrow \text{K}_2\text{ZnO}_2 + \text{H}_2$
- $\text{Ca} + \text{N}_2 \rightarrow \text{Ca}_3\text{N}_2$

e. An atom of an element x has 2 electrons in its N shell. [5]

- State its electronic configuration.
- Is it a metal or non-metal.
- State the number of protons in x.
- Write formula of its chloride.
- Name the element X.

f. Fill in the blanks with correct word from the brackets :— [5]

- The element which shows variable valency is _____ (iron, sodium, aluminium)

- ii) Atomic number is equal to the number of _____ (protons, electrons, neutrons) in an atom.
- iii) Copper oxide reacts with hydrogen to produce copper and water. Copper oxide is _____ (reduced / oxidised) in the reaction.
- iv) Carbonates of _____ (sodium / aluminium) do not produce carbon dioxide in heating.
- v) A negative ion which migrates towards the anode _____ (cation, ion, anion).

g. Identify and name the gas evolved in the followings :—

[5]

- i) A brown gas with pungent odour.
- ii) A greenish yellow gas with choking odour.
- iii) A gas with rotten egg smell.
- iv) This gas liberates when dilute hydrochloric acid is added to manganese oxide.
- v) A basic gas with pungent smell.

h. What do you observe when :

[5]

- i) HCl is passed through silver nitrate solution.
- ii) H_2S is passed through lead nitrate solution.
- iii) Cl_2 is passed through lead nitrate solution.
- iv) When crystalline ammonium chloride is heated strongly.
- v) Strong heating of copper (II) carbonate.

Section B [40 Marks]
(Attempt any four questions)

2.a. Elements X, Y and Z have atomic numbers 6, 9 and 12 respectively. Which one

[5]

- i) forms anion.
- ii) forms cation.
- iii) has four electrons in outer most orbit.
- iv) Draw orbital structure of Y and its ion.

b. Name two sources of greenhouse effect. What is green house effect ?

[2+1]

c. How does a scrubber help in reducing the formation of acid ?

[2]

3.a. Give the impact of acid rain :

[3]

- i) on plants (ii) on soil (iii) on water bodies.

b. An element X form a hydroxide $X(OH)_3$

[2]

- i) Find the valency of X.
- (ii) Write the formula of its carbonate.

c. Name the following : [5]

- i) Chemicals responsible for ozone layer destruction.
- ii) An element which has eight electrons in outer most shell.
- iii) A salt which has zinc as cation and oxygen as anion.
- iv) Two green house gases.

4.a. Complete the table by writing the basic and acid radicals of the following compounds : [5]

Name	Basic radical	Acidic radical
i) Sodium carbonate	_____	_____
ii) Magnesium sulphate	_____	_____
iii) Aluminium nitrate	_____	_____
iv) Sodium chloride	_____	_____
v) Ammonium phosphate	_____	_____

b. What is acid rain ? Name two causes of it. [1+2]

c. What is ozone hole ? [2]

5.a. What is smog ? Write its two damaging effects. [3]

b. Define isotope. Draw the structure of the isotopes of hydrogen, also write their names. [4]

c. Name or state the following :— [3]

- i) An element having valency 'zero'.
- ii) The shell closest to the nucleus of an atom.
- iii) A metal with valency 2.

6.a. Give reasons : [3]

- i) Physical properties of isotopes are different.
- ii) Argon does not react.
- iii) $^{35}_{17}\text{Cl}$ and $^{37}_{17}\text{Cl}$ do not differ in their chemical reactions.

b. Complete the following table relating to the following elements. [5]

Element	electronic configuration	valency
i) Sodium	_____	_____
ii) Calcium ion	_____	_____
iii) Neou	_____	_____
iv) Oxygen ion	_____	_____
v) Sulphur	_____	_____

c. Write down :—

[2]

- i) The mass number of an atom having 20 neutrons and 15 protons.
- ii) The number of neutrons in the nucleus of an atom having atomic number 17 and mass number 37.

7.a. Draw the orbital diagram of ${}_{20}^{40}\text{Ca}^{2+}$ ion. and state the number of three fundamental particles present in it. [3]

b. What is global warming ? State two ways by which global warming can be reduced. [1+2]

c. Match the atomic numbers 4,14,8,15 and 19 with each of the following questions. [4]

- i) A solid non metal with valency 3.
- ii) A gas of valency 2.
- iii) A metal of valency 1.
- iv) A non metal of valency 4.

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