

- (b) Write down the electronic configuration of [2]  
(i) Aluminium atom (Al = 13) (ii) Aluminium ion
- (c) What is the valency of : [2]  
(i) Carbon in CH<sub>4</sub>.  
(ii) Fluorine in CaF<sub>2</sub>.
- (d) Give one example of negative catalyst. [1]
- (e) Complete the following "word" equation : [1]  
lime water + carbondioxide →

**Quarterly Examination 2018-2019**  
**Chemistry**

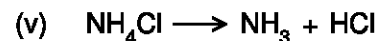
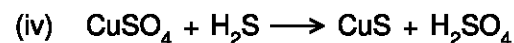
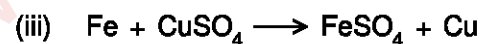
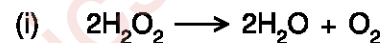
**Class : IX**

**Time : 2 hrs.+15 Mins.**

**Full Marks : 80**

**Question 1**

- (a) Name the type of reaction for the following chemical equations : [5]



- (b) Match the atomic numbers 4, 14, 8, 15 and 19 with each of the following : [5]

(i) A solid non metal of valency 3.

(ii) A gas of valency 2.

(iii) A metal with one electron in N shell.

(iv) A non metal of valency 4.

(v) An element with 6 electrons in valence shell.

- (c) (i) At 0°C and 760 mm Hg pressure, a gas occupies a volume of 100 cm<sup>3</sup>. The Kelvin temperature of the gas is increased by one fifth, while the pressure is

decreased by one fifth times. Calculate the final volume of the gas. [3]

- (ii) At constant temperature a gas is at a pressure of 1080 mm Hg. If the volume is decreased by 40%, find the new pressure of gas. [2]

(d) Write the following equations and balance them : [5]

- (i) Potassium bicarbonate + sulphuric acid  $\rightarrow$  Potassium sulphate + Carbon dioxide + water
- (ii) Iron + Hydrochloric acid  $\rightarrow$  Iron II chloride + hydrogen.
- (iii) Nitrogen + Hydrogen  $\rightarrow$  Ammonia gas.
- (iv) Chlorine + Potassium bromide  $\rightarrow$  Potassium chloride + Bromine
- (v) Iron III chloride + water  $\rightarrow$  Iron III Hydroxide + Hydrogen chloride.

(e) What do you observe when : [5]

- (i) Lead nitrate is heated.
- (ii) Copper sulphate crystal is heated.
- (iii) Chlorine water is exposed to sunlight.
- (iv) Action of heat on washing soda.
- (v) Hydrogen sulphide is passed through copper sulphate solution.

(f) Write the formula of the compounds : [5]

- (i) Calcium bicarbonate

(i) a metal (b) non metal (c) chemically inert. write the chemical formulae of the compound formed from the above element. Draw the Dot diagram and name the type of bond.

- (b) State the original colour of the following substance and colour of the residue obtained after heating :- [2]
- (i) Zinc carbonate (ii) Ammonium dichromate.
- (c) At what centigrade temperature will be volume of a gas at 0°C triple itself if the pressure remains constant.

Question 5

- (a) Define absolute zero. [2]  
Why is it a theoretical concept. ?
- (b) An atom X has 2,8,7 electrons in its shell. It combines with Y having 1 electron in its outer most shell.
- (i) What type of bond will be formed between X and Y ?
- (ii) Write the formula of the compound formed.
- (c) Find the percentage mass of water in the Epsom salt  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ . Given that relative atomic mass of Mg = 24, S = 32, O = 16, H = 1. [2]
- (d) Draw orbital structure for the formation of the following compounds :- (i) Sodium Chloride (ii) water. [4]

Question 6

- (a) Complete the table given below :- [4]

	No. of Protons	No. of electrons	No. of Neutrons	A	Z
$^{35}_{17}\text{Cl}$	—	17	—	—	—
$^{37}_{17}\text{Cl}$	—	17	—	—	—

- (ii) Magnesium sulphite
- (iii) Sodium sulphate
- (iv) Lead (II) sulphide.
- (v) Aluminium nitride

**(g) Fill in the blanks :** [5]

- (i) A catalyst either \_\_\_\_\_ or \_\_\_\_\_ the rate of a chemical change but itself remains \_\_\_\_\_ at the end of the reaction.
- (ii) The average kinetic energy of the molecules of a gas is proportional to the \_\_\_\_\_.
- (iii) \_\_\_\_\_ are the atoms of the same element with different mass number but the same atomic number.

**(h) Calculate the percentage composition of various elements in calcium phosphate and magnesium oxide given that relative atomic masses of O = 16, Ca = 40, P = 31, Mg = 24** [5]

**Section-B (Attempt any four)**

**Question 2** [5]

- (a) Give reason :
- (i) The physical properties of isotopes are different.
  - (ii) Argon does not react.
  - (iii) Gases have lower density as compared to that of solids or liquids.
  - (iv) Mountaineers carry oxygen cylinders with them.
  - (v) Silver nitrate solution is kept in coloured bottles.

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(b) Write the basic and acid radicals of the following salts :- [5]

- (i) Magnesium bisulphate
- (ii) Sodium bicarbonate
- (iii) Aluminium oxide
- (iv) Ammonium Hydroxide
- (v) Zinc phosphate

**Question 3**

(a) State Boyle's law. [1]

(b) What is the value of freezing point and boiling point of water in kelvin scale ? [1]

(c) Identify the salts insoluble in water : [3]

Barium sulphate, Calcium Sulphite, Calcium Chloride, Barium Hydroxide, Ferrous carbonate, Calcium nitrate.

(d) Give one word answer for the following statements :-

- (i) Temperature measured equal to Celsius temperature plus 273.
- (ii) The element which does not contain any neutron in its nucleus.
- (iii) Bond formed by transfer of electrons.
- (iv) Ion formed by gain of electron.
- (v) A carbonate which does not decompose on heating.

**Question 4**

(a) Elements A, B and C have atomic number 9,10 and 20 respectively. State which one is. [5]

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