(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 CH4.

(ii) Fluorine in $CaF_2$.

(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**

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**Question 1**

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

(i) $2H_2O_2 \longrightarrow 2H_2O + O_2$

(ii) $CaO + CO_2 \longrightarrow CaCO_3$

(iii) $Fe + CuSO_4 \longrightarrow FeSO_4 + Cu$

(iv) $CuSO_4 + H_2S \longrightarrow CuS + H_2SO_4$

(v) $NH_4Cl \longrightarrow NH_3 + HCl$

**(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 $0^oC$ and 760 mm Hg pressure, a gas occupies a volume of 100 $cm^3$. The Kelvin temperature of the gas is increased by one fifth, while the pressure is

*{Turn Over}*

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 → Potassium sulphate + Carbondioxide + water

(ii) Iron + Hydrochloric acid → Iron II chloride + hydrogen.

(iii) Nitrogen + Hydrogen → Ammonia gas.

(iv) Chlorine + Potassium bromide → Potassium chloride + Bromine

(v) Iron III chloride + water → 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 $MgSO_4 . 7H_2O$. 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 |
|---|---|---|---|---|---|
| $^{35}_{17}Cl$ | —— | 17 | —— | —— | —— |
| $^{37}_{17}Cl$ | —— | 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 0 = 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 os 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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