# Class IX Sample Chemistry Paper

Full Marks:80 Time:2 hours

Section A is compulsory. Attempt any four questions from Section B.

## Section A(40 marks)

### Question1

a) From the list given below, select the word(s) required to correctly complete the blanks (i) to (v) in the following passage- [5]
Note: Words chosen from the list are to be used only once. Write only the answers. Do not copy the passage.

[silver nitrate, sodium nitrate, Dalton, sealed, separate, Landolt, sodium chloride, mix]

The Law of Conservation of Mass was studied by (i)..... in case of a double decomposition reaction between (ii)..... and (iii)..... in a special tube. This tube was U-shaped and the limbs were (iv)..... so that the reactants could (v)..... well.

b) Select from the list given (A to E) one substance in each case which matches the description given in parts (i) to (v)- [5]
Note: Each substance is used only once in the answer.

(A) Sulphur dioxide
(B) Magnesium sulphate
(C) Carbon tetrachloride
(D) Potassium chlorate
(E) Aluminium oxide

i) A compound which can dissolve Sulphur.
ii) A compound used to make adsorbent medium.
iii) A compound insoluble in water.
iv) A compound less soluble in water than potassium nitrate.
v) A compound whose hydrated form is Epsom salt.

c) For parts (c)(i)-(c)(x), select the correct answer from the choices A,B,C and D which are given- [10]
Write only the letter corresponding to the correct answer.

i) The valency of Platinum in $PtZnO_2$:

(A) 1 (B) 2 (C) 3 (D) 4

ii) A chemical which decomposes with the absorption of sound energy:

(A) Nitrogen monoxide (B) Acetylene
(C) Ethyl alcohol (D) Potassium bromide

iii) An element which burns with a lilac flame on reaction with cold water:

(A) Potassium (B) Sodium (C) Calcium (D) Magnesium

iv) The scientist who discovered cathode rays:

(A) Rutherford (B) Goldstein (C) Thomson (D) Crookes

v) The chemist who classified elements into triads-

(A) Moseley (B) Mendeleeff (C) Newland (D) Dobereiner

vi) When hydrogen behaves like electronegative halogens, it is placed in Group:

(A) 1 (B) 16 (C) 17 (D) 2

vii) The branch of chemistry concerned with theoretic aspects:

(A) Inorganic Chemistry (B) Analytical Chemistry
(C) Physical Chemistry (D) Biochemistry

viii) $1m^3$ = ? litre

(A) $10^2$ (B) $10^3$ (C) $10^6$ (D) $10^4$

ix) If the pressure of a gas increases, then which of the following properties of the gas would be affected?

(A) Density (B) Condensation point

(C) Volume (D) Odour

x) Which of the following is a colloidal solution?

(A) Brine solution (B) Copper sulphate solution
(C) Coagulated Matter (D) Emulsion

d) State your observations in the following cases- [5]

i) Hydrogen reacts with ferric sulphate solution.
ii) Aluminium reacts with steam.
iii) Ozone reacts with potassium bromide solution.
iv) Water is added to anhydrous cobalt chloride.
v) Calcium reacts with cold water.

e) Match the column A with column B. Copy column A and write the correct answer beside it- [5]

| Column A | Column B |
|---|---|
| Auric | 2,8,4 |
| Silicon | Incompressible |
| Chlorine | 3 |
| Lead | Halogen |
| Solids | Amphoteric |

f) Write a balanced chemical equation for the following reactions- [5]

i) Conversion of cobalt to a cation.
ii) Chlorine gas is bubbled through water.
iii) Calcium hydroxide reacts with Ammonium chloride.
iv) Tin(II) chloride is heated with concentrated nitric acid.
v) A reaction where water acts as a catalyst.

g) Solve the following numerical problems related to Gas Laws- [1½+1½+2]

i) The volume of a certain gas was found 800 $cm^3$, when the pressure was 760mm of mercury. If the pressure increases by 25%, find the new volume of the gas.

ii) Sulphur dioxide occupies a volume of 512 $cm^3$ at s.t.p. Find its volume at 27°C and at a pressure of 720mm of mercury.
iii) A gas is enclosed in a vessel at s.t.p. At what temperature would the volume of the enclosed gas be 1/8 of its initial volume, pressure remaining constant?

## Section B(40 marks)

### Question 2 [3+3+4]

a) With reference to mixtures, mention the following-
i) Properties of a mixture
ii) Types of mixtures
iii) Two examples of each type

b) Mention the method to separate the following mixtures. Explain any one in about 80 words-
i) Ammonium chloride+Sodium chloride
ii) Benzene+Toluene
iii) Chalk+Water.

c) Explain any one of the following in about 150 words-
i) Chromatography
ii) Centrifugation

### Question 3 [3+3+4]

a) Give two examples of each-
i) Chemical change by close contact
ii) Inhibitor
iii) Acid anhydride

b) Give 2 differences between each pair-
i) Physical Change/Chemical Change
ii) Burning/Respiration
iii) Reduction/Oxidation

c) With reference to burning, mention the following-
i) Definition of burning

ii) Conditions required for burning
iii) The procedure to show that a candle gains weight on burning

Question 4 [3+3+4]

a) Mention the different types of treated water and state how each type is prepared.

b) Give reasons for the following-
i) Water can dissolve a large amount of substance.
ii) Tap water is healthier than rain water.
iii) Although Carbon dioxide is fairly soluble in water, it can still dissolve in water of soda bottles.

c) Define and give an example-
i)Deliquescent Crystal
ii) Anhydrous Substance
iii) Dessicating Agent
iv) Efflorescent Crystal

Question 5 [3+3+4]

a) Define the following-
i) Valency
ii) Radical
iii) Chemical Formula

b) Give the formula of-
i) Oil of Vitriol
ii) Liquor Ammonia
iii) Chile Salt Petre
iv) Chromium sulphide
v) Argentous phosphate
vi) Ferric silicate

c) Balance the following equations-
i) $Ca(OH)_2 + NH_4Cl \longrightarrow CaCl_2 + H_2O + NH_3$
ii) $Cu + HNO_3 \longrightarrow Cu(NO_3)_2 + H_2O + NO_2$

iii) $KHCO_3 \longrightarrow K_2CO_3 + H_2O + CO_2$

iv) $KMnO_4 + HCl \longrightarrow KCl + MnCl_2 + H_2O + Cl_2$

Question 6 [3+3+4]

a) With reference to the Modern Periodic Table, name the following-

i) An alkaline earth metal found in the fourth period.

ii) A halogen of the third period.

iii) The series constituting the elements between atomic numbers 89 and 104.

iv) An element of Group 15 which does not possess allotropy.

v) The number of elements in the fifth period.

vi) The valence shell of the elements of the third period.

b) Mention three defects of Mendeleeff's Periodic Table.

c) Consider the section of the Modern Periodic Table given below and answer the questions that follow-

| 1<br>IA | 2<br>IIA | 13<br>IIIA | 14<br>IVA | 15<br>VA | 16<br>VIA | 17<br>VIIA | 18<br>0 |
|---|---|---|---|---|---|---|---|
| Li | C | E | F | N | O | J | L |
| A | Mg | Al | Si | G | H | Cl | Ar |
| B | D | Ga | Ge | As | I | K | Kr |

Note: C does not represent Carbon
F does not represent Fluorine
H does not represent Hydrogen
I does not represent Iodine
K does not represent Potassium

i) Mention any 2 properties each of elements C and L.

ii) Give the valency of elements E and G.

iii) Arrange elements B,D,I and K in increasing order of their electropositive nature.

iv) Arrange elements A,B,J and K in decreasing order of their non-metallic character.

Question 7 [3+3+4]

a) Give two examples to show how hydrogen can be prepared by-
(Give only the equations.)

i) Using an alkali

ii) From reaction between a metal and an acid

iii) Bosch process (first 2 steps)

b) Explain any 3 uses of hydrogen and give the reasons for its use.

c) Explain the purification of granulated Zinc during the laboratory preparation of hydrogen.

ALL THE BEST!