

## CHEMISTRY FOR CBSE CLASS X

### Acids, Bases and Salts

1. Aqueous solution of sodium carbonate is alkaline in nature. Explain why?
2. Why should curd and sour substances not to be kept in brass and copper vessels?
3. Which gas is usually liberated when an acid reacts with a metal?
4. Why does dry HCL gas does not change the colour of dry litmus paper?
5. Tap water conducts electricity whereas distilled water does not. Why?
6. What are acids?
7. Give features of acids?
8. What are indicators?
9. What are universal indicators?
10. What are bases?
11. Explain reaction of a Non-metallic oxide with base?
12. What is Plaster of Paris?
13. Enlist uses of Plaster of Paris?
14. Give uses of Washing soda?
15. How to prepare Washing soda?
16. How to prepare Bleaching powder?
17. Give uses of Bleaching powder?
18. What is the effect of heat on baking soda?
19. What is baking soda? How it is known chemically?
20. Give the chemical name of washing soda?
21. Give two examples of hydrated salt which are white and state their chemical formula?

### Chemical reactions and equations

1. Why should a magnesium ribbon be cleaned before burning in air?
2. What is balanced chemical equation?
3. Why should chemical equation be balanced?
4. Give an example of double displacement reaction?
5. Why does colour of copper sulphate solution change when an iron nail is dipped in it?
6. What is exothermic and endothermic reaction?
7. Why respiration is considered an exothermic reaction?
8. What are the latest techniques used to prevent rancidity?
9. On what basis is a chemical equation is balanced?
10. Why all decomposition reactions are endothermic reaction?

11. When blue salt of copper sulphate is heated it becomes colourless? Why?
12. What does a word equation show?
13. What is meant by thermal decomposition reaction?
14. Explain law of conservation of mass?
15. Enlist importance of a chemical equation?
16. Define combination reaction?
17. What is oxidation?
18. What are oxidizing agents?
19. What are reducing agents?
20. Explain electronic concept of oxidation and reduction?
21. What is corrosion? Give 2 examples.
22. What is rusting?
23. Enlist conditions necessary for rusting?
24. State various methods used to prevent rusting?
25. Describe rancidity?
26. Oil and fat containing food items are flushed with nitrogen. Why?

#### Metals and Non-metals

1. What are Metals?
2. Explain physical properties of metals?
3. Explain chemical properties of metals?
4. What is reactivity series of metals?
5. What are Non-metals?
6. Explain physical properties of Non-metals?
7. Explain chemical properties of Non-metals?
8. Enlist properties of Ionic compounds?
9. What are minerals?
10. What are the steps involved in extraction of metals?
11. Give properties of an alloy?
12. Give an example of metal which is a poor conductor of heat?
13. Why sodium is kept immersed in kerosene oil?
14. Why do ionic compounds have high melting points?
15. Why magnesium ribbon starts floating when it is placed in hot water?
16. Write the electron-dot structure for sodium and chlorine acid?
17. Why most metals conducts electricity well?
18. Name the ore of mercury. How mercury is extracted from its ore?

1. Draw the structure of ethene molecule ( $C_2H_4$ )
2. The position of three elements A, B and C in the periodic table are shown below :

Group 16	Group 17
-	-
-	A
-	-
B	C

3.
  - a. State whether A is a metal or non - metal.
  - b. State whether C is more reactive or less reactive than A.
  - c. Will C be larger or smaller in size than B ?
  - d. Which type of ion, cation or anion, will be formed by element A ?
4. What are soaps ? Explain the mechanism of the cleansing action of soaps.
5.
  - a. Atomic number is considered to be a more appropriate parameter than atomic mass for classification of elements in a periodic table. Why ?
  - b. How does atomic size of elements vary on moving from :
    - i. left to right in a period ?
    - ii. top to bottom in a group ?

Give reasons for your answers.

The atomic number has been chosen as the basis for classifying elements. Why ?

- a. By considering their positions in the Periodic Table, which one of the following elements would you expect to have maximum metallic characteristic ?  
Na, Mg, Al.

A part of the Periodic Table has been shown below -

Group	I	II	XVI	XVII	XVIII
Period 1					
2		B	D	C	
3				E	

On the basis of above table answer the following questions -

- . Which element will form cation ?
- i. Which element will have the smallest atomic size ?
- ii. Which element will have chemical properties similar to Magnesium (atomic number 12) ?
- iii. Write the common name of the group to which C and E belong.
  
- . Which of the following compounds will undergo addition reaction ?  
C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, C<sub>3</sub>H<sub>6</sub>, C<sub>2</sub>H<sub>2</sub>, and CH<sub>4</sub>
- a. What is hydrogenation ? State its industrial application.
  
- . Name an element you would expect to show chemical reactions similar to sodium. State the reason in support of your answer.
- a. Write electronic configuration of the element belonging to 3rd period and 13th group of the periodic table. Predict whether it is a metal or a non - metal. Give reason.

Write the name and structure of an aldehyde with 4 carbon atoms.

- . State the Modern Periodic Law.
- a. Name the element which has twice as many electrons in its second shell as in its first shell. Write its electronic configuration also.
  
- . Why do all the elements of the same group have similar chemical properties ?
- a. Why do all the elements of the same period have different properties ?

An organic compound A is widely used as a preservative in pickles and has a molecular formula C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>. This compound reacts with ethanol in the presence of a mineral acid to form a sweet smelling compound B.

- i. Identify the compound A.
- ii. Which gas is produced when A reacts with sodium carbonate ? Write the balanced chemical equation for the reaction involved.
- a. Write the names of
  - i. CH<sub>3</sub>CH<sub>2</sub>Br
  - ii. CH<sub>3</sub>-CH=CH<sub>2</sub>

. How and why does the size of an atom vary on moving from left to right in a period ?

a. Why does the chemical reactivity of metals increase on moving down a group ?

Name the functional group present in propanone,  $\text{CH}_3\text{COCH}_3$ .

the elements of the third period of the periodic table are given below:

Na                      Mg                      Al                      Si                      P                      S                       $\text{C}_1\text{Ar}$

Which atom is bigger Na or Mg ? Why ?

Identify the most (i) metallic and (ii) non-metallic element

This question refers to the elements of the periodic table with atomic numbers 3 to 18

. Which of them are noble gases ?

a. Which of them are halogens ?

b. Which of them are alkali metals ?

c. What is the electronic configuration of an element with atomic number 10 ?

. Draw the structures for following compounds

(i) ethanoic acid,

(ii) butanone,  $\text{C}_2\text{H}_5\text{COCH}_3$ .

a. Conversion of ethanol to ethanoic acid is considered an oxidation reaction. Why?

. Give a chemical test to distinguish between saturated and unsaturated hydrocarbons.

a. Name the products formed when ethanol burns in air.

b. Why is the reaction between methane and chlorine considered a substitution reaction ?

19. Account for the following

i. Elements C, N, O and F are all placed in the second period in the periodic table.

ii. Elements of group 17 are monovalent.

20.

a. How does Atomic Radius change as we move from left to right in a period ?

b. The positions of three Elements P, Q and R in the Periodic table are shown below

Group 15	Group 16	Group 17
2	.....	.....
3	..... Q	.....
.....	.....	.....
P	.....	R

Which one of the three elements is most non - metallic ?

- . On dropping a small piece of Sodium into an organic compound "A" with molecular formula  $C_2H_6O$  in a test tube a brisk effervescence is observed. On bringing a burning splinter the gas evolved burns with a pop sound. Identify 'A' and write the chemical equation.
- a. What will happen when you heat the organic compound 'A' at 443K with excess of concentrated Sulphuric acid ?

. Examine Elements of the third Period : Na, Mg, Al, Si, P, S, Cl, Ar and answer the following :

Choose

- (i) \_\_\_\_\_ Metals \_\_\_\_\_ and \_\_\_\_\_
- (ii) Non - Metals out of these elements.

- a. On which side of the Periodic table can we locate
  - (i) \_\_\_\_\_ Metals \_\_\_\_\_ and \_\_\_\_\_
  - (ii) \_\_\_\_\_ Non-Metals?

Name the Metalloid out of the elements given above. Where are they located in the periodic table ?

Name the functional group present in each of the following compounds.

$C_3H_7OH$

State Modern period law. How many groups and periods are present in modern periodic table ?

- . List two medicinal use of ethanol.
- a. What happens when ethanol is heated with excess of conc.  $H_2SO_4$  at 443K (Give chemical equation) ? What role does conc.  $H_2SO_4$  play in this reaction ?

Give reasons for the following :

- . Lithium atom is smaller than Sodium atom
- a. Chlorine (Atomic Number 17) is more electronegative than Sulphur (Atomic Number 16)

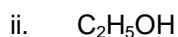
- . State modern periodic law.
- a. State the place of metalloids in the periodic table.

Three elements A, B and C have atomic number 7, 8 and 9 respectively.

- . What would be their positions in the modern periodic table (Mention group and period both)
- a. Arrange A, B and C in the decreasing order of their size.

b. Which one of the three elements is most reactive and why ?

. Draw the electron dot structure of -



a. What are hydrogenation reactions ? Give an example.

Draw the structure of the simplest ketone.

. State Modern Periodic Law.

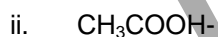
a. Why is position assigned to hydrogen in Periodic Table considered anomalous ?

Account for the following :

. Elements of group 18 are called zero valent.

Elements in a group of periodic table have similar chemical properties.

. Define the term Functional group. Identify the functional group present in the following compounds :



a. What will you observe on adding a 5% alkaline potassium permanganate solution drop by drop to some warm ethanol taken in a test tube ? Write the name of the compound formed during the above chemical reaction.

Given below are four elements with their atomic numbers

Element	Atomic number
A	16
B	11
C	3
D	14

a. Identify the elements which belong to the same group of the Modern Periodic table.

b. Arrange the given elements in decreasing order of atomic size.

- c. Write the formula of the oxide of B.
- d. Which of the above elements is a metalloid ?

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