

# IMPORTANT QUESTIONS OF CHEMISTRY

## ----- Carbon and its Compounds

1. How many covalent bonds are there in a molecule of ethane,  $C_2H_6$  ?
2. Write one chemical equation to represent each of the following types of reactions of organic substances :
  - (i) Esterification
  - (ii) Saponification
  - (iii) Substitution
3. (a) In a tabular form, differentiate between ethanol and ethanoic acid under the following heads :
  - (i) Physical state
  - (ii) Taste
  - (iii)  $NaHCO_3$  test
  - (iv) Ester test

(b) Write a chemical reaction to show the dehydration of ethanol.
6. What is a soap ? Why are soaps not suitable for washing clothes when the water is hard ?
7. Explain the action of soap in removing an oily spot from a piece of cloth.
8. Draw the structure for ethanoic acid molecule,  $CH_3COOH$ .
9. (a) State two properties of carbon which lead to a very large number of carbon compounds.

(b) Why does micelle formation take place when soap is added to water ? Why are micelles not formed when soap is added to ethanol ?
10. Explain isomerism. State any four characteristics of isomers. Draw the structures of possible isomers of butane,  $C_4H_{10}$ .

11. Butanone is a four-carbon per molecule compound. Name the functional group present in it.
12. (a) What is a homologous series of compounds ? List any two of its characteristics.
- (b) What is the next higher homologue of  $C_3H_7OH$  ? What is its formula and what is it called ?
13. Give reasons for the following :
- Element carbon forms compounds mainly by covalent bonding.
  - Diamond has a high melting point.
  - Graphite is a good conductor of electricity.
  - Acetylene burns with a sooty flame.
  - Kerosene does not decolourise Bromine water while cooking oils do.
14. Write chemical equations for what happens when
- sodium metal is added to ethanoic acid.
  - solid sodium carbonate is added to ethanoic acid.
  - ethanoic acid reacts with a dilute solution of sodium hydroxide.
15. In the periodic table, how does the tendency of atoms to lose electrons change on going from
- left to right across a period ?
  - top to bottom in a group ?
16. What is meant by periodicity of properties of elements ? Why are the properties of elements placed in the same group of the periodic table similar ?
17. The positions of three elements A, B and C in the periodic table are indicated below :

<u>Group 16</u>	<u>Group 17</u>	
—	—	(First Period)
—	A	(Second Period)
—	—	(Third Period)
B	C	(Fourth Period)

- State whether element C would be a metal or a non-metal. Why ?
- Which is the more active element, A or C ? Why ?
- Which type of ion (cation or anion) will be formed by the element C ? Why ?

18. In the modern periodic table, the element Calcium (atomic number = 20) is surrounded by elements with atomic numbers 12, 19, 21 and 38. Which of these elements has physical and chemical properties resembling those of Calcium and why ?
19. The atomic number of an element is 16. Predict
- the number of valence electrons in its atom
  - its valency
  - its group number
  - whether it is a metal or a non-metal
  - the nature of oxide formed by it
  - the formula of its chloride
20. (i) How do you calculate the possible valency of an element from the electronic configuration of its atoms ?
- (ii) Calculate the valency of an element X whose atomic number is 9.
- (i) किसी तत्व के परमाणुओं के इलेक्ट्रॉनिक विन्यास के आधार पर उसकी संभव संयोजकता का परिकलन कैसे किया जाता है ?
21. How does the electronic configuration of an atom of an element relate to its position in the modern periodic table ? Explain with one example.

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