



Carbon and Its Compounds

Grade 10

Question Bank

Answer the following questions

1. What are covalent bonds?
2. What property enables carbon to form thousands of compounds in nature?
3. What would be the electron dot structure of carbon dioxide which has the formula CO_2 ?
4. What would be the electron dot structure of a molecule of sulphur which is made up of eight atoms of sulphur? (Hint – The eight atoms of sulphur are joined together in the form of a ring.)
5. How many structural isomers can you draw for pentane?
6. What are the two properties of carbon which lead to the huge number of carbon compounds we see around us?
7. What will be the formula and electron dot structure of cyclopentane?
8. Draw the structures for the following compounds.
(i) Ethanoic acid (ii) Bromopentane* (iii) Butanone (iv) Hexanal.
*Are structural isomers possible for bromopentane?
9. Draw the electron-dot structure of ethane.
10. Write the general formula of alkanes, alkenes and alkynes corresponding to the homologous series.
11. Give the combustion reaction of pentane.
12. Write the products obtained in the oxidation reaction of butanol with alkaline KMnO_4 in the presence of heat.
13. Why is the conversion of ethanol to ethanoic acid an oxidation reaction?
14. A mixture of oxygen and ethyne is burnt for welding. Can you tell why a mixture of ethyne and air is not used?
15. Write down three properties of ethanol.
16. What is a denatured spirit?
17. How would you distinguish experimentally between an alcohol and a carboxylic acid?
18. What are oxidising agents?
19. Would you be able to check if water is hard by using a detergent?
20. People use a variety of methods to wash clothes. Usually after adding the soap, they 'beat' the clothes on a stone, or beat it with a paddle, scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to get clean clothes?
21. Explain the nature of the covalent bond using the bond formation in CH_3Cl .
22. Draw the electron dot structures for
(a) ethanoic acid. (b) H_2S . (c) propanone. (d) F_2 .
23. What is a homologous series? Explain with an example.
24. Why does micelle formation take place when soap is added to water? Will a micelle be formed in other solvents such as ethanol?

25. Why are carbon and its compounds used as fuels for most applications?
26. Explain the formation of scum when hard water is treated with soap.
27. What change will you observe if you test soap with litmus paper (red and blue)?
28. What is hydrogenation? What is its industrial application?
29. Which of the following hydrocarbons undergo addition reactions: C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 and CH_4 .
30. Give a test that can be used to differentiate between saturated and unsaturated hydrocarbons.
31. Explain the mechanism of the cleaning action of soaps.