

1. Make a list of at least ten such things which are made of carbon and used by us in daily life.
2. A solution of sugar in water does not conduct electricity. Why?
3. What is the nature of bond present in carbon compounds?
4. Why does carbon not form  $C^{4+}$  or  $C^{4-}$  ions?
5. Name the bond present in the following molecules:  
(a)  $H_2$  (b)  $N_2$  (c)  $CH_4$  (d)  $NH_3$  (e)  $O_2$  (f)  $CCl_4$
6. Show the formation of the following molecules with the help of electron-dot structure:  
(a)  $CH_4$  (b)  $CO_2$  (c)  $N_2$  (d)  $O_2$  (e)  $H_2$  (f)  $C_2H_6$
7. Out of all the known elements, only carbon forms a very large number of compounds. Why?
8. Give reason for the fact that the bonds formed by carbon are strong leading to exceptionally stable compounds.
9. What name is given to the hydrocarbons having:  
a. Single covalent bonds (b) Double covalent bonds (c) Triple covalent bonds
10. What are isomers?
11. Make structures of all isomers of (a)  $C_4H_{10}$  (b)  $C_5H_{12}$  (c)  $C_6H_{14}$
12. What is the difference between cyclohexane and benzene even though both have 6 carbon atoms each in their molecule? Draw the structure also.
13. What is a functional group?
14. Which part of an organic compound decides its physical and which decides its chemical properties?
15. Write the formulae of the following functional groups:  
(a) Alcohol (b) aldehyde (c) ketone (d) carboxylic acid
16. What is homologous series? Write its four characteristics.
17. Write the formulae of the predecessor and successor of the following:  
(a)  $C_2H_5OH$  (b)  $C_2H_5CHO$  (c)  $CH_3COOH$
18. Write the IUPAC names of the following:  
(a)  $C_2H_5Cl$  (b)  $C_3H_7OH$  (c)  $CH_3CHO$  (d)  $CH_3COCH_3$   
(e)  $C_2H_5COOH$  (f)  $C_4H_8$  (g)  $C_3H_4$  (h)  $HCHO$
19. Write equations to show combustion reactions of : methane & ethanol
20. Saturated hydrocarbons burn with a clean blue flame while unsaturated ones burn with a sooty flame. Why?
21. What is the difference between substitution and addition reactions? Explain with an example.
22. Write 3 uses of ethanol. Is ethanol drinking harmful? Explain its ill effects.
23. A piece of sodium metal moves swiftly up & down when dropped into ethanol in testtube. Explain this observation with equation.
24. What happens when hot and conc.  $H_2SO_4$  is added to ethanol? Write equation.
25. Write the name of the chemical substance that is used as a preservative in pickles.
26. Complete the following equations:  
(a)  $CH_3COOH + CH_3CH_2OH \xrightarrow{\text{conc } H_2SO_4}$   
(b)  $CH_3COOC_2H_5 \xrightarrow{NaOH}$   
(c)  $NaOH + CH_3COOH \longrightarrow$
27. Define the term 'esterification'. Write uses of esters.
28. A gas with brisk effervescence is evolved when pinch of sod. carb. is added to sol. of ethanoic acid. Explain with an equation.
29. Draw a miscelle and explain the cleansing action of soap
30. Why is soap an ineffective cleansing agent in hard water?