

SHORT ANSWERS TO THE GIVEN QUESTIONS

Q1. What is meant by the term catenation? Give an example of a compound that displays catenation.

Answer:

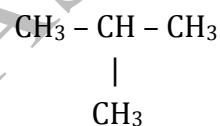
Catenation:

The ability of carbon atom to link with other carbon atoms to form long chain and rings is called catenation. Due to catenation, carbon forms large number of organic compounds.

Example:



&



Q2. How is coal formed?

Answer:

Formation of Coal:

Coal was formed by the decomposition of dead plants buried under the Earth's crust millions of year ago as a result of carbonization (Conversion of wood into coal).

Q3. What is importance of natural gas?

Answer:

Importance of Natural Gas:

Natural gas is important because;

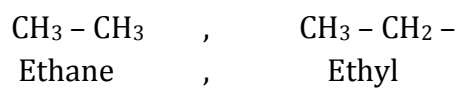
1. It is used as fuel in homes as well as in industries.
2. It is also used as fuel in automobiles as compressed natural gas (CNG).
3. It is used to prepare carbon black for paints and hydrogen for fertilizers.

Q4. Justify the organic compound are used as food?**Answer:**

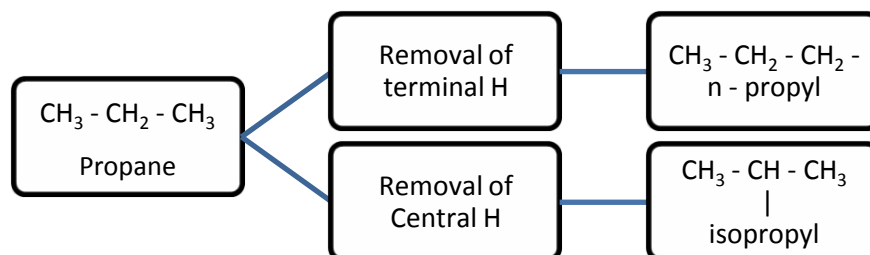
Macromolecules produced by plants such as carbohydrates, proteins, vegetables oils, vitamins in the form of fruits and vegetables are used as food.

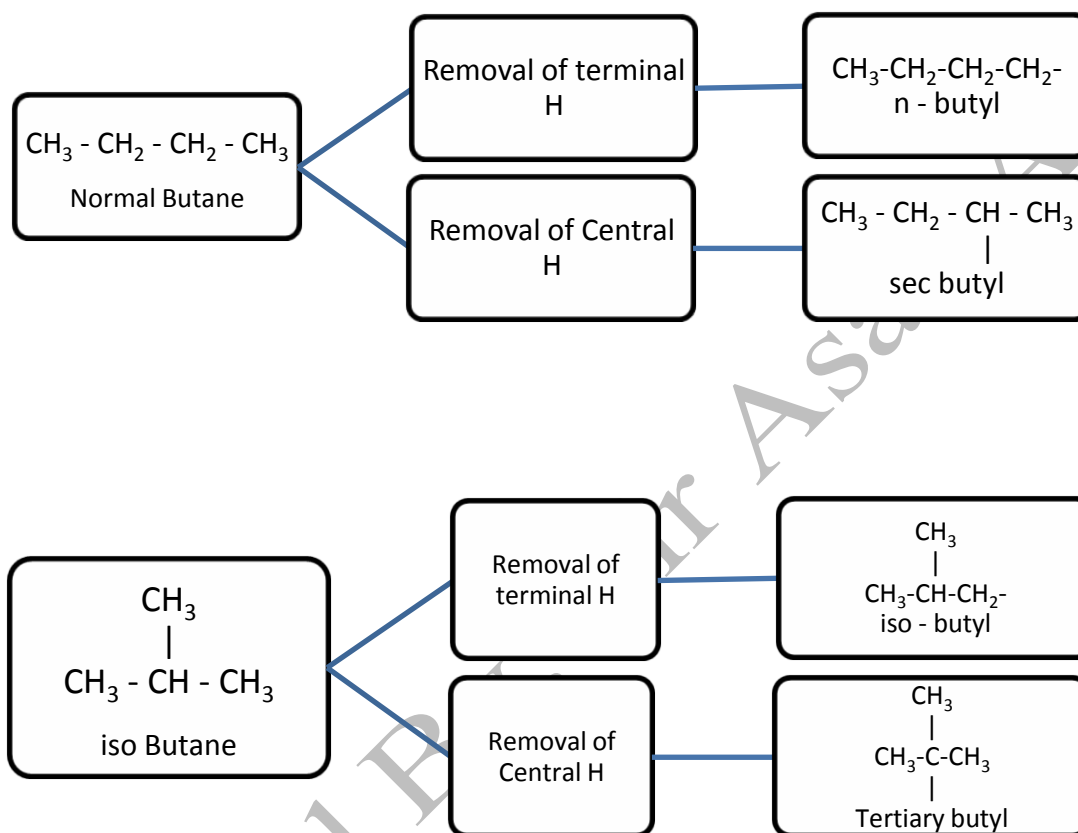
Q5. How is alkyl radicals formed? Explain with examples.**Answer:****Formation of alkyl Radicals:**

Alkyl radicals are derivative of alkanes. They are formed by the removal of one of the hydrogen atom of an alkane and are represented by a letter 'R'. Their name is written by replacing 'ane' of alkane with 'yl'.

Examples:**Q6. What is the difference between n – propyl & isopropyl? Explain with structure.****Answer:**

n – Propyl	Iso – propyl
Propane has straight chain structure. When terminal hydrogen atom is removed from it, n- propyl is formed.	When one hydrogen atom is removed from central carbon atom of propane, iso – propyl radical is formed.

Structure of n – propyl & isopropyl:

Q7. Explain different radicals of butane.**Answer:****Q8. Define functional group with an example.****Answer:****Functional Group:**

An atom or group of atom or presence of double bond or triple bond which determines the characteristics properties of an organic compound is called as functional group.

For example:

Functional group of alcohols is $-\text{OH}$ and of carboxylic acid is $-\text{COOH}$.

Q9. What is an ester group? Write down the formula of ethyl acetate.

Answer:

Ester group:

Organic compounds consisting of RCOOR' functional group are called ester group. Here R and R' are alkyl groups. They may be same or different.

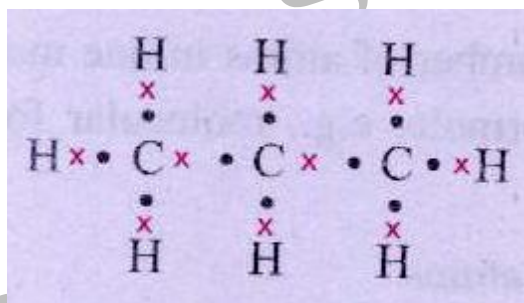
Formula of Ethyl acetate:



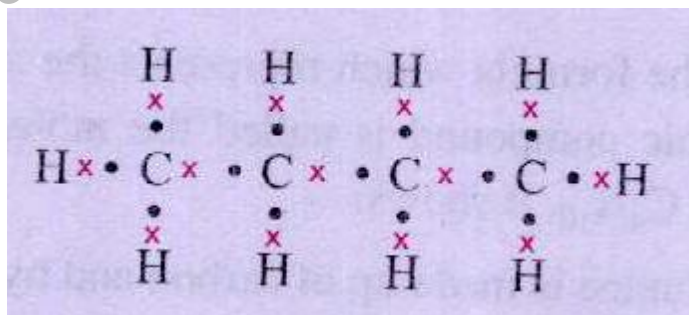
Q10. Write down the dot and cross formulae of propane and n – butane?

Answer:

Dot & Cross Formula of Propane:



Dot & Cross Formula of n – butane:



Q11. Define structural formula. Draw the structural formulae of n – butane and isobutene.

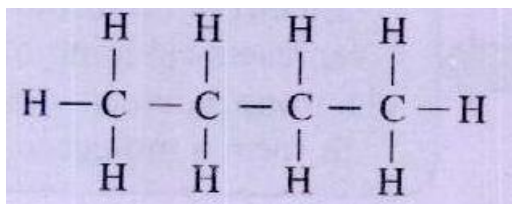
Answer:

Structural Formula:

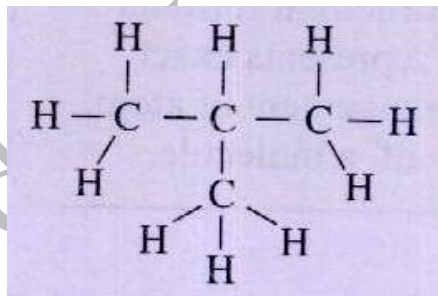
This formula represents the arrangement of different kinds of atom in a molecule of organic compound is called structural formula.

For example:

Structural formula of n – butane C_4H_{10} is:



Structural formula of iso – butane C_4H_{10} is:



Q12. Write classification of coal.

Answer:

There are four types of coal depending upon extent of carbonization. Each type of coal differs from each other on the basis of carbon content, volatile matter and moisture.

- i. Peat
- ii. Lignite
- iii. Bituminous
- iv. Anthracite

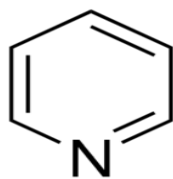
Q13. What are heterocyclic compound? Give two examples.

Answer:

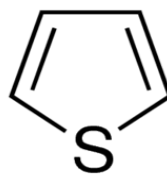
Heterocyclic compounds:

Cyclic compounds which contain one or more atoms other than that of carbon atoms in their rings are called heterocyclic compounds.

Example:



Pyridine



Thiophene

Q14. Why benzene and other homologous compounds of benzene are called aromatic compounds?

Answer:

According to definition "Aromatic compound are those which contain at least one benzene ring, since benzene and other homologous compounds of benzene contain at least one benzene ring, therefore, these are called aromatic compounds. E.g. Benzene, phenol, naphthalene etc.

Some Exceptional Questions

1. What is Vital force Theory?
2. Who rejected the vital force theory and how?
3. Define organic chemistry?
4. Name the different types of organic compounds?
5. What is molecular formula? Give example.
6. What is structural formula? Give example.
7. What is condensed formula? Give example.
8. What is electronic or dot and cross formula? Give example.
9. Write name and molecular formulas of first five hydrocarbons?
10. Give molecular formulas of Octane and Decane?
11. Give the classification of organic compound (HINT: Summary Chart)
12. What is the difference between acyclic and alicyclic hydrocarbons?
13. What is the difference between homocyclic and heterocyclic hydrocarbons?
14. Give two necessary conditions of catenation.
15. Why silicon and carbon have similar electronic configuration?
16. Why carbon show catenation phenomena but silicon does not?
17. Define isomerism? Give example.
18. What are the isomers of pentane? Also write its structures?
19. Define carbonization.
20. Define destructive distillation. Also write its name of fractions.
21. What is ammonical liquor?
22. What is pitch? Also write its use.
23. What is coke?
24. Write a short note on natural gas?
25. What are amines?
26. What are alkyl halides?
27. What is Baeyer's test and bromine water test?
28. What is sodium metal test?
29. Explain is Litmus test?
30. Explain the sodium nitroprusside test?
31. How Carboxylic group is identified?
32. How alcoholic group is identified?
33. How aldehyde group is identified?