

CBSE TEST PAPER 01
CLASS XI CHEMISTRY (Hydrocarbons)

General Instruction:

- All questions are compulsory.
 - Marks are given alongwith their questions.
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1. Classify the hydrocarbons according to the carbon – carbon bond. [1]
2. What are cycloalkanes? [1]
3. The boiling point of hydrocarbons decreases with increase in branching. Give reason. [2]
4. Unsaturated compounds undergo addition reactions. Why? [2]
5. Why does carbon have a larger tendency of catenation than silicon although they have same number of electrons? [1]
6. To which category of compounds does cyclohexane belong? [1]
7. Draw the structure of the following compounds all showing C and H atoms.
 - (a) 2-methyl -3-iso propyl heptanes
 - (b) Dicyclopropyl methane. [2]
8. Draw all the possible structural isomers with the molecular formula C_6H_{14} , Name them. [2.5]
9. Write IVPAC names of the following
 $CH_3 (CH_2)_4 CH (CH_2)_3 CH_3 -CH_2 - CH (CH_3)_2$. [1]

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[ANSWERS]

Ans 01. Hydrocarbons are categorized into three categories according to the carbon – carbon bond that exists between them-

(a) saturated hydrocarbon (b) Unsaturated hydrocarbon (c) Aromatic hydrocarbon.

Ans 02. When carbon atoms form a closed chain or a ring, they are termed as cycloalkanes.

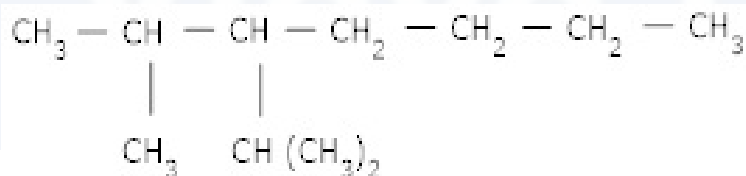
Ans 03. Branching result into a more compact (nearly spherical) structure. This reduces the effective surface area and hence the strength of the Vander wall's forces, thereby leading to a decrease in the boiling point.

Ans 04. Unsaturated hydrocarbon compounds contain carbon – carbon double or triple bonds. The π -bond is multiple bond and is unstable and therefore addition takes place across the multiple bonds.

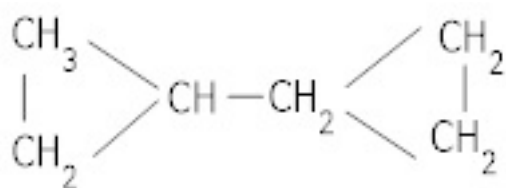
Ans 05. It is due to the smaller size of C than Si which catenates with stronger C-C bond (335 KJ mol⁻¹) than Si-Si bond (225.7 KJ mol⁻¹).

Ans 06. Saturated alicyclic hydrocarbons.

Ans 07. (a)

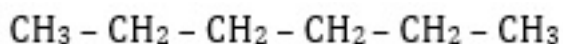


(b)

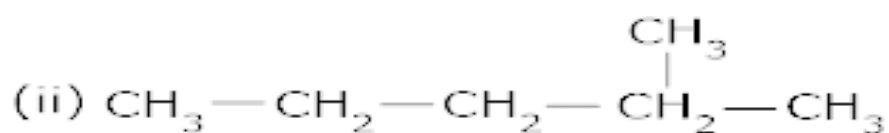


(dicyclopropyle methane)

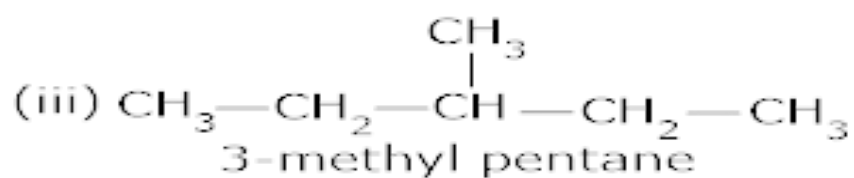
Ans 08. (i)



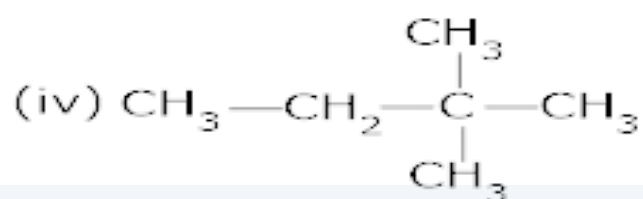
(n - hexane)



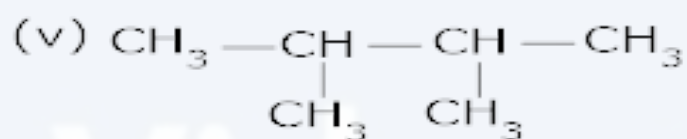
2-methyl pentane



3-methyl pentane



2,2-dimethyl butane



2,3-dimethyl butane

Ans 09. 5-(2 - Methyl propyl) - decane.