

QB365 Question Bank Software Study Materials

Hydrocarbons Important 2 Marks Questions With Answers (Book Back and Creative)

11th Standard

Chemistry

Total Marks : 60

2 Marks

30 x 2 = 60

- 1) Describe the conformers of n - butane.

Answer : Conformations of n-Butane: n-Butane may be considered as a derivative of ethane, as one hydrogen on each carbon is replaced by a methyl group

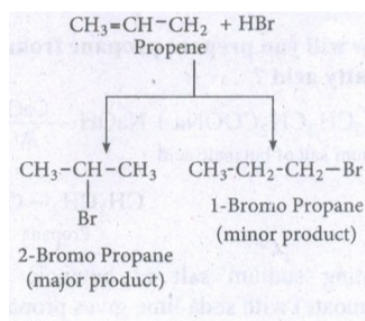
Eclipsed conformation: In this conformation, the distance between the two methyl group is minimum. So there is maximum repulsion between them and it is the least stable conformer.

Anti or staggered form: In this conformation, the distance between the two methyl groups is maximum and so there is minimum repulsion between them. And it is the most stable conformer.

- 2) Explain Markovnikoff's rule with suitable example.

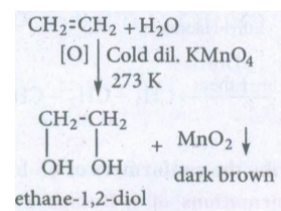
Answer : Markovnikoff's rule: "When an unsymmetrical alkene reacts with hydrogen halide, the hydrogen adds to the carbon that has more number of hydrogen and halogen add to the carbon having fewer hydrogen".

Eg: Addition HBr to unsymmetrical alkene: In the addition of hydrogen halide to an unsymmetrical alkene, two products are obtained.

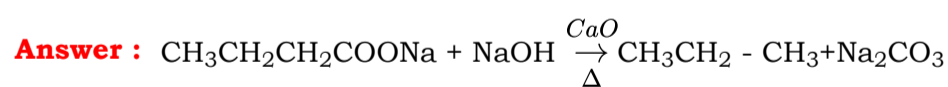


- 3) What happens when ethylene is passed through cold dilute alkaline potassium permanganate.

Answer : Ethene reacts with cold alk KMnO_4 (Balyer's reagent) to give ethane 1,2 - diol



- 4) How will you prepare propane from a sodium salt of fatty acid?

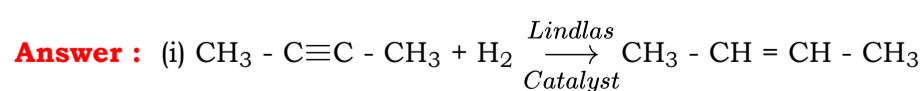
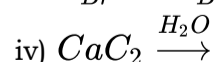
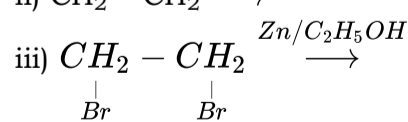
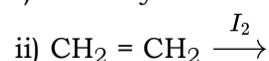
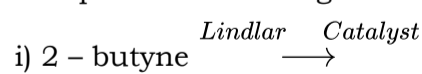


Sodium salt of butanoic acid

Propane

Heating sodium salt of butanoic acid (Sodium butanoate) with soda lime gives propane.

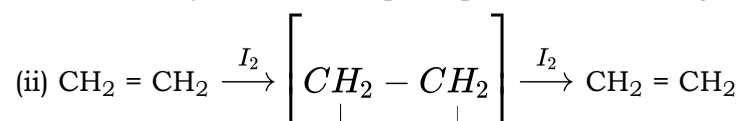
- 5) Complete the following :



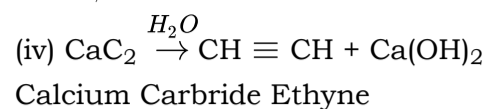
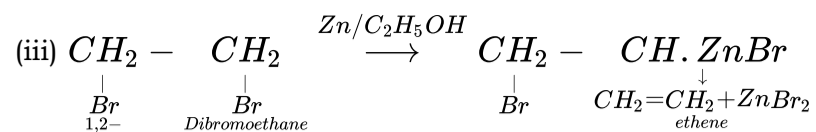
2 - Butyne

2 - Butene

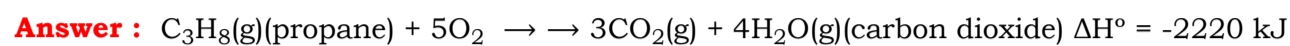
Lindlar catalyst consist of pd deposited on CaCO_3 and then poisoned by lead on sulphur.



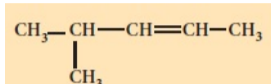
ethene



6) Write down the combustion reaction of propane whose $\Delta H^\circ = -2220 \text{ kJ}$



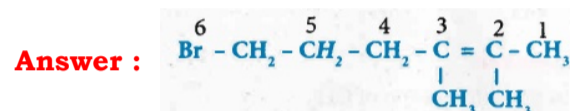
7) Write the IUPAC names for the following alkenes.



Answer : 4-methyl - 2-pentene

8) Draw the structures for the following alkenes.

6 - Bromo - 2,3 - dimethyl - 2 - hexene

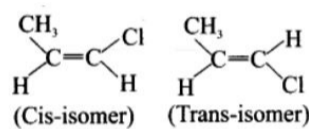


9) Determine whether each of the following alkenes can exist in cis-trans isomers?

(a) 1 - Chloro propene

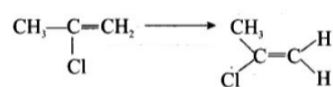
(b) 2 - Chloro propene

Answer : (a) 1 - Chloropropene:



can exist.

(b) 2 - Chloropropene:



∴ cannot exist

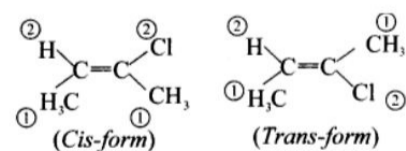
(2 - H - atoms at the same carbon).

10) Draw cis-trans isomers for the following compounds

(a) 2-chloro - 2 - butene

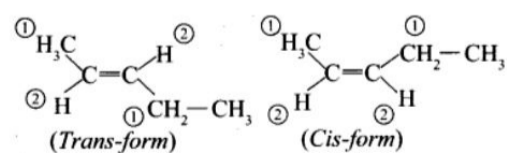
(b) $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$

(a) 2-Chloro-2-butene:

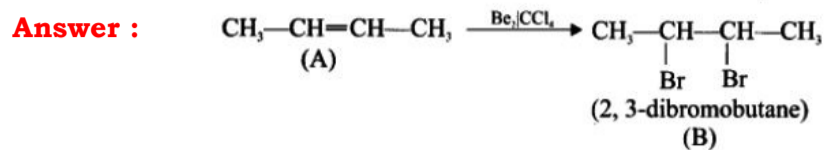
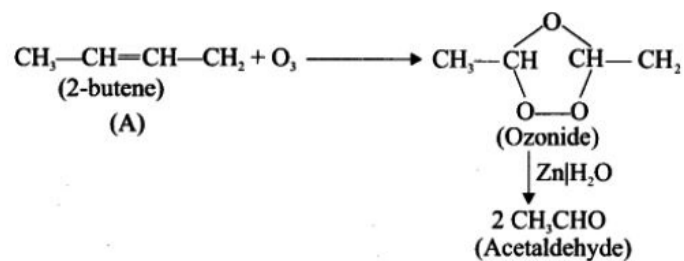


Answer :

(b) $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_2 - \text{CH}_3$

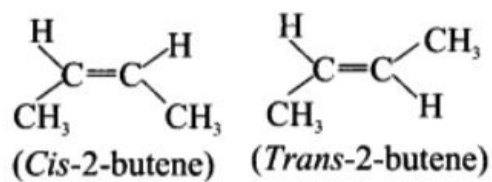


11) An organic compound (A) on ozonolysis gives only acetaldehyde. (A) reacts with $\text{Br}_2 / \text{CCl}_4$ to give compound (B) Identify the compound (A) and (B). Write the IUPAC name of (A) and (B). Give the Geometrical isomers of (A)

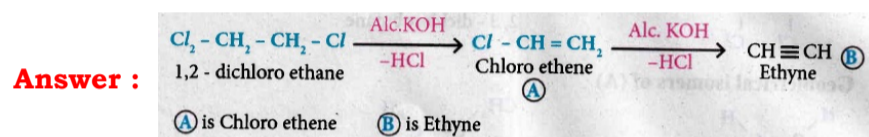
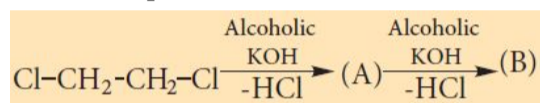


A.	$\text{CH}_3-\text{CH}=\text{CH}-\text{CH}_3$	2-Butene
B.	$\begin{array}{c} \text{CH}_3-\text{CH}-\text{CH}-\text{CH}_3 \\ \quad \\ \text{Br} \quad \text{Br} \end{array}$	2, 3-dibromobutane

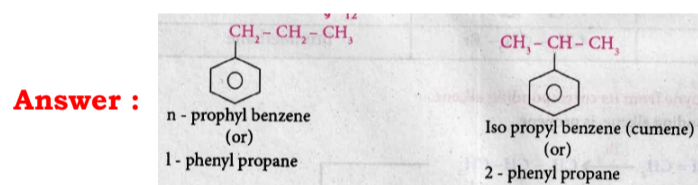
Geometrical Isomers of 2 - Butene (A):



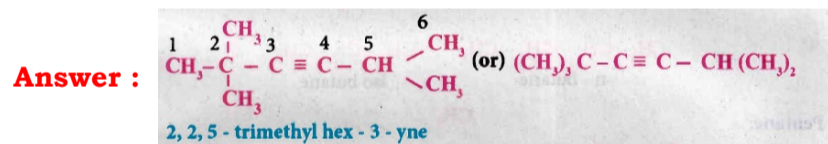
- 12) Write the products A & B for the following reaction.



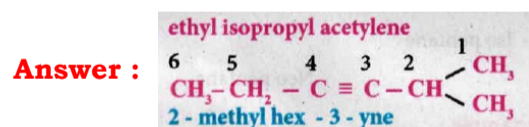
- 13) write all possible isomers for a monosubstituted aromatic benzenoid compound having the molecular formula C₉H₁₂



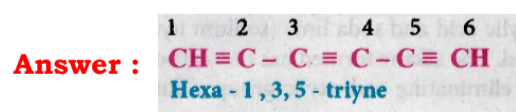
- 14) Give IUPAC names for the following compound
(CH₃)₃C - C ≡ C - CH (CH₃)₂



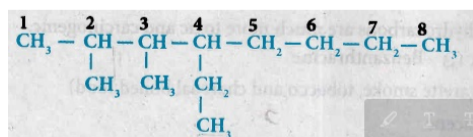
- 15) Give IUPAC names for the following compound
ethyl isopropyl acetylene



- 16) Give IUPAC names for the following compound
CH ≡ C - C ≡ C - C ≡ CH

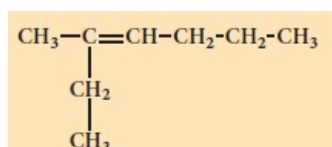


- 17) Give the IUPAC name for the following alkane.



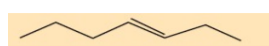
Answer : 4 - ethyl - 2,3 - dimethyl octane

- 18) Write the IUPAC names for the following alkenes.



Answer : 3-methyl - 3 -heptene

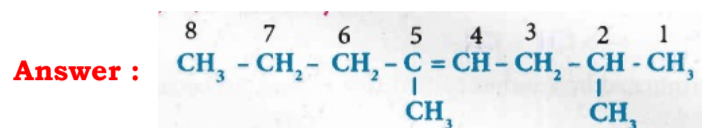
- 19) Write the IUPAC names for the following alkenes.



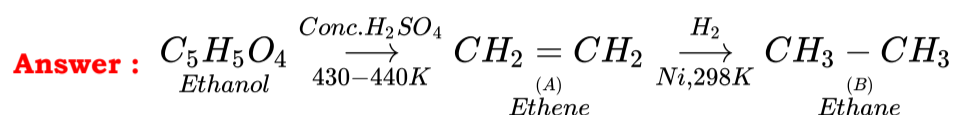
Answer : 3 - heptene

- 20) Draw the structures for the following alkenes.

2,5 - dimethyl - 4 - octene



- 21) Identify A and B from the following. $C_2H_6O \xrightarrow[430-440K]{con.H_2SO_4} A \xrightarrow[Ni,298K]{H_2} B$



- 22) What is isomerism? Mention the types of isomerism?

Answer : The phenomenon in which the same molecular formula may exhibit different structural arrangement is called isomerism.

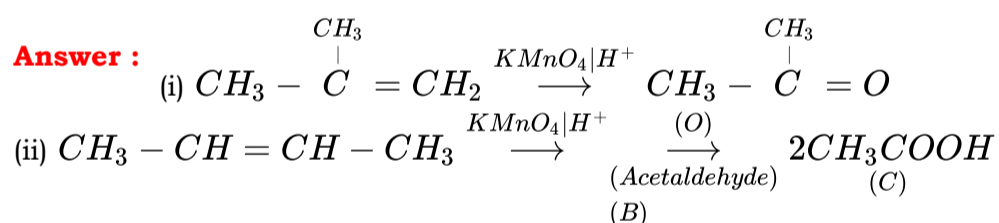
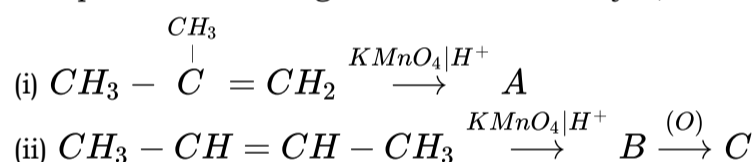
There are two types of isomerism, namely.

- Structural isomerism
- Stereo isomerism

- 23) What are conformers?

Answer : The rotation about C-C single bond axis yielding several arrangements of a hydrocarbon called conformers.

- 24) Complete the following reaction and identify A, B and C.



- 25) The boiling point of continuous chain alkanes increases with increase in length of carbon chain why?

Answer : The boiling point of continuous chain alkanes increases with increases in length of carbon chain roughly about 30°C for every added carbon atom to the chain. Being non polar, alkanes have weak Vanderwal's force which depends upon molecular surface area and hence increases with increase molecular size.

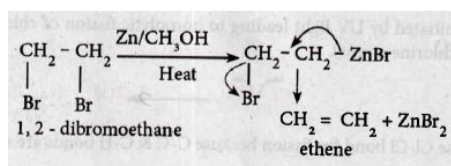
- 26) The straight chain alkanes have higher boiling Point than their branched isomers. Why?

Answer : The boiling point decreases with increase in branching as the molecule becomes compact and the area of the contact decreases.

- 27) What are vicinal dihalides? How are alkenes obtained from vicinal dihalides?

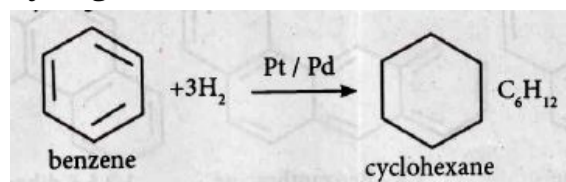
Answer : The compound in which two halogen atoms are attached to adjacent carbon-atoms are called as vicinal dihalides.

When vicinal dihalides are warmed with granulated zinc in methanol, they lose a molecule of ZnX_2 to form an alkene.

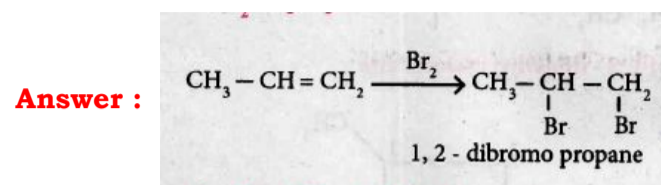


- 28) Explain the hydrogenation of benzene.

Answer : Benzene reacts with hydrogen in the presence of Platinum or Palladium to yield Cyclohexane. This is known as hydrogenation.



29) What is the action of Br₂ on propene?



30) What is the action of Baeyer's reagent on propene?

