Chemistry - 12th Class Chemistry Chapter 8 Short Questions Preparation

Q1. Define Hydrogenation,

Ans 1: Hydrogenation is a process in which molecule of hydrogen added to an alkene in the presence of a catalyst and at moderate pressure (1-5 atm) to give a saturated compound.

Q2. Identify the actual product ,when HBr is added to propene.

Ans 1: Propene is an unsymmetrical alkene,According to Markovnikov rule.the negative part of the adding reagent goes to that carbon,constituting the double bond,which has least number of hydrogen atom.

Q3. Explain acidic nature of ethyne?

Ans 1: Ethnelnethyne,the hydrogen atom is bonded to the carbon atom with sp-s overlap.The sp hybridized carbon atom of ethyne pulls the electrons more strongly making the attached hydrogen atom slightly acidic as:H-C=C^{-8}-H^{+8}

Q4. How ethene can be prepared by Kolb's electrolysis?

Ans 1: When a concentrated solution of sodium or potassium of a monocarboxylic acid is electrolyzed an alkane is produced this method is only suitable foe the preparation of symmetrical alkanes.

Q5. How can ethyne be prepared commercially from calcium carbide?

Ans 1: On industrial scale ethyne is prepared by the reaction of calcium carbide (CaC_2) with water.Calcium carbide is prepared by heating lime (CaO) and coke (C) at a very high temperature in an electric furnace.

CAO + C------>CaC_2+ CO

CaC_2+2H_2O------->$Ca(OH)_2$+ HC=CH

Q6. What is effect of branching on boiling of alkanes?

Ans 1: The boiling points of alkanes having branced chain structure are lower than their isomeric normal chain alkanes,e.g n-butane has higher boiling point than isobutene.

Q7. How common name of alkenes are derived?Give common names of CH_2=$CH_2$and CH_3-CH_2=CH_2?

Ans 1: For alkanes the word is derived from the Greek or Latin numerals indicating the number of carbons atom in molecule and the name is completed by adding ane as a suffix.Alkenes are similarly named by replacing the ending "ane" of the name of alkane with "ylene".

Q8. Why ethene is more reactive than ethyne towards additions reactions?

Ans 1: Ethene contains sigma-bond having partially filled p-orbitals overlap in a parallel fashion.sigma-electrons are less firmly held between the nulei. In ethene a sigma-bond is a weak bond.

Ans 2: In ethyne,the carbon atoms are held together by a triple bond,a 0-bond and two sigma-bond.The electrons density between the carbon atoms is very high which draws atoms very close to each other.Electrons in a triple bond are,therefore,less exposed and thus less reactive reagents.

Q9. Write structural formulas for two compound;i) Vinyl acetylene ii) But-3-en-yne

Ans 1: i) Vinyl acetylene: CH_2=CH-C=CH

Ans 2: ii) 1-Butene-3-yne: CH_2=CH-C=CH

Q10. What is heat of combustion?

Ans 1: Burning of alkane in presence of oxygen is known as combustion,Complete combustion of an alkene yield CO_2,H_2O and heat.The amount to heat evolved when one mole of a hydrocarbon is brunt to $CO_2$and H_2O is called heat of combustion.