WORKSHEET 2

CHAPTER 13 – ORGANIC CHEMISTRY-II

A. Tick (√) the correct option.

1. Which of the following statements is wrong about alkanes?
   a. They are all saturated hydrocarbons.
   b. They can undergo addition as well as substitution reaction.
   c. They are almost non-polar in nature.
   d. On complete combustion, give out carbon dioxide and water.
2. The organic compound obtained as the end product of the fermentation of sugar solution is
   a. methanol.
   b. ethanol.
   c. ethane.
   d. methanoic acid.
3. The formation of 1,2-dibromoethane from ethene and bromine is an example of
   a. Substitution.
   b. Dehydration.
   c. Dehydrohalogenation.
   d. Addition.
4. The unsaturated hydrocarbons undergo
   a. addition reaction.
   b. oxidation reaction.
   c. substitution reaction.
   d. none of these.
5. The number of C – H bonds in an ethane molecule is
   a. 4.
   b. 6.
   c. 8.
   d. 10.

B. Ethanol can be converted to ethene which can then be changed to ethane. Choose the correct word or phrase from the brackets to complete the following sentences.

1. The conversion of ethanol to ethene is an example of _____ (dehydration/dehydrogenation).
2. Converting ethanol to ethene requires the use of _____ (concentrated hydrochloric acid/concentrated nitric acid, concentrated sulphuric acid).
3. The conversion of ethene to ethane is an example of _____ (hydration/hydrogenation).
4. The catalyst used in the conversion of ethene to ethane is commonly _____ (iron/cobalt/nickel)

Name: ..... Teacher's signature: .....

Class: X Date: .....

C. Complete the following reactions.

1. $CH_3CN + HCl + 2H_2O \rightarrow$
2. $2C_2H_5OH + 2Na \rightarrow$
3. $C_2H_5HSO_4 + H_2O \rightarrow$
4. $2C_2H_6 + 7O_2 \rightarrow$

D. Copy and complete the following table which relates to three homologous series of hydrocarbons.

General formula	C_nH_{2n}	C_nH_{2n-2}	C_nH_{2n+2}
IUPAC name of the homologous series			
Characteristic bond type			Single bond
IUPAC name of the first member of the series			
Type of reaction with chlorine		Addition	

E. Answer the following questions.

1. Which compound should be heated with soda lime to obtain ethane gas in the laboratory?
2. Write a balanced equation for the complete combustion of ethane.
3. Name a solid which can be used instead of concentrated sulphuric acid to prepare ethylene by the dehydration of ethanol.
4. Name a reagent which can be used to distinguish between ethane and ethene.
5. Ethylene forms an addition product with chlorine. Name this addition product and write its structural formula.

ANSWERS

WORKSHEET 2

A. Tick (√) the correct option.

1. b
2. b
3. d
4. a
5. b

B. Ethanol can be converted to ethene which can then be changed to ethane. Choose the correct word or phrase from the brackets to complete the following sentences.

1. Dehydration
2. Conc. sulphuric acid
3. Hydrogenation
4. Nickel

C. Complete the following reactions.

1. $CH_3CN + HCl + 2H_2O \rightarrow CH_3COOH + NH_4Cl$
2. $2C_2H_5OH + 2Na \rightarrow 2C_2H_5ONa + H_2\uparrow$
3. $C_2H_5HSO_4 + H_2O \rightarrow C_2H_5OH + H_2SO_4$
4. $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

D. Copy and complete the following table which relates to three homologous series of hydrocarbons.

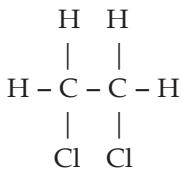
General formula	C_nH_{2n}	C_nH_{2n-2}	C_nH_{2n+2}
IUPAC name of the homologous series	Alkenes	Alkynes	Alkanes
Characteristic bond type	Double bond	Triple bond	Single bond
IUPAC name of the first member of the series	Ethene	Ethyne	Methane
Type of reaction with chlorine	Addition	Addition	Substitution

E. Answer the following questions.

1. Sodium propionate
2. $2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$ + heat

3. Anhydrous alumina

4. Baeyer's reagent or Bromine in CCl_4

5. 

1, 2-dichloro ethane