

Chm102 10/10

Benzene is an example of which type of hydrocarbon?

Aromatic hydrocarbon

The hydrocarbons are broadly classified into\_\_\_?

Aliphatic, alicyclic and aromatic

When a compound has a carbon-nitrogen single bond it is called?

Amine

When a compound has carbon-nitrogen double bond it is called?

Imine

When a compound has carbon-nitrogen triple bond it is called?

Nitrile

Depending on the number of alkyl group attached to the nitrogen atom, the amines are classified as?

Primary, secondary and tertiary amines

In alcohol in which the oxygen atom is replaced by a sulphur atom is called?

Thiol

An aromatic compound which contained side chain hydroxyl group is called?

Phenol

The earliest nomenclature of the organic compounds were based on?

Their origin or properties

A functional group can be defined as?

An atom or group of atoms in a molecule which exhibit a characteristic chemical properties

Increase in number of carbon atoms results in the following effects

EXCEPT \_\_\_\_\_.

Melting point increases

The first product in fractionation of petroleum is called \_\_\_\_\_.

Natural gas

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The hydrocarbons are broadly classified into\_\_\_\_?  
Aliphatic, alicyclic and aromatic

In alcohol in which the oxygen atom is replaced by a sulphur atom is called?  
Thiol

What is the measure of the length of C=C bond?  
154 pm

The yield of the monosubstituted product may increase by using an excess of alkane

The saturated hydrocarbons contain the carbon and hydrogen atoms linked to each other by single bonds and are called \_\_\_\_\_.  
Alkanes

The reaction between an alkyl halide and sodium metal to form an alkane is called \_\_\_\_\_ reaction.  
Wurtz

The addition of ozone to an alkyne produces \_\_\_\_\_.  
Ozonide

Compounds that differ from each other in their molecular formulas by the unit  $\text{CH}_2$  are called members of a \_\_\_\_\_ series.  
Homologous

A benzene ring with a methyl group at position one and nitro group at position three is \_\_\_\_\_.  
m-nitrotoluene

In allene the central atom is----- hybridized and the terminal atoms are ----- hybridized  
( $\text{sp}$ ,  $\text{sp}^2$ )

\_\_\_\_\_are the compounds that have identical molecular formulas but differ in the ways in which the atoms are bonded to each other.  
Isomers

The \_\_\_\_\_ provide a backbone to which various functional groups may be attached to yield an enormous variety of organic compounds.  
Isomers

Increase in number of carbon atoms results in the following effects EXCEPT \_\_\_\_\_.  
Melting point increases

The first product in fractionation of petroleum is called \_\_\_\_\_.  
Natural gas

Chlorination of methane produces a mixture of the following except chloromethane

Alkyl halide in ether reacts with magnesium to form  
Grignard reagent

Lithium aluminium hydride,  $\text{LiAlH}_4$ , is  
a reducing agent

The process of eliminating CO<sub>2</sub> from a carboxylic acid is known as  
decarboxylation  
decarboxylation

The replacement of hydrogen atom(s), from an alkane molecule, by halogen atom(s) is called?  
halogenation

Hydrogenation of an alkene using nickel catalyst but relatively higher temperature and pressure is called  
Sabatier-Senderen's reaction

The chemical reactions which take place in the presence of light are called  
photochemical reactions.

A cyclic ketone can be reduced into the corresponding cycloalkane Using  
zinc amalgam

What is formed when the calcium or barium salt of a dicarboxylic acid is distilled?  
a cyclic ketone

The yield of the monosubstituted product may increase by using an  
excess of alkane

CHM102\_22 TMA3 10/10

1. The replacement of hydrogen atom(s), from an alkane molecule, by halogen atom(s) is called?  
halogenation\*\*  
all of the options.  
hydrogenation  
chlorination

2. Alkyl halide in ether reacts with magnesium to form  
  
Wurtz reagent.  
halide alkane  
Grignard reagent\*\*  
magnesium halide

3. A cyclic ketone can be reduced into the corresponding cycloalkane Using  
  
zinc amalgam\*\*  
zinc oxide  
none of the options.  
lead

4. The yield of the monosubstituted product may increase by using an  
  
excess of alkene  
excess of alkyne  
excess of alkane\*\*  
alkane

5. The chemical reactions which take place in the presence of light are called

anaerobic

photochemical reactions\*\*

aerobic

Phyto

6. Lithium aluminium hydride,  $\text{LiAlH}_4$ , is

oxidizing agent

catalyst

none of the options

a reducing agent\*\*

7. What is formed when the calcium or barium salt of a dicarboxylic acid is distilled?

ketone

a cyclic ketone\*\*

adipate

Aldehyde

8. Hydrogenation of an alkene using nickel catalyst but relatively higher temperature and pressure is called

elimination reaction

Sabatier-Senderen's reaction\*\*

all of the options

substitution reaction

9. Chlorination of methane produces a mixture of the following except

dichloromethane

tetrachloromethane

chloromethene\*\*

trichloromethane

10. The process of eliminating  $\text{CO}_2$  from a carboxylic acid is known as

all of the options.

decarboxylation\*\*

oxidation

reduction

CHM102 TMA

1. Hybridization.

2. Diels-Alder reaction.

3. Toluene.

4.  $\text{H}_2$ .

5.  $\text{C}=\text{C}$  or Carbon to carbon double bond.

6. Covalent.

7.  $\text{CH}_2$ .

8. Aldehydes.

9. Nitrotoluene or 2-bromo-4-nitrotoluene.

10. Hydroboration.  
10/10

1. A catalyst mixed with a selective inhibiting agent is called \_\_\_\_\_ catalyst.

Basic

Neutral

--->> Poisoned

Acidic

2. \_\_\_\_\_ best describes the functional group of an alkene.

$\text{/(C}\equiv\text{C/)}$

--->>  $\text{/(C=C/)}$

$\text{/(C=O?O)}$

$\text{/(C}\equiv\text{C/)}$

3. One of the statements is not true of dienes.

They general formula  $\text{C}_n\text{H}_{2n-2}$

They are called diolefins

They are isomeric with alkynes

--->> divided into two main classes depending on the relative positions of the two double bonds in the molecule:

4. Addition of ethyne to sodamide in ether yields sodium ethynide and one of the following compounds

--->> ammonia

water

Hydrogen sulphide

ethane

5. Hydrocarbon can be classified as \_\_\_\_\_

alkane, alkene, alkyne

amine, amide, imine

ester, ketone, aldehyde

--->> aliphatic, alicyclic, aromatic

6. Reactions that lead to the attachment of an alkyl group to a molecular fragment are called \_\_\_\_\_.

dealkylation

esterification

carboxylation

--->> alkylation

7. One of these statements is not true

--->> Alkanes burn in excess of air or oxygen to give carbonmonoxide and water

Combustion is highly exothermic

the heat of combustion of pentane is 2549 KJmol<sup>-1</sup>

Combustion is the most important reaction of alkanes

8. In the \_\_\_\_\_ alkynes, the triple bond lies at the end of the carbon chain.

Internal

external

--->> terminal

interim

9. All but one of these is involved in alkylation

ethyne

sodium amide

Grignard reagent

--->> Diels-Alder reagent

10. \_\_\_\_\_ can be defined as an atom or group of atoms in a molecule which exhibits characteristic chemical properties

hybridization

--->> functional group

covalent bond

ionic bonding

1. -OH is a functional group for which organic compound?

Ketone

--->> Alcohol

Base

Acid

2. What is the functional group of esters?

$\text{--COO--}$

$\text{--COOH}$

$\text{--CHO}$

--->  $\text{RCOOR}$

3. When a compound has a carbon-nitrogen single bond it is called?

Nitrile

Imine

Nitrite

---> amine

4. A functional group can be defined as?

---> An atom or group of atoms in a molecule which exhibit a characteristic chemical properties

An atom or group of atoms in a molecule which exhibit a characteristic physical properties

A group of atoms in a molecule which exhibit a characteristic chemical properties

An atom in a molecule which exhibit a characteristic chemical properties

5. Grouping organic compounds base on their functional groups makes it easier to understand their\_\_\_\_\_?

---> Chemical properties only

Physical properties only

Structural properties only

Physical and chemical properties

6. Choose the correct option that best indicate the hybrid orbitals type, bond length and bond angle for methane.

$\text{sp}^3$ , 154 pm and  $109.5^\circ$

$\text{sp}$ , 134 and  $180^\circ$

--->  $\text{sp}^2$ , 134 pm and  $120^\circ$

$\text{sp}^3$ , 134 pm and  $120^\circ$

7. Choose the correct option that best indicate the hybrid orbitals type, bond length and bond angle for acetylene?

$sp^2$ , 134 pm and  $120^\circ$

$sp^3$ , 154 pm and  $190.5^\circ$

$sp^2$ , 120 pm and  $180^\circ$

--->  $sp$ , 120 pm and  $180^\circ$

8. The bond energy  $C\equiv C$  is equivalent to?

---> 348  $KJ\ mol^{-1}$

341  $KJ\ mol^{-1}$

415  $KJ\ mol^{-1}$

433  $KJ\ mol^{-1}$

9. What is the functional group of aldehyde?

$-COO-$

$-C=O$

--->  $-CHO$

RCHO

10. Indicate the corresponding bond resulting from  $sp^3$ ,  $sp^2$  and  $sp$  hybridization

Triple bond, double bond and single bond.

---> Single bond, double bond and triple bond.

Double bond, single bond and triple bond

Single bond, triple bond and double bond

1. In \_\_\_\_\_ reaction, a conjugated diene is treated with an unsaturated compound called dienophile to yield a cyclic system.

---> Diels-Alder reaction

Wittig reaction

Wurtz reaction

Kolbe electrolytic reaction

2. Which of these theoretical concept enables realistic modelling of molecular structure?\_\_\_

---> hybridization



ionization

substitution

hydrogenation

3. A benzene ring with a methyl group at position one and nitro group at position three is \_\_\_\_\_?

o-nitrobenzene

p-nitroxylen

---> p-nitrotoluene

o-nitroaniline

4. Rapid decolourization of bromine solution serves as a test for the presence of the \_\_\_\_\_ in a compound.

$\text{C}=\text{O}$

$\text{C}-\text{C}$

--->  $\text{C}=\text{C}$

$\text{C}\equiv\text{C}$

5. Undecane is a straight chain alkane containing how many carbon atoms?

9

10

---> 11

12

6. Which of these compounds have a benzene ring with a methyl group at position one?

Anisole

---> Toluene

Phenol

Aniline

7. The terminal alkynes on hydroboration give \_\_\_\_\_.

---> aldehydes

ketones

alkenes

alkanes

8. In \_\_\_\_\_ compounds, the molecules are formed by the sharing of electron pairs between the constituent atoms.

non-covalent

electrovalent

ionic

--->> covalent

9. When alkene reacts with borane, addition to the  $C=C$  takes place to yield organoborane a compound with a carbon-boron bond, the reaction is known as \_\_\_\_\_.

--->> hydroboration

hydrohalogenation

halogenation

hydrogenation

10. A member of a homologue series must poses a similar structure but differ in the \_\_\_\_ repeating unit.

$CH_4$

$CH_3$

--->>  $CH_2$

$CH$

7/10

1. The functional group of the compound  $CH_3CH_2OCH(CH_3)_2$ ?

Ans: Ether

2. An example of primary alkyl group is?

Ans: R -  $CH_2$

3. The aromatic hydrocarbon

Ans: p-ethylphenol

4. Which of the following is not a type of amines?

Ans: amino

5. All are carboxylic acid derivatives except?

Ans:  $C_6H_5OCH_3$

6. The empirical formula is?

Ans: the simplest whole number ratio of the atoms present in a molecule.

7. The complete combustion of ethane gives?

Ans:  $CO_2 + H_2O$

8. The major component of natural gas is?

Ans: methane

9. The compound.... Is named as .....

Ans: 2-benzene-2,4-pentadiene

10. Compounds having carbon-nitrogen triple bond are called

Ans: nitriles