

CHM102

The default category for questions shared in context 'CHM102'.

Fill in the Blank (FBQs)

FBQ1

The use of _____ as octane number enhancer is being curtailed for environmental reasons.

Tetraethyl lead

1.0000000

0.0000000

0.0000000

FBQ2

In _____, fuel having a lower octane number is much more useful than those having a higher octane number.

diesel engine

1.0000000

0.0000000

FBQ3

Quality of diesel fuel is expressed in terms of a parameter called _____

Cetane number

1.0000000

0.0000000

FBQ4

Good quality diesel fuel required for modern diesel engine has cetane number greater than _____

45

1.0000000

Forty five

1.0000000

0.0000000

FBQ5

Boiling point of a covalent substance depends upon the _____ forces.

intermolecular

1.0000000

0.0000000

FBQ6

It has been found that molecules with odd number of carbon atoms have lower melting point than those with an even number of carbon atoms. True or false?

true
1.0000000

0.0000000
FBQ7

The _____ in a carbon chain with an odd number of carbon atoms lies on the same side whereas those in a carbon chain with an even number lie on the opposite side.

Terminal carbon atoms
1.0000000

0.0000000
FBQ8

All alkanes are lighter than water. True or false?

true
1.0000000

0.0000000
FBQ9

Alkanes are soluble in polar solvents but insoluble in nonpolar solvents. True or false?

false
1.0000000

0.0000000

0.0000000
FBQ10

UV spectroscopy is of important in the characteristic of alkanes. True or false?

false
1.0000000

0.0000000
FBQ11

The joining of the two alkyl groups from two molecules of alkyl halide with the lost of halogen occur in which method of preparation of alkanes. _____

wurtz
1.0000000

0.0000000

0.0000000
FBQ12

Preparation of alkanes from carboxylic acid is achieved by _____ method.

Kolbe's electrolytic
1.0000000

0.0000000

FBQ13

Alkanes or cycloalkanes can be prepared by _____ of unsaturated hydrocarbons using platinum and palladium as a catalyst.

hydrogenation
1.0000000

0.0000000

FBQ14

In Sabatier senderen's reaction method, the hydrogenation of alkanes takes place in the presence of _____ catalyst.

Nickel
1.0000000

Ni

1.0000000

FBQ15

Alkyl magnesium halide is also called _____

Grignard reagent
1.0000000

0.0000000

FBQ16

In decarboxylation of carboxylic acid, the alkanes produced contain one carbon atom less than the original acid. True or false.

true
1.0000000

0.0000000

FBQ17

Cyclopentanone is prepared from which salt _____

barium adipate
1.0000000

0.0000000

FBQ18

When an alkene reacts with borane, addition to the carbon-carbon double bond takes place to yield an _____

organoborane
1.0000000

0.0000000

0.0000000

FBQ19

_____ can also be carried out by reacting ethyne and Grignard reagent, followed by the action of an alkyl halide.

Alkylation

1.0000000

0.0000000

FBQ20

The common name for 1,3,5-trimethylbenzene is _____

Mesitylene

1.0000000

0.0000000

0.0000000

FBQ21

Alkanes undergo mainly _____ reaction, which can be explained using free radical chain mechanism.

substitution

1.0000000

0.0000000

0.0000000

FBQ22

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

Photochemical

1.0000000

0.0000000

FBQ23

Halogenation of alkanes does not occur in the dark but in the presence of _____ light.

UV

1.0000000

0.0000000

0.0000000

FBQ24

In the chain initiation step of halogenation of alkanes, the halogen molecule undergoes _____ forming free radicals

homolysis
1.0000000

0.0000000

FBQ25

In the second step of halogenation of alkanes, the halogen molecule abstract a hydrogen atom from the alkane molecule thereby producing an _____

alkyl radical
1.0000000

0.0000000

FBQ26

Alkenes can be classified on the basis of the number of _____ present in the molecules

double bonds
1.0000000

0.0000000

0.0000000

FBQ27

Hydrocarbons containing two double bonds are called _____

diolefins
1.0000000

Alkadienes

1.0000000

Dienes

1.0000000

FBQ28

In the allene molecule the central carbon atom is sp hybridized while the terminal carbon atom is _____

sp² hybridized
1.0000000

0.0000000

0.0000000

FBQ29

An alcohol is converted to alkene by _____

dehydration
1.0000000

0.0000000
FBQ30

In wittig reaction alkenes are synthesized from _____ compounds

carbonyl
1.0000000

0.0000000
FBQ31

Alkenes are readily hydroxylated form a dihydroxy compound known as _____

glycols
1.0000000

diol
1.0000000

FBQ32

A reaction in which the double bond is completely broken and alkene molecule is converted into two smaller molecules is called _____

ozonolysis
1.0000000

0.0000000
FBQ33

Alkynes are divided into two, namely _____

Terminal and internal alkynes
1.0000000

0.0000000

0.0000000
FBQ34

A catalyst mixed with a selective inhibiting agent is called a _____

Poisoned catalyst
1.0000000

0.0000000
FBQ35

_____ is given a cetane number 100

Hexadecane
1.0000000

C₁₆H₃₄
1.0000000

Multiple Choice Questions (MCQs)

MCQ1

In covalent bonding the formation of the bonds is usually accompanied by?

Absorption of energy

0.0000000

Dissociation of bond

0.0000000

Release of energy

1.0000000

Formation of low stable molecules

0.0000000

MCQ2

The structure which shows how various atoms are connected to each other is called?

Fischer structure

0.0000000

Lewis structure

1.0000000

Condense structure

0.0000000

spatial structure

0.0000000

MCQ3

The formula CH_3CH_3 represents the ____ for ethane.

Spatial structure

0.0000000

Lewis structure

0.0000000

Condense structure

1.0000000

None of the options

0.0000000

MCQ4

Give the name of this compound. $\text{CH}_3(\text{CH}_2)_6\text{CH}_3$.

Hexane

0.0000000

Propane

0.0000000

Butane

0.0000000

Octane

1.0000000

MCQ5

The condense formula for ethane is CH_3CH_3 while that of ethylene is?

CH_2CH_2

0.0000000

CHCH_3

0.0000000

$\text{HC}=\text{CH}$

0.0000000

$\text{H}_2\text{C}=\text{CH}_2$

1.0000000

MCQ6

When molecules are formed it can be deduced that?

There was sharing of electron pair between atoms.

0.0000000

There was donation of electrons by one atom to another.

0.0000000

There was a molecular orbital interaction

0.0000000

All of the options.

1.0000000

MCQ7

The new orbitals formed in carbon and later interact with the orbitals of hydrogen to form?

Interacting orbitals

0.0000000

Hybrid orbitals

1.0000000

2S and three 2P orbitals

0.0000000

Promoted orbitals

0.0000000

MCQ8

The symbol SP³ hybrid simply means

One S and three P orbitals interaction

1.0000000

25 % S and 75 % P orbitals

0.0000000

Three S and one P orbitals

0.0000000

All of the options

0.0000000

MCQ9

What type of hybridization is peculiar to ethylene?

SP³ hybridization

0.0000000

2SP³ hybridization

0.0000000

2SP² hybridization

0.0000000

SP² hybridization

1.0000000

MCQ10

SP³ hybrid orbitals are stronger and stable compare to the bonds formed by using pure atomic orbitals because_____

SP³ hybrid orbitals have two lobes of unequal sizes.

0.0000000

SP³ hybrid orbitals are similar to p orbitals.

0.0000000

The lobes in SP³ hybrid orbitals are separated by anode.

0.0000000

In SP³ hybrid orbital, the electron density is concentrated in one direction leading to greater overlap.

1.0000000

MCQ11

What is the bond angle between two SP³ hybrid orbitals?

47.5o

0.0000000

18.5o

0.0000000

109.5o

1.0000000

107o

0.0000000

MCQ12

What is the name of the bond formed between carbon and hydrogen (C-H)?

C-H Bond

0.0000000

a(alpha)bond

0.0000000

Sigma bond

1.0000000

p(pi) bond

0.0000000

MCQ13

What is the measure of the length of C-C bond?

164 pm

0.0000000

164 cm

0.0000000

154 cm

0.0000000

154 pm

1.0000000

MCQ14

The number of hybrid orbitals generated is equal to the number of__ orbitals combined.

atomic

1.0000000

molecular

0.0000000

ionic

0.0000000

electronic

0.0000000

MCQ15

Grouping organic compounds base on their functional groups makes it easier to understand their____

Physical and chemical properties

0.0000000

Physical properties only

0.0000000

Chemical properties only

1.0000000

Structural properties only

0.0000000

MCQ16

What is the functional group of aldehyde?

C-C=O

0.0000000

RCHO

0.5000000

-CHO

1.0000000

-COO-

0.0000000

MCQ17

A functional group can be defined as?

An atom in a molecule which exhibit a characteristic chemical properties

0.0000000

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

0.0000000

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

0.0000000

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

1.0000000

MCQ18

The hydrocarbons are broadly classified into ____

Saturated, unsaturated and aromatic

0.0000000

Alicyclic, heterocyclic and aromatic

0.0000000

Alkane, alkene and alkyne

0.0000000

Aliphatic, alicyclic and aromatic

1.0000000

MCQ19

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

Diels-Alder reaction

1.0000000

Wittig reaction

0.0000000

Wurtz reaction

0.0000000

Kolbe electrolytic reaction

0.0000000

MCQ20

Reactions that lead to the attachment of alkyl group to a molecular fragment are called ____.

Acylation reaction

0.0000000

Addition reaction

0.0000000

Nucleophilic reaction

0.0000000

Alkylation reaction

1.0000000

MCQ21

_____ involves elimination of the halogen atom together with a hydrogen atom from an adjacent carbon atom.

Dehydrohalogenation

1.0000000

halogenation

0.0000000

hydrohalogenation

0.0000000

Dihydrohalogenation

0.0000000

MCQ22

Alkyl halides are converted to alkenes by _____,

hydrogenation

0.0000000

dehydrogenation

1.0000000

alkylation

0.0000000

acylation

0.0000000

MCQ23

Rapid decolourization of bromine solution serves as a test for the presence of the ____ in a compound.

C-C

0.0000000

C=C

1.0000000

C=C

0.0000000

C=O

0.0000000

MCQ24

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 ____.

hydrogenation

0.0000000

halogenation

0.0000000

hydroboration

1.0000000

hydrohalogenation

0.0000000

MCQ25

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

non-covalent

0.0000000

electrovalent

0.0000000

ionic

0.0000000

covalent

1.0000000

MCQ26

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

Aniline

0.0000000

Phenol

0.0000000

Toluene

1.0000000

Anisole

0.0000000

MCQ27

A benzene ring with a methyl group at position one and nitro group at position three is

—

o-nitrobenzene

0.0000000

p-nitroxylyene

0.0000000

o-nitroaniline

0.0000000

p-nitrotoluene

1.0000000

MCQ28

What is the functional group of esters?

-COOCO-

0.0000000

-COOH

0.0000000

RCOOR'

1.0000000

-CHO

0.0000000

MCQ29

Which of these theoretical concept enables realistic modelling of molecular structure?

hydrogenation

0.0000000
substitution

0.0000000
ionization

0.0000000
hybridization

1.0000000
MCQ30
Benzene is an example of which type of hydrocarbon?

Alicyclic hydrocarbon

0.0000000
Arene hydrocarbon

0.0000000
Aromatic hydrocarbon

1.0000000
Alkene hydrocarbon

0.0000000
MCQ31
_____ determines the number of hybrid orbitals generated.

Number of protons

0.0000000
Number of electrons

0.0000000
Number of atomic orbitals

0.0000000
Number of shells

1.0000000
MCQ32
When a compound has carbon-nitrogen double bond it is called?

Amino

0.0000000
Amine

0.0000000

Imine

1.0000000

Nitrile

0.0000000

MCQ33

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

Amine

0.0000000

Amino

0.0000000

Imine

0.0000000

Nitrile

1.0000000

MCQ34

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

Imine, amino and amide

0.0000000

Saturated unsaturated and partially saturated

0.0000000

Primary, secondary and tertiary amines

1.0000000

First degree, second degree and third degree amines

0.0000000

MCQ35

In alcohol, when the oxygen atom is replaced by a sulphur atom is called ____

Sulphuric acid

0.0000000

Sulfhydryl

0.0000000

Thiol

1.0000000

Sulphurnol

0.0000000