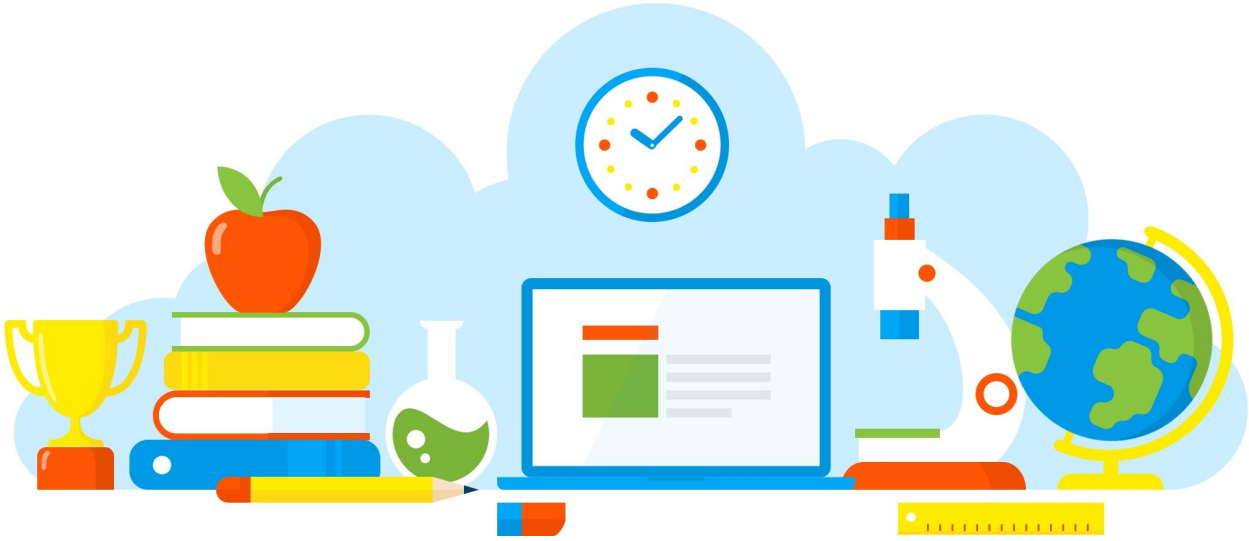


CHM 102 PAST TEST QUESTIONS

Compiled by Sipisi Media Network, No 1. Futo Media source.

CHM 102 TEST 2017/2018 - SIPISI MEDIA

(1) Identify the product of this reaction CH3CH=CH2 - (R2O2) ->

Ans: CH3CHBrCH3

(2) 0.203g of an organic compound gave the combustion 0.361g of CO2, and 0.147 of H2O. Calculate the molecular formula. If the relative molecular mass is 148.

Ans: C6H1204

(3) 0.956g of an organic compound containing carbon, hydrogen and oxygen gave on analysis 1.92g of CO, and 0.782g of H20. If 6.04x10^-3 mol of the substance weighs 0.532g, calculate its Molecular formular.

Ans: C4H8O2

(4) Give the structure of 4-ethy-3-methylcyclohexene

Ans: Check online

(5) Why does propanol boil at higher temperature than the corresponsing hydrocarbons

Ans: The large increase in the boiling point of alcohols as the number of hydroxyl groups increases is caused by a greater degree of hydrogen bonding between the molecules, Making it higher than the corresponding hydrocarbons

(6) Markovnikoff's rule states that _____

Ans: The rule states that with the addition of a protic acid HX or other polar reagent to an asymmetric alkene, the acid hydrogen (H) or electropositive part gets attached to the carbon with more hydrogen substituents, and the halide (X) group or electronegative part gets attached to the carbon with more alkyl substituents.

(7) Terminal alkynes are alkynes _____

Ans: Terminal alkynes are those alkynes whose Triple Bond is attached to the first carbon along the carbon chain

(8) Tautomerism is defined as ____

Ans: Tautomerism is a phenomenon where a single chemical compound tends to exist in two or more interconvertible structures that are different in terms of the relative position of one atomic nucleus which is generally the hydrogen

(9) Ozonolysis is defined as _____

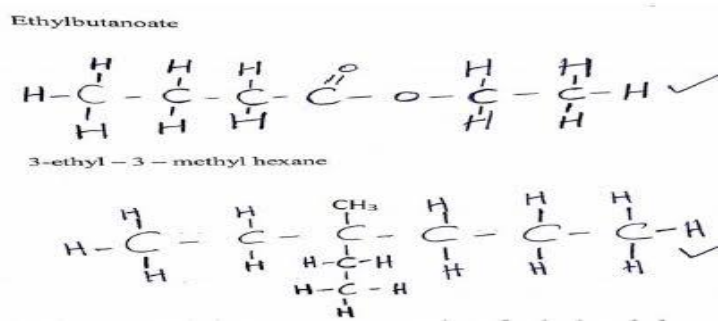
Ans: Ozonolysis is the reaction of ozone with an alkene or alkyne in order to produce an ozonide as an intermediate Product.

(10) Catenation is defined as _____

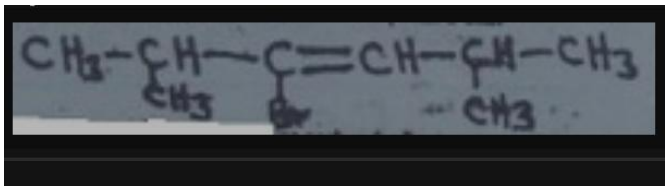
Ans: Catenation is defined as the ability of carbon atom to bond covalently with other atoms to form a long chain carbon.

CHM 102 TEST 2015/2016 - SIPISI MEDIA

(1) Draw the structure of 3-ethyl-3-methyl hexane.

Ans: 

(2) Give the structure of 3-bromo-2,5-dimethyl hex-3-ene.

Ans: 

(3) The organic compound contains carbon, hydrogen and oxygen only. 0.956g on analysis gave 1.92g of CO and 0.782g of H20. On another analysis 6.04x10^-3 moles of the compound weighed 0.532g. Calculate its molecular formula.

Ans: C4H8O2

(4) Pent-1-ene and pent-2-ene are examples of _____ isomers.

Ans: Positional isomer

(5) Treatment of pentan-1-ol with pyridinium chlorochromate in CH2Clsub>2 is expected to give _____

Ans: Pentanal

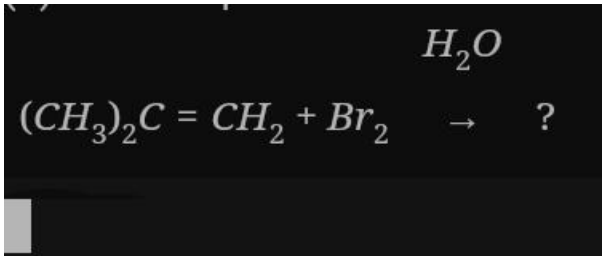
(6) POCl can be used in the presence of a base to convert alcohols to _____

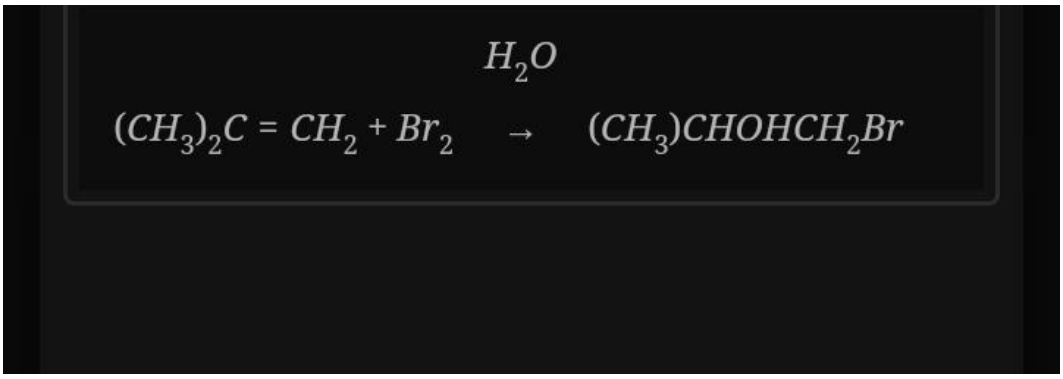
Ans: Alkene

(7) How many isomers has this compoumd C6H20

Ans: 5 isomers

(8) Give the product of the reaction Below



Ans: 

(9) In the addition reaction of propene with hcl, give the product formed.

Ans: CH3HC = CH2 + HCl → CH3CHClCH3

(10) Why is the boiling point of a branched chain alkanes lower than that of a straight chained alkanes.

Ans: This is due to the fact that branching of the chain makes the molecule more compact and thereby decreases the surface area. Therefore, the intermolecular attractive forces which depend upon the surface area, also become small in magnitude on account of branching. Consequently, the boiling points of the branched chain alkanes are less than the straight chain isomers.

CHM 102 TEST 2014/2015 - SIPISI MEDIA

(1) A hydrocarbon X, has a relative molecular mass of 56g and consists of 87.8% by mass of carbon and 12.5% of hydrogen. What is The molecular formula of X

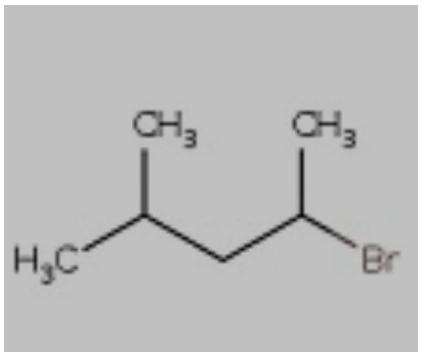
Ans: C4H8

(2) A balanced equation for the complete combustion ofvHEXANE is written as

Ans: 2C6H14 + 19O2 → 12CO2 + 14H2O

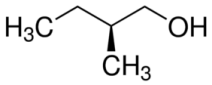
(3) Draw the structures for the compound; 2-Bromo-4-methyl pentane

Ans: CH3CHBrCH2CH(CH3)CH3



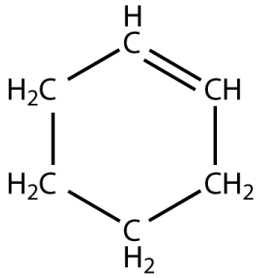
(4) Draw the structures for the compound; 2-methylbutanol

Ans: CH3CH2CH(CH3)CH2OH

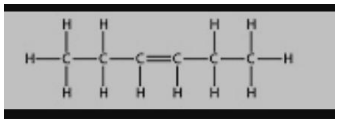


(5) Predict the structure of a hydrocarbon (C6H10) that produces CHO(CH2)4CHO after ozonolysis.

Ans: Cyclohexane



(6) Write the structure formula for cis-hex-3-ene

Ans: 

(7) Why are alkenes insoluble in water?

Ans: Alkenes are non-polar in nature

(8) What are Hybrid orbitals in a carbon compound?

Ans: These are newly formed orbitals due to Hybridization

(9) Name the following compound:

CH3CH2CH(CH)HC=CHCH(CH3)CH3

Ans: 2,5 dimethyl hept -3- ene

(10) Name the following compound:

H2C=CHCH(CH3)CH2HC=CH2

Ans: 3-methyl hex- 1,5 -diene

(11) Name the following compound:

CH3CH2CH2CH2CH(CH(CH3)2)CH(CH3)CH2CH3

Ans: 4-isopropyl-3-methyl octane

(12) Name the following compound:

CH l3CH(CH3)CH2OH

Ans: 2 methyl propan-1-ol

(13) Name the following compound:

H2C=C(OH)CH2CH3

Ans: But-1-ene-2-ol

(14) Name the following compound: CH3C(CH3)

(C2H5)C≡C-CH(CH3)(CH3)

Ans: 2,5,5- trimethyl hept-3-yne

(15) Give the structural formula for a compound that represents each class of organic compound; Tertiary alcohol

Ans: (CH3)3COH

(16) Give the structural formula for a compound that represents each class of organic compound;

Terminal alkyne

Ans: CH3C≡CH

(17) Indicate the type of relationship that exists between the following pair of compounds. Butan-2-ol and 2-methyl-propan-2-ol

Ans: Chain Isomers

(18) Indicate the type of relationship that exists between the following pair of compounds.

Propanoic acid and methyl ethanoate

Ans: Functional group isomers

(19) Indicate the type of relationship that exists between the following pair of compounds.

Ethanol and Ethanal

Ans: Tautomers

(20) Carbonium ions are classified as _____

Ans: Primary, Secondary and Tertiary

CHM 102 TEST 2014/2015 - SIPISI MEDIA

(1) A hydrocarbon X1, has a relative mass of 56 and consist of 87.8% by mass of carbon and 12.5% of hydrogen. What is the molecular formula of X1?

Ans: C4H8

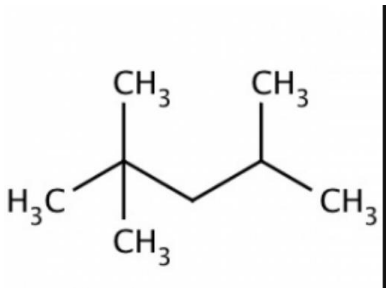
(2) Write a balanced equation for the complete

combustion of propane.

Ans: C3H8 + 5O2 → 3CO2 + 4H20

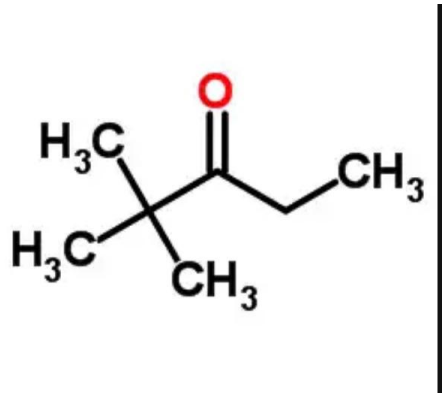
(3) Draw the structure for the following compound: 2,2,4 Trimethyl pentane.

Ans: CH3C(CH3)HCH2C(CH3)CH3



(4) Draw the structure for the following compound: 2,2 Dimethylpentan-3-one.

Ans: CH3CH2COC(CH3)2CH3

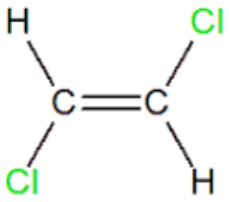


(5) Indicate the hybridization of the carbon atom in a Bezene?

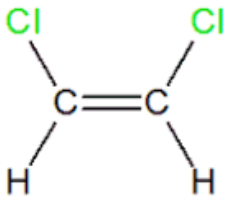
Ans: SP2

(6) Draw and name the geometric isomers of the compound: 1,2-Dichromoethene

Ans:



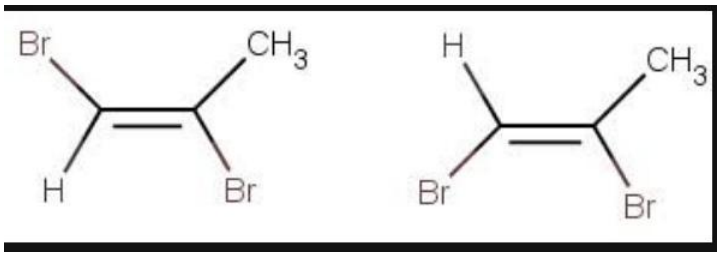
trans-1,2-dichloroethene



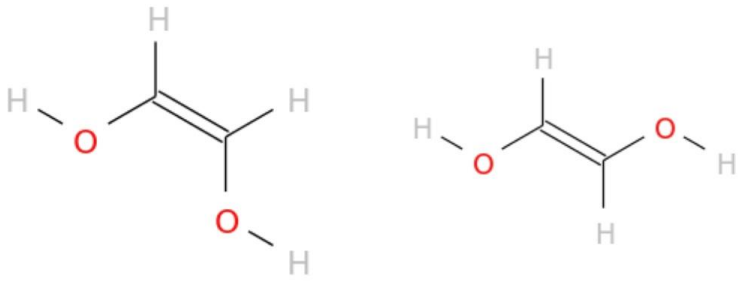
cis-1,2-dichloroethene

(7) Draw and name the geometric isomers of the compound: 2,3-Dibromopropene

Ans:



(8) Draw and name the geometric isomers of the Compound: Ethene-1,2-diol.



Ans:

(9) Enantiomers are?

Ans: Enantiomers are molecules that are mirror Images of each other but are not superimposed on each other.

(10) The metal catalyst for the Hydrogenation of an alkene is

Ans: Palladium catalyst and Nickel

(11) A liquid of molecular weight 60g was found to contain 40% carbon and 6.7% Hydrogen, What is the molecular formula of the compound?

Ans: C2H4O2

(12) A qualitative analysis of Papaverine an alkaloid Showed 7o.8% carbon, 6.2% Hydrogen and 4.1% Nitrogen. Calculate the Empirical formula Papaverine _____

Ans: C20H21O4N

(13) The percentage composition of Ethanol is _____

Ans: 52.2% C, 13.0% H and 34.8% O

(14) The number of sigma electron and shape of bonding orbital in Ethyne are _____and _____ Respectively

Ans: Six and linear

(15) Isomerism is defined as ?

Ans: Isomerism is the phenomenon in which more than one compounds have the same

chemical formula but different chemical structures.

(16) _____ and _____ are the two main types of Isomerism in Organic chemistry?

Ans: Structural and Stereoisomerism

(17) An alkene CgH12 on Ozonolysis yielding two product acetone and propanal. Give the structure of the alkene.

Ans: CH3C(CH3)=CHCH2CH3

(18) Complete the equation for the reaction CHCHCH,CH=CH2 + HBr?

Ans: CH3CH2CH2CH=CH2 + HBr → CH3CH2CH2CH(Br)CH3

(19) Why is the Boiling point of branched chain Compound lower than that of its straight chain isomer?

Ans: This is due to the fact that branching of the chain makes the molecule more compact and thereby decreases the surface area.

(20) In a Radical Reaction the following steps; Cl+CHCH,CHaCHCHCH + HCl Is called?

Ans: Propagation

Sipisi Media Network wishes you Success in all your exams, We love you ❤️🥰