NEXT MEDIA

(**1**) How many pi and sigma orbital are in the compound $H_2C=C=CH_2$

(**A**) 6 sigma and 2 pi

(**B**) 4 sigma and 4 pi

(**C**) 8 sigma and 4 pi

Hybridization - 2017/2018 - 1

6 sigma and 2 pi

Hide Answer

Explanation

(**2**) Which of the following has the shortest carbon — carbon bond length

(**A**) $CH_2=CH_2$

(**B**) CH_3CH_3

(**C**) CH=CH

(**D**) C_4H_{10}

Hydrocarbons and General Nomenclature - 2017/2018 - 2

CH=CH

Hide Answer

Explanation

(3) Which of the following will decolourize bromine water in carbon tetra chloride

(A) 1, 2-dimethyl cyclopropane

(B) cyclopropane

(C) 1,2-dimethyl cyclobutane

(D) cyclohexane

Alkanes - 2017/2018 - 3

1, 2-dimethyl cyclopropane

Hide Answer

Explanation

(4) Which of the following compounds do not have cis-trans isomerism

(A) $(CH_3)_2C=CHCH_3$

(B) $CH_3CH=CHCH_2CH_3$

(C) $CH_3CH_2CH=CHCH_2CH_3$

(D) $CH_3CH=CHCH_3$

Isomerism - 2017/2018 - 4

$(CH_3)_2C=CHCH_3$

Hide Answer

Explanation

(**5**) Which of the following is not an electrophile

(**A**) $H_2C=CH_2$

(**B**) H^+

(**C**) $CH3CH^+CH_3$

(**D**) $AlCl_3$

Electrophiles and Nucleophiles - 2017/2018 - 5

$H_2C=CH_2$

Hide Answer

Explanation

(**6**) What product are obtained from oxidation of 2-hexene with warm $KMnaO_4$

(**A**) acetate and butanone

(**B**) acetaldehyde and butanone

(**C**) acetaldehyde and butanal

(**D**) Acetate and butanoate

Alkenes - 2017/2018 - 6

acetaldehyde and butanal

Hide Answer

Explanation

(7) Which of the following has banana flavor

(A) ethyl formate

(B) pentyl ethanoate

(C) 3-ethyl ethanoate

Esters - 2017/2018 - 7

pentyl ethanoate

Hide Answer

Explanation

(8) The ester with pineapple flavor is

(A) ethyl formate

(B) pentyl ethanoate

(C) 3-methyl ethanoate

(D) ethyl butanoate

Esters - 2017/2018 - 8

ethyl butanoate

Hide Answer

Explanation

(**9**) Basic hydrolysis of esters is known as

(**A**) saponification

(**B**) acidification

(**C**) esterification

Esters - 2017/2018 - 9

saponification

Hide Answer

Explanation

(**10**) Which of the following acid derivatives is most stable

(**A**) acid chlorides

(**B**) esters

(**C**) anhydrides

(**D**) amides

Alkanoic acids - 2017/2018 - 10

amides

Hide Answer

Explanation

(**11**) Which of these is not affected by the lone pair of electron on an amine nitrogen

(**A**) basicity

(**B**) melting point

(**C**) solubility

(**D**) hydrogen bond formation

Amines - 2017/2018 - 11

melting point

Hide Answer

Explanation

(**12**) What is the product of the reaction between primary amines and acid chloride

(**A**) an amine

(**B**) an ester

(**C**) an amide

(**D**) a secondary amine

Amines - 2017/2018 - 12

an amide

Hide Answer

Explanation

(**13**) Which of the following is least soluble in water

(**A**) ethylamine

(**B**) methylamine

(**C**) propylamine

(**D**) cyclohexylamine

Amines - 2017/2018 - 13

cyclohexylamine

Hide Answer

Explanation

(**14**) Which of the following is a reagent in Gabriels amine synthesis

(**A**) acyl or aryl halide

(**B**) hydroxylamine

(**C**) phthalimide

(**D**) sodium azide

Amines - 2017/2018 - 14

phthalimide

Hide Answer

Explanation

(**15**) Which converts methyl bromide to ethylamine

(**A**) NaCN, LiAlH3,H_2O

(**B**) $NaNO_3$, HCl

(**C**) large excess NH_3

Amines - 2017/2018 - 15

NaCN, LiAlH3,H_2O

Hide Answer

Explanation

(**16**) The molecular formular of a compound with molecular weight 62.07 and which contains 9.75% H, 38.7%C and 51.55% O is

(**A**) $C_2H_6O_2$

(**B**) $C_4H_{12}O_4$

(**C**) $C_6H_{18}O_5$

Empirical and Molecular formular - 2017/2018 - 16

$C_2H_6O_2$

Hide Answer

Explanation

(**17**) When 0.956g of an organic compound was burned, 1.91g of CO_2 and 0.782g of water was produced. The empirical formular is

(**A**) $C_3H_7O_2$

(**B**) $C_4H_8O_2$

(**C**) C_3H_6O

(**D**) C_2H_4O

Empirical and Molecular formular - 2017/2018 - 17

C_2H_4O

Hide Answer

Explanation

(**18**) How many carbon atoms are contained in undecane

(**A**) 10

(**B**) 11

(**C**) 12

(**D**) 13

Alkanes - 2017/2018 - 18

11

Hide Answer

Explanation

(**19**) A sample of methane weighing 9.67mg produced 26.53mg of CO_2 and 21.56mg of H_2O what is the % composition of carbon

(**A**) 68%

(**B**) 74.9%

(**C**) 78%

(**D**) 47.9%

Empirical and Molecular formular - 2017/2018 - 19

74.9%

Hide Answer

Explanation

(**20**) Give the schematic name for the compound $CH_3(CH_2)_7CH_3$

(**A**) iso nonane

(**B**) n- nonane

(**C**) bis nonane

(**D**) t-nonane

Hydrocarbons and General Nomenclature - 2017/2018 - 20

n- nonane

Hide Answer

Explanation

(**21**) The strcutural formular of trichloroacetic acid is

(**A**) CH_3Cl_3COOH

(**B**) CCl_3COOH

(**C**) $CHCl_3COOH$

(**D**) CCl_2COOH

Isomerism - 2017/2018 - 21

CCl_3COOH

Hide Answer

Explanation

(**22**) How many structural isomers are in this compound $C_4H_{10}O$

(**A**) 6

(**B**) 7

(**C**) 8

Isomerism - 2017/2018 - 22

7

Hide Answer

Explanation

(**23**) The molecular formular CHOCl is called

(**A**) formyl chloride

(**B**) methyl chloride

(**C**) ethanoyl chloride

Empirical and Molecular formular - 2017/2018 - 23

formyl chloride

Hide Answer

Explanation

(**24**) The following are various ways of drawing structural formular of an organic molecules except

(**A**) displayeo formular

(**B**) 3D-structural formular

(**C**) skeletal formular

(**D**) semi-structural formular.

Hydrocarbons and General Nomenclature - 2017/2018 - 24

semi-structural formular.

Hide Answer

Explanation

(**25**) A reaction in which a carboxylic acid reacts with a base to form a salt and water is called

(**A**) saponification

(**B**) neutralization

(**C**) esterification

(**D**) hydrolysis

Alkanoic acids - 2017/2018 - 25

saponification

Hide Answer

Explanation

(**26**) Which of these is a secondary amine?

(**A**) $CH_3CH_2N(CH_3CH_2)CH_3CH_2$

(**B**) $CH_3CH_2NHCH_3CH_2$

(**C**) $CH_3CH_2NH_2$

(**D**) CH_3CH_2N

Amines - 2017/2018 - 26

$CH_3CH_2NHCH_3CH_2$

Hide Answer

Explanation

(**27**) Which of these has the highest boiling point

(**A**) CH_3CH_2COOH

(**B**) $CH_3CH_2OCH_2CH_3$

(**C**) $CH_3(CH_2)_5COOH$

(**D**) $CH_3CH_2CH_2CH_20H$

Alkanoic acids - 2017/2018 - 27

$CH_3(CH_2)_5COOH$

Hide Answer

Explanation

(**28**) All of the following will react with acid chloride to yield substituted amides EXCEPT

(**A**) CH_3NH_2

(**B**) $CH_3(CH_2)_5NH_2$

(**C**) $CH_3N(CH_3)CH_3$

(**D**) $CH_3CH_2NHCH_3$

Amines - 2017/2018 - 28

$CH_3N(CH_3)CH_3$

Hide Answer

Explanation

(**29**) The following will release nitrogen on reaction with nitrous oxide except

(**A**) Ethylamine

(**B**) Diethylamine

(**C**) methylamine

Amines - 2017/2018 - 29

Diethylamine

Hide Answer

Explanation

(**30**) Many amines in the liquid state have odours resembling that of

(**A**) onion

(**B**) garlic

(**C**) rotten fish

Amines - 2017/2018 - 30

rotten fish

Hide Answer

Explanation

(**31**) The boiling points of amines are lower than those of alcohols of similar molecular mass because

(**A**) amines do not contain oxygen atoms

(**B**) amines cannot hydrogen bond to each others

(**C**) N-H hydrogen bonds are weaker than O-H hydrogen bonds

(**D**) amines do not contain hygdrogen

Amines - 2017/2018 - 31

N-H hydrogen bonds are weaker than O-H hydrogen bonds

Hide Answer

Explanation

(**32**) The process of converting one ester to another is called

(**A**) Esterification

(**B**) Transesterification

(**C**) Saponification

(**D**) Hydrolysis

Esters - 2017/2018 - 32

Transesterification

Hide Answer

Explanation

(**33**) Give the name of the alcohol that will react with methyl propanoate to yield butyl propanoate in the presence of HCl

(**A**) butanol

(**B**) n-propanol

(**C**) methanol

(**D**) n-pentanol

Alkanols - 2017/2018 - 33

butanol

Hide Answer

Explanation

(**34**) A reversible process has the forward reaction as esterification the backward reaction is

(**A**) saponification

(**B**) transesterification

(**C**) decomposition

(**D**) hydrolysis

Esters - 2017/2018 - 34

hydrolysis

Hide Answer

Explanation

(**35**) These emit pale fumes of HCl when exposed to air due to reaction with moisture

(**A**) carboxylic acid

(**B**) acid chlorides

(**C**) acid anhydrides

(**D**) amdes

Acid Halides - 2017/2018 - 35

acid chlorides

Hide Answer

Explanation

(**36**) Acid anhydrides have higher boiling points than the acids due to

(**A**) their large sizes

(**B**) covalent bonds

(**C**) hydrogen bonds

Acid Anhydrides - 2017/2018 - 36

hydrogen bonds

Hide Answer

Explanation

(**37**) These homologues are identified by reaction with sodium bicarbonate, NaHCO3

(**A**) amides

(**B**) amines

(**C**) carboxylic acid

Alkanoic acids - 2017/2018 - 37

carboxylic acid

Hide Answer

Explanation

(**38**) What orbitals is used for the formation of C-H bond in ethane

(**A**) C(sp) H(s)

(**B**) $C(sp^2)$ H(s)

(**C**) $C(sp^3)$ H(s)

(**D**) $C(sp^2)$ H(p)

Hybridization - 2017/2018 - 38

$C(sp^3)$ H(s)

Hide Answer

Explanation

(**39**) What is the product of peroxide catalysed hydroboration of 1-methyl cyclohexene

(**A**) 4-bromo-1-methylcyclohexane

(**B**) 2-bromo-1-methylcyclohexane

(**C**) 1-bromo-1-cyclohexane

(**D**) 5-bromo-1-methylcyclohexane

Alkenes - 2017/2018 - 39

2-bromo-1-methylcyclohexane

Hide Answer

Explanation

(**40**) Which atomic orbital overlaps to form carbon — carbon triple bond

(**A**) s+s;sp+sp;p+p

(**B**) sp^2+sp^2; p+p

(**C**) sp+sp;p+p:p+p

(**D**) sp+sp;sp+sp;p+p

Hybridization - 2017/2018 - 40

sp+sp;p+p:p+p

Hide Answer

Explanation

(**41**) Which of the following is most acidic

(**A**) 1-butyne

(**B**) 2-butyne

(**C**) 1-butene

(**D**) 2-butene

Alkyl/Functional Group - 2017/2018 - 41

1-butyne

Hide Answer

Explanation

(**42**) Which of the following will react with sodamide

(**A**) cyclodecyne

(**B**) 2-pentyne

(**C**) 2-butyne

(**D**) 1-hexyne

Alkynes - 2017/2018 - 42

1-hexyne

Hide Answer

Explanation

(**43**) Predict the product of 1-pentyne with excess Br_2

(**A**) 1,1-dibromo-1-pentene

(**B**) 1,2-dibromo-1-pentene

(**C**) 1,1,2,2-tetrabromopentane

Alkynes - 2017/2018 - 43

1,1,2,2-tetrabromopentane

Hide Answer Explanation

(**44**) A compound has a molecular formular C_4H_6, when treated with excess hydrogen and a catalyst gave a compound C_4H_{10} when treated with ammonical silver nitrate a precipitate was formed. The compound is

(**A**) 1,3-butadiene

(**B**) 2-butyne

(**C**) 1-butyne

Alkynes - 2017/2018 - 44

1-butyne

Hide Answer Explanation

(**45**) Which reagent is a good nucleophile

(**A**) NH3

(**B**) HBr

(**C**) Br2

(**D**) BH3

Electrophiles and Nucleophiles - 2017/2018 - 45

NH3

Hide Answer

Explanation

(**46**) Compound A $C_4H_8Cl_2$ undergoes hydrolysis with aqueous KOH to give compound B. Compound B undergoes iodoform reaction to an oxime but does not react with tollens reagent. What is compound B

(**A**) 2,2-dichlorobutane

(**B**) hexanone

(**C**) 2-butanone

(**D**) 3-pentanone

Reagents - 2017/2018 - 46

2-butanone

Hide Answer

Explanation

(**47**) What type of orbitals are involved in C-O bonds in alcohols

(**A**) $C(sp^2)$, $O(sp^2)$

(**B**) $C(sp)$, $O(sp^2)$

(**C**) $C(sp^2)$, $O(sp)$

(**D**) $C(sp^3)$, $O(sp^3)$

Hybridization - 2017/2018 - 47

$C(sp^3)$, $O(sp^3)$

Hide Answer

Explanation

(**48**) Which of the following oxidation does one need to use pyridinium chlorochromate

(**A**) methanol to formic acid

(**B**) Ethanol to acetic acid

(**C**) ethanol to acetaldehyde

(**D**) acetaldehyde to acetic acid

Alkanols - 2017/2018 - 48

ethanol to acetaldehyde

Hide Answer

Explanation

(**49**) Which of the following constitutes lucas reagent

(**A**) NaC1, HCl, $CuCl_2$

(**B**) HCl, $ZnCl_2$

(**C**) HCl, $SnCl_2$

Reagents - 2017/2018 - 49

HCl, $ZnCl_2$

Hide Answer

Explanation

(**50**) Which of the following have the highest boiling point

(**A**) CH_3OCH_3

(**B**) CH_3CH_2OH

(**C**) $CH_3CH_2CH_3$

Alkyl/Functional Group - 2017/2018 - 50

CH_3CH_2OH

Hide Answer

Explanation

(**51**) Which of the following has the lowest solubility in water

(**A**) pentanol

(**B**) methanol

(**C**) butanol

Alkanols - 2017/2018 - 51

pentanol

Hide Answer

Explanation

(**52**) Suppose you want to prepare 3-phenyl-3-pentanol from an acid derivative, which acid derivative would you use

(**A**) phenyl acetic acid anhydride

(**B**) benzoic acid

(**C**) phenyl acetic acid chloride

(**D**) methyl benzoate

Esters - 2017/2018 - 52

methyl benzoate

Hide Answer

Explanation

(**53**) Whict product is formed from the catalytic hydrogenation of 2,2-dimethyl-4-pentanal

(**A**) 2,2-dimethyl pentanol

(**B**) 2,2-dimethyl-3-pentanol

(**C**) 2,2-dimethyl-4-pentanol

(**D**) none of the above

Aldehyde and Ketones - 2017/2018 - 53

2,2-dimethyl pentanol

Hide Answer

Explanation

(**54**) Which compound can be reduced easily with sodium borohydride

(**A**) amides

(**B**) esters

(**C**) aldehydes and ketones

(**D**) alkenes

Aldehyde and Ketones - 2017/2018 - 54

aldehydes and ketones

Hide Answer

Explanation

(**55**) Which of the following is a good method for preparing aldehydes

(**A**) jones reagent and 1° alcohols

(**B**) jones reagent and 2" alcohols

(**C**) PCC and 1° alcohols

(**D**) H_2SO_4 and 1° alcohols

Aldehyde and Ketones - 2017/2018 - 55

PCC and 1° alcohols

Hide Answer

Explanation

(**56**) Which of the following aldehydes used alone will undergo aldol condensation

(**A**) formaldehyde

(**B**) butanal

(**C**) benzaldehyde

Aldehyde and Ketones - 2017/2018 - 56

butanal

Hide Answer

Explanation

(**57**) An unknown compound on ozonolysis gave acetaldehyde and benzophenone. What is the unkown

(**A**) 1,2-diphenyl propene

(**B**) 1,1-diphenyl propene

(**C**) 2-phenyl-2-hexene

Alkenes - 2017/2018 - 57

1,1-diphenyl propene

Hide Answer

Explanation

(**58**) What is the function of acid catalyst in the esterification of carboxylic acid

(**A**) protonation of the carbonyl oxygen

(**B**) protonation of the OH group

(**C**) protonation of the cabonyl carbon

Esters - 2017/2018 - 58

protonation of the carbonyl oxygen

Hide Answer

Explanation

(**59**) Which of the following reagent will not reduce the carboxylic acid to primary alcohol under mild condition

(**A**) BH in ether

(**B**) NaBH4 in ethanol

(**C**) H_2O_2 in water

(**D**) $LiAlH_4$ in ether

Alkanoic acids - 2017/2018 - 59

H_2O_2 in water

Hide Answer

Explanation

(**60**) Which of the following will react with tollens reagent

(**A**) formic acid

(**B**) acetic acid

(**C**) propanoic acid

(**D**) butanoic acid

Alkanoic acids - 2017/2018 - 60

formic acid

Hide Answer

Explanation