



CHEMISTRY

BOOKS - MBD CHEMISTRY (ODIA ENGLISH)

ORGANIC CHEMISTRY:SOME BASIC PRINCIPLES AND TECHNIQUES

Question Type

1. On completing combustion, 0.246 g of an organic compound gave 0.198 g of carbon dioxide and 0.1014 g of water. Determine the percentage composition of carbon and hydrogen in the compound.



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2. In Dumas' method for estimation of nitrogen, 0.3 g of an organic compound gave 50mL of nitrogen collected at 300 K temperature and 715 mm pressure.

Calculate the percentage composition of nitrogen in the compound.(Aqueous tension at 300K=15 mm)

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3. During estimation of nitrogen present in an organic compound by Kjeldahl's method, the ammonia evolved from 0.5 g of the compound in Kjeldahl's estimation of nitrogen, neutralised 10mL of 1 M H_2SO_4 . Find out the percentage of nitrogen in the compound.

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4. In carius method of estimation of halogen, 0.15 g of an organic compound gave 0.12 g of AgBr. Find out the percentage of bromine in the compound.

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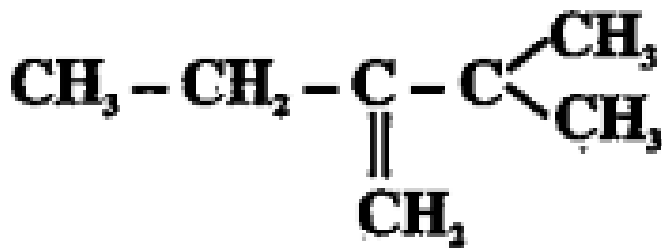
5. In sulphur estimation, 0.157g of an organic compound gave 0.4813 g of barium sulphate. What is the percentage of sulphur in the compound?

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6. Write down the structural formula of 1-Bromopentan-3- one

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7. Write the IUPAC name of the compound



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8. Write the structural formula of 1-Bromo-Methyl butane

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9. Write the structural formula of 4, 5, Dimethyl hex - 2- yne.

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10. Write the structural formula of 4-Methyl pent -2- ene



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11. Give the structural formula of Ethyl formate.



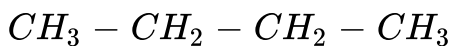
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12. Write the structural formula of 3-Hydroxybutanoic acid



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13. Give the IUPAC name of the following compound

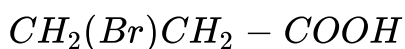


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14. Write the structural formula of the compound Butan-2-ol.

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15. Write the IUPAC name of the following compound:



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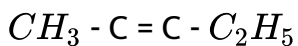
16. Write the structural formula of 1,3-butadiene

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17. Write the structural formula of 1-Bromo-4-Chlorobutane.

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18. Write the IUPAC name of the following compound ?



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19. Write the structural formula of 2-Butanol.

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20. Write the IUPAC name of $CH_3CH_2COOC_2H_5$

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21. Write the structural formula of pentan-3-ol .

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22. Write the structural formula of 2-Bromo-4-chloropentanal .

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23. Write the structural formula of the following compounds:
pentane-2, 4- dione .

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24. What is nucleophilic substitution reaction?

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25. Give an example of elimination reaction ?



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26. What is nucleophile ? Give an example of nucleophilic substitution reaction.



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27. Formic acid is a stronger acid than acetic acid.Explain



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28. Which is a stronger acid acetic acid or chloroacetic acid ?



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29. How resonance energy is related to stability?

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30. Give one example of nucleophilic substitution reaction.

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31. Which of the following is an electro-ophile: H_2O , BF_3 , NH_3 ?

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32. What happens when ammonium cyanate is heated?

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33. Give an example of nucleophilic addition reaction.

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34. Give one example heterolytic fission.

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35. Define the term free radical.

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36. Define the term carbonation.

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37. What are carbanions ?

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38. Write the order of stability of carbanions ?

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39. What is inductive effect ? Write two groups each of which cause +I effect and -I effect .

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40. What is resonance ? Write conditions for writing the resonating structure of the compound.

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41. What are electrophiles and nucleophiles?

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42. What do you mean by the reaction mechanism?

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43. Formic acid is a stronger acid than acetic acid. Explain

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44. Carbon-carbon bond distance in benzene is intermediate between the carbon-carbon bond distance in ethylene and

ethane

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45. Methyl amine is more basic than ammonia. Explain.

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46. What is addition reaction ? Explain its reaction mechanism with an example.

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47. Give a detailed description of inductive effect .

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48. What is resonance ? Write conditions for writing the resonating structure of the compound.

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49. Write notes on:

A. Inductive effect

B. Resonance

C. Hyperconjugation

D.

Answer:

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50. Write notes on :

A. Fractional Crystallisation

B.

C.

D.

Answer:



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51. Briefly discuss quantitative analysis of organic compounds.



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52. Write notes on:

A. Estimation of nitrogen

B. Estimation of halogens

C.

D.

Answer:



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53. Carbon forms a large number of compounds because of :

A. Catenation

B. High electron affinity

C. high ionisation energy

D. variable valency

Answer: A

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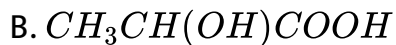
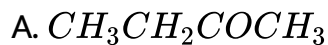
54. The compound CH_3CH_2CHO and CH_3COCH_3 illustrate:

- A. position isomerism
- B. geometrical isomerism
- C. functional isomerism
- D. chain isomerism

Answer: C

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55. Which one of the following compound is an optically active compound?



Answer: B

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56. An isomer of ethanol is:

A. methanol

B. dimethyl ether

C. diethylether

D. ethyleneglycol

Answer: B

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57. If the dipole moment of toluene and nitrobenzene are 0.93 D and 3.93 D what is the dipole moment of p-nitrotoluene ?

A. 3.50 D

B. 5.60 D

C. 3.07 D

D. 4.86 D

Answer: D

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58. Which of the following intermediate have the complete octet around carbon ?

- A. Carbanion
- B. Carbocation
- C. Carbene
- D. Free radical

Answer: A

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59. What is the most common type of reactions of aromatic compounds ?

A. addition reaction

B. elimination reaction

C. electrophilic substitution reaction

D. rearrangement

Answer: C



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60. The order of acidic strength of o, m and p-nitrophenol is

A. $o > m > p$

B. $m > p > o$

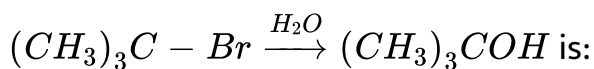
C. $p > m > o$

D. $p > o > m$

Answer: B

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61. The reaction



- A. elimination reaction
- B. substitution reaction
- C. free radical reaction
- D. addition reaction

Answer: B

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62. The IUPAC name of $CH_3COCH(CH_3)_2$

- A. 3-methyl-2-butanone
- B. isopropyl methyl ketone
- C. 2-methyl-3-butanone
- D. 4-methyl isopropyl ketone

Answer: A



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63. The general formula of $C_nH_{2n}O_2$ could be for open chain:

- A. carboxylic acid
- B. dioles
- C. dialdehyde

D. diketones

Answer: C

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64. Write the IUPAC name of the following compound:



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65. Write the structural formula for the following compound:

Propadiene

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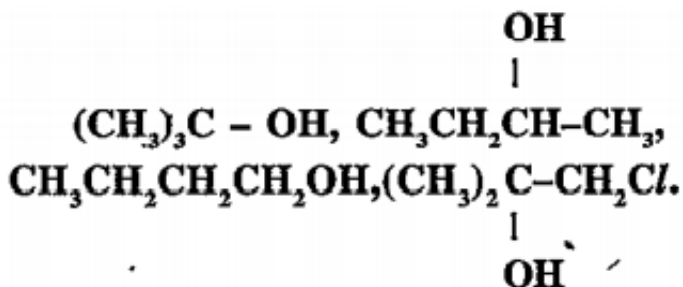
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69. Give the structural formula of Ethyl formate.



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70. Which one of the following compounds will show optical isomerism :



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71. Write the structural formula of the following compound :

Methanoic acid

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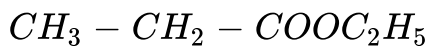
72. Write the structural formula of the following : 2-Bromo-4-chloro-pentanal

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73. Write the structural formula of 2-methyl-propanol-2

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74. Write the IUPAC name of the following :

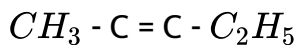


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75. Write the structural formula of 3-pentanol.

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76. Write the IUPAC name of the following compound ?



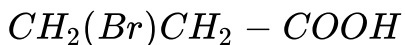
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77. Write the structural formula of 2-Butanol.



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78. Write the IUPAC name of the following compound:

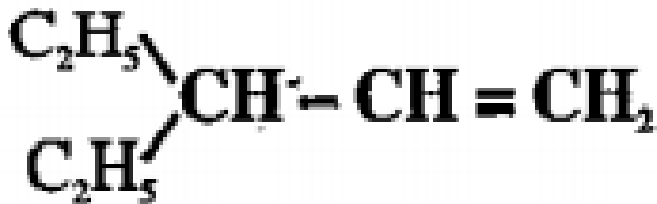


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79. Write the structural formula of 1, 3 -butadiene

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80. Write the IUPAC name of the following compound :

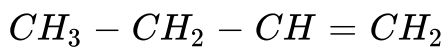


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81. Write the structural formula of 1-Bromo-4-Chlorobutane.

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82. Write the IUPAC name of the following compound :



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83. Write down the structural formula of 1-bromo-3-pentanone .

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84. Write the structural formula of 3-Hydroxybutanoic acid



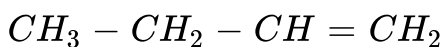
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85. How many sigma and pi-bonds are present in methyl cyanide ?

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86. Give the IUPAC name of the following :



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87. Write the structural formula of the compound 1-bromo-3-pentanone .

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88. Write the structural formula of 4, 5, Dimethyl hex - 2- yne.

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89. Write the structural formula of 4-Methyl pent -2- ene

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90. Write the structural formula of 2-bromo-methyl butane .

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91. Arrange the following in the increasing order of C-C bond length in C_2H_6 , C_2H_4 and C_2H_2

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92. What is the isomerism between pentane, isopentane and neopentane ?

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93. The organic compound first synthesised in laboratory is :

A. Chloroform

B. Urea

C. Methane

D. Sucrose

Answer:

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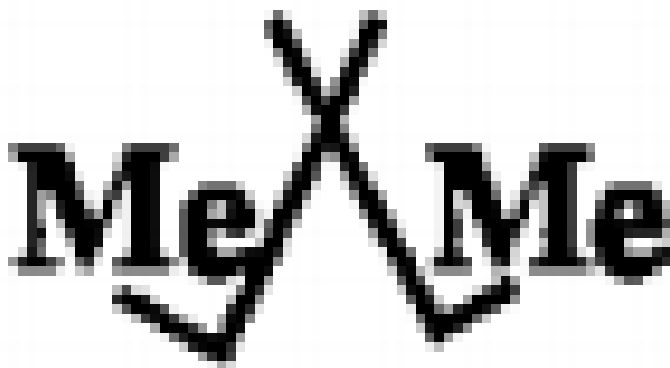
94. Which bond is most prevalent in organic compound ?

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95. Give the IUPAC name of $(CH_3)_3COH$

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96. Give the IUPAC name of



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97. Give the graphic representation of 4-hydroxy-4-methylpentan-2-one

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98. Arrange the following in increasing order of expected enol content

CH_3COCH_2CHO , CH_3COCH_3 , CH_3CHO , $CH_3COCH_2COCH_3$

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99. Which have high boiling points:

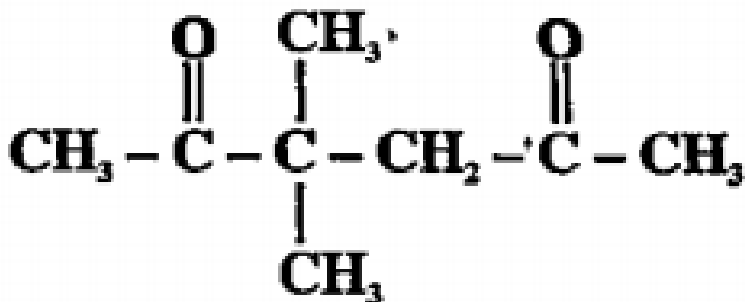
- A. Straight chain isomers
- B. Branched chain isomers
- C.

D.

Answer:

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100. Give IUPAC name of :



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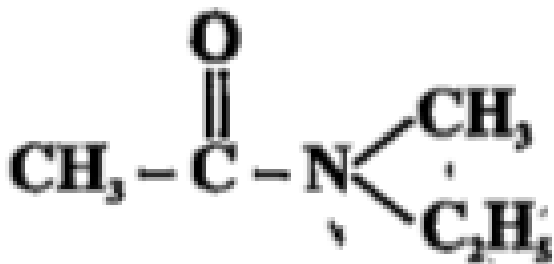
101. write functional isomers for $C_4H_{10}O$.

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102. Give two names of positional isomers for C_3H_8O .

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103. Give the IUPAC name of



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104. Write the structural formula of Ethoxy propane .

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105. Organic compounds show _____ reactions which are slow .

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106. Give the IUPAC name of C_6H_5COCl .

A. Benzoyl chloride

B.

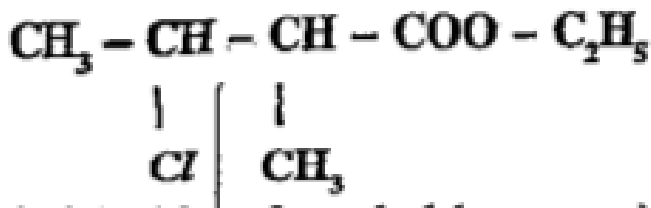
C.

D.

Answer:

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107. Give the IUPAC name of



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108. Why monocarboxylic acids do not show positional isomerism

?

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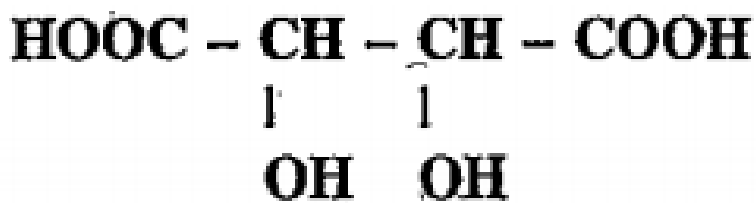
109. Give the structural formula of ethyl (3-chloro-2-methylbutanoate)

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110. When tautomeric form is less stable called the-

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111. Write the IUPAC name of :



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112. What is meant by enolisation ?

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113. Give the structure of 1-Isopropoxy but 2-ene.



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114. Name the organic compound in which valency of carbon is 2.



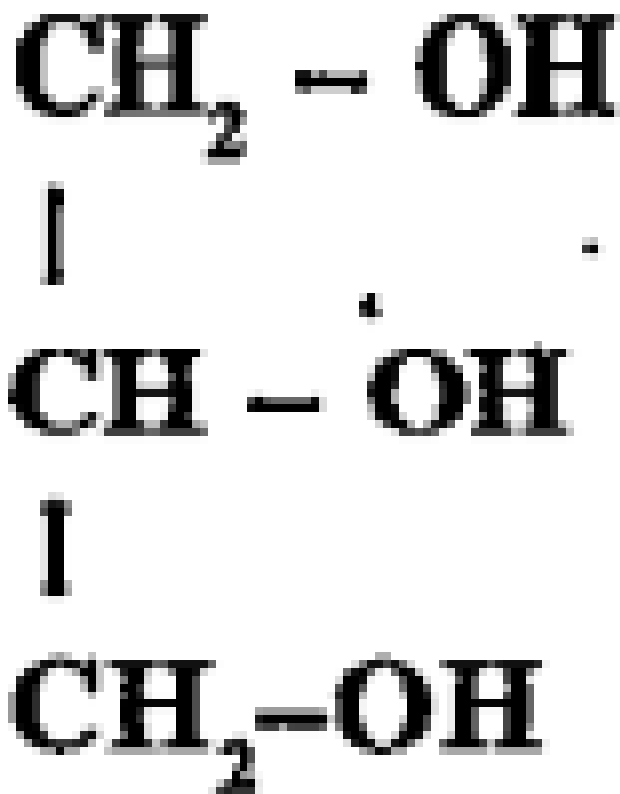
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115. Name the organic compound in which valency of carbon is 3.



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116. Give the IUPAC name of

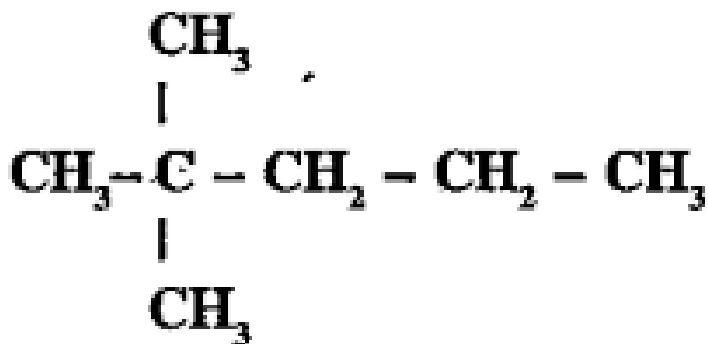


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117. Give the structure of Oxalic acid and its IUPAC name .

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118. Give the IUPAC name of



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119. ____ of molecules is the only condition for optical activity.

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120. A mixture of two enantiomers in equimolar proportions is optically ____ (Active, Inactive)

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121. What is meant by external compensation ?

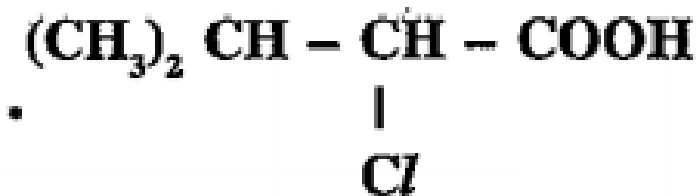
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122. Give the IUPAC name of



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123. Give the IUPAC name of:



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124. Give the structural isomers of C_5H_{12} .

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125. What is meant by asymmetric or chiral carbon ?

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126. A chiral carbon is_____.



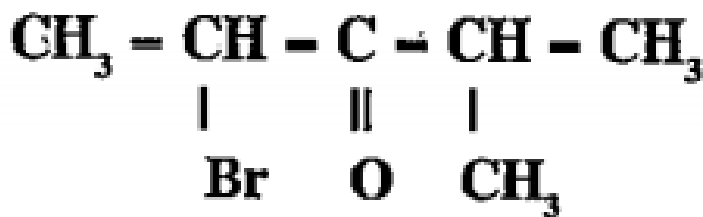
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127. Why alkynes do not show geometrical isomerism ?



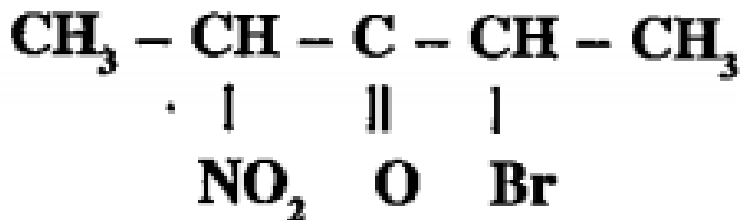
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128. Give the IUPAC name of:



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129. Give the IUPAC name of:



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130. The acids which do not contain -COOH group are:

Ethanoic acid

Picric acid

Lactic acid

Palmitic acid

p-toluene sulphonic acid.

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131. Electromeric effect is shown by the compounds having____bonds.

(simple, multiple, no covalent)

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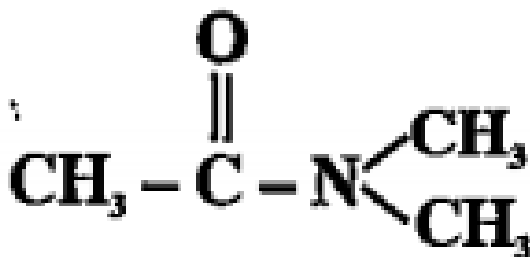
132. What is inductive effect ?

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133. Why formic acid is stronger than acetic acid ?

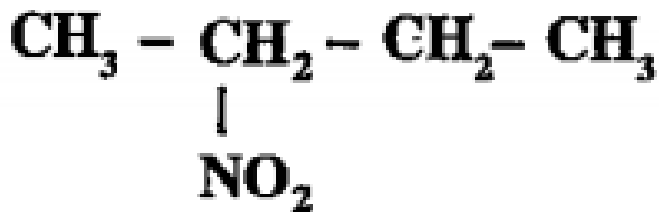
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134. Give the IUPAC name of:



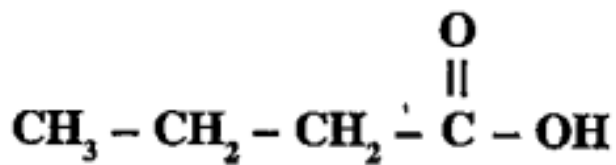
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135. Give the IUPAC name of:



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136. Give the IUPAC name of:



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137. Give the structure of pent-2-yne.

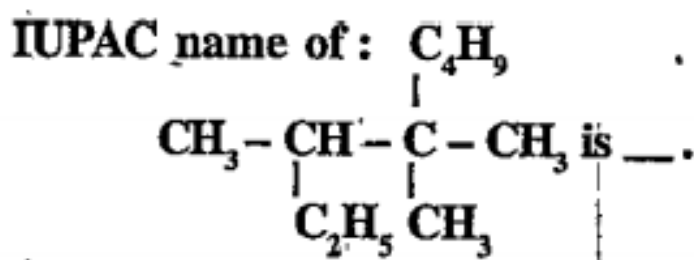
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138. Give the structural formula of:

2,2-Dimethyl pent-3-en-1-ol

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139. IUPAC name of:



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140. Which one of the following is optically active molecule ?



Answer:

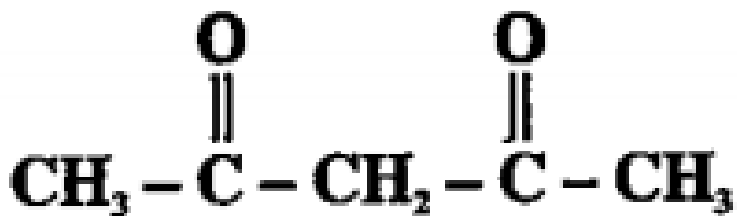
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141. Cis and Trans 2-butene are ___ isomers.

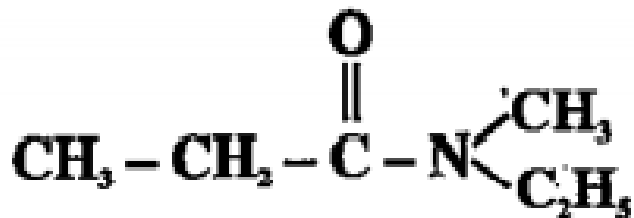
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142. IUPAC name of:



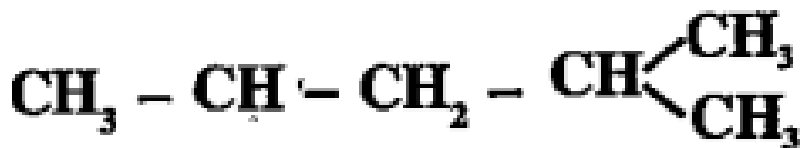
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143. Write the IUPAC name of:



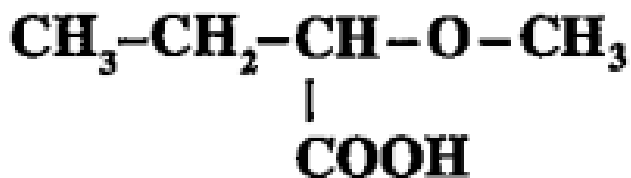
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144. Name the compound by IUPAC method.



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145. Write the IUPAC name of:



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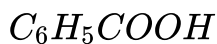
146. Heterolytic fission leads to the formation of ____, where as homolytic fission results in the formation of _____.

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147. What type of isomerism is exhibited by 2-chlorobutane ?

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148. Arrange the following acids in their increasing order of acidity with reasons.



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149. How many isomers of butene are possible ?

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150. What is 'Resonance' ? Give an example.

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151. What is the homologous series ? Give one example of such series.

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152. What is nucleophile ? Give an example of nucleophilic substitution reaction.

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153. Give an example of elimination reaction ?

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154. What is the homologous series ? Give one example of such series.



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