



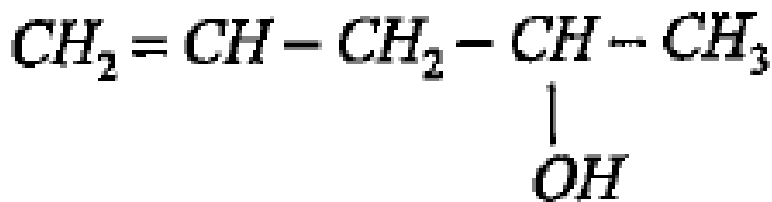
CHEMISTRY

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HALOALKANES AND HALOARENES

Example

1. Write the IUPAC names of the following compounds:



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2. Methyl bromide reacts with AgF to give methyl fluoride and AgBr. This reaction is called

- A. Fittig reaction
- B. Wurtz reaction
- C. Swarts reaction
- D. None of these

Answer:



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3. Chlorination of benzene in the presence of halogen is an example of

- A. aromatic electrophilic substitution
- B. aromatic electrophilic addition
- C. aromatic nucleophilic substitution
- D. aromatic nucleophilic addition

Answer:



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4. Complete the following chemical equation $H_3CCH_2CH=CH_2 + HBr(\text{Peroxide}) \rightarrow \text{_____}$.



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5. Which of the following will exhibit optical isomerism ?

- A. n-butylamine
- B. sec-butylamine
- C. Iso-butylamine
- D. none of these

Answer:



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6. How many monochlorobutane is obtained on chlorination of n-butane ?

A. 1

B. 5

C. 3

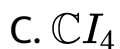
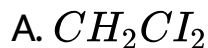
D. 2

Answer:



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7. Which one of the following has the highest dipole moment? i. CH_2Cl_2 ii. $CHCl_3$ iii. CCl_4



Answer:



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8. The compounds does not gives iodoform test

A. methanol

B. ethanal

C. ethanol

D. methanal

Answer:



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9. DDT is prepared from

A. chlorobenzene and chloroform

B. chlorobenzene and iodoform

C. chlorobenzene and chloral

D. chlorobenzene and BHC

Answer:



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10. The chlorofluorocarbon compounds of methane and ethane are collectively called ___



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11. Name the stereo isomers which are non-superimposable mirror images?



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12. Those reactions in which stronger electrophiles replaces weaker electrophile called electrophilic substitution reactions". State whether this statement is true or false?



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13. Dissymmetric object Is one which is ____



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14. Name the compound react with chlorobenzene to produce (DDT).



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15. Choose the correctly matched pair

A. o-Chlorotoluene



B. p-Chlorotoluene



C. m-Chlorotoluene



D.

Answer:



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16. Observe the relationship between the first two terms and fill in the blanks. Freon - As a refrigerant, DDT ____.



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17. How many monochlorobutane is obtained on chlorination of n-butane ?



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18. Photochemical chlorination is initiated by a process of (1)Pyrolysis (2)Substitution (3)Cracking (4)Homolysis



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19. Chirality of a carbon compound is because of its___

A. tetrahedral nature of carbon

B. Monovalent nature of carbon

C. devalent nature of carbon

D. trivalent nature of carbon.

Answer:



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20. If the light waves pass through a Nicol prism, then all the oscillation occur only in one plane, such beam of light is called as-----



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21. Which out of the following is preferred for converting alcohol to Haloalkane, HCl and SOCl_2 ?



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22. When bromoethane is reacted with sodium in the presence of ether an alkane is formed. Name the reaction involved.



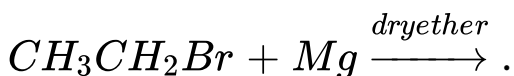
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23. When bromoethane is reacted with sodium in the presence of ether an alkane is formed. Give the chemical

equation for the above reaction.

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24. Complete the following reaction:



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25. A polyhalogen compound In the pesence of air and light oxidise to give poisonous gas, carbonyl chloride. Identify the polyhalogen compound.

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26. A polyhalogen compound In the pesence of air and light oxidise to give poisonous gas, carbonyl chloride. Give the chemical reaction for the above change.



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27. How are the following reaction carried out?
Bromoethane to ethene.



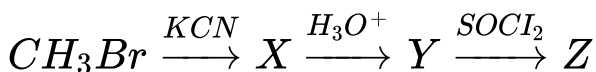
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28. How are the following reaction carried out?

Chlorobenzene to 1-chloro-4-nitrobenzene.

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29. Predict X, Y, Z, in the following reaction.



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30. Give a method to prepare chlorotoluene from toluene.

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31. Give one application for the following poly-halogen compounds. chloroform.



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32. Give one application for the following poly-halogen compounds DDT.



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33. Give one application for the following poly-halogen compounds carbon tetrachloride, CCl_4





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34. Give one application for the following poly-halogen compounds Freons.



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35. Write the structures of the following compounds 2-Chloro-3-methylpentane.



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36. Write the structures of the following compounds. 1-chloro-4-methyl benzene



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37. Arrange the following in the order of increasing boiling points: C_3H_7Cl , CH_3Cl , C_2H_5Cl



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38. Arrange the following in the order of increasing boiling points: n-pentylchloride, iso-pentylchloride, neopentyl chloride.



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39. Freons are known with respect to ozone layer depletion.

i) What are Freons?



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40. What happens when: Bromobenzene is treated with Mg in the presence of dry ether.



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41. What happens when: Methyl chloride is treated with KCN.



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42. In a class room discussion, one among the student said that, “The major product obtained on treatment of ethylchloride with aqueous KOH and with alc. KOH are the same”. Do you agree with the student? justify your answer



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43. In a class room discussion, one among the student said that, “The major product obtained on treatment of ethylchloride with aqueous KOH and with alc. KOH are

the same".Do you agree with the student? justify your answer



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44. Write a note on the following: Racemic mixture.



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45. Write a note on the following:Enantiomers



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46. Illustrate substitution reaction and elimination reaction with an example.



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47. Primary alkyl halide C_4H_9Br 'A' reacted with alcoholic KOH to give compound 'B'. 'B' is reacted with HBr to give 'C' which is an isomer of 'A'. Give the structure of A, B and C.



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48. Give the structures of the major organic products from 1-butene under each of the following conditions. HBr in presence of peroxides.



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49. Give the structures of the major organic products from 1-butene under each of the following conditions. HCl in presence of peroxides.



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50. How will you prepare the following from methyl chloride ? Ethane.

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51. How will you prepare the following from methyl chloride ? Toluene.

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52. Give the chemical name of the following substances.
DDT.

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53. Give the chemical name of the following substances. Chloroform.



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54. Give the chemical name of the following substances. Freon



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55. Account for the following: Haloalkanes undergo nucleophilic substitution reactions whereas haloarenes

undergo electrophilic substitution reactions.



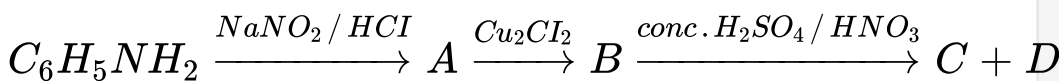
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56. How do S_N^1 differ from S_N^2 reactions ?



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57. Identify the compounds A, B and C Is the following reactions.



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58. Give structures and IUPAC names of all the isomers having molecular formula C_4H_9Br and classify them as primary, secondary or tertiary halides.



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59. You are provided with the following substance. CH_3I , sodium and, dry ether. Identify the products?



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60. Chlorobenzene on reaction with CH_3Cl in presence of $AlCl_3$



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61. You are provided with the following substance. Chlorobenzene CH_3Cl and $AlCl_3$. Name the products formed in each case.



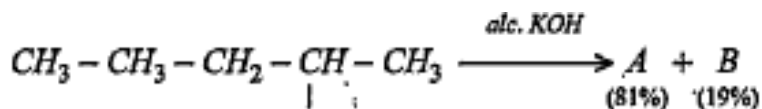
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62. You are provided with the following substance. Chlorobenzene CH_3Cl and $AlCl_3$. Name the reactions.



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63. The products A and B of the following reaction are two isomeric alkenes. Identify A and B



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64. Haloarenes undergo nucleophilic and eletrophilic subsitution reactions. Write one example for nucleophilic subsitution reaction of chlorobenzene.

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65. Haloarenes undergo nucleophilic and eletrophilic subsitution reactions. Write any two examples of

electrophilic substitution reaction of chlorobenzene.

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66. Haloarenes undergo electrophilic substitution reaction. Give three electrophilic substitution reactions of Chloro benzene.(Write down the chemical equation)

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67. Give the structure and IUPAC names of any five haloalkanes having the molecular formula $C_5H_{11}Cl$.

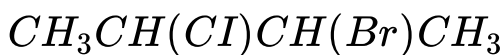
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68. p-Dichlorobenzene has higher melting point than those of o- and m -isomers Discuss.



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69. Give the IUPAC names of the following compounds:



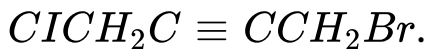
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70. Give the IUPAC names of the following compounds:



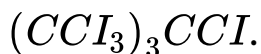
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71. Give the IUPAC names of the following compounds:



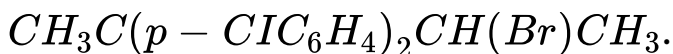
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72. Give the IUPAC names of the following compounds:



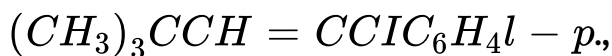
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73. Give the IUPAC names of the following compounds:



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74. Give the IUPAC names of the following compounds:

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75. Which one of the following has the highest dipole moment? i. CH_2Cl_2 ii. $CHCl_3$ iii. CCl_4



D.

Answer:



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76. Benzene diazonium chloride when treated with Cu_2Cl_2 and HCl, the product formed is chlorobenzene. This reaction is known as_____.



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77. Aryl halides are less reactive towards nucleophilic substitution reactions. Write any two reasons for the less reactivity of aryl halides.



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78. Which is the major product obtained when 2-bromopentane is heated with alcoholic solution of potassium hydroxide ?



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79. Which is the major product obtained when 2-bromopentane is heated with alcoholic solution of potassium hydroxide ? Name and state the rule that governs the formation of major product.



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80. 2-Bromobutane is optically active. Explain the stereochemical aspect of S_N1 reaction of 2- Bromobutane with OH ions.



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81. How are the following conversions be effected?
Ethanol to fluoroethane



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82. How are the following conversion affected But 1 ene to but 2 ene



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83. Complete the reaction: $CH_3CH_2Br \xrightarrow{AgCN}$ _____

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84. Complete the reaction: $CH_3CH_2CH_2Br \xrightarrow[\text{dry ether}]{Na}$ _____

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85. During the β -elimination reaction of 2-bromopentane in an alcoholic solution of KOH results in Pent-2-ene as major product

and P ent-1 minor product. State the rule to explain the reaction.



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86. Ambident nucleophile is

- A. Ammonia
- B. Ammonium Ion
- C. Chloride ion
- D. Nitrite Ion

Answer:



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87. Halo alkanes and Halo arenes are organohalogen compounds. Suggest a method for the preparation of alkyl chloride.



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88. Halo alkanes and Halo arenes are organohalogen compounds. Aryl halides are less reactive towards Nucleophilic substitution reactions. Give reasons



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89. Aryl halides are less reactive towards nucleophilic substitution reactions. Write any two reasons for the less reactivity of aryl halides.



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90. Aryl halides are less reactive in nucleophilic substitution reactions. Give one example for nucleophilic substitution reactions of aryl halides.



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91. Write a method for the preparation of alkyl halides.



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92. Which of the following is not a polyhalogen compound?

A. Chloroform

B. Freon

C. Carbon tetrachloride

D. Chloro benzene

Answer:



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93. Among the following which one is chlorine containing Insecticide?

A. DDT

B. Freon

C. Phosgene

D. Iodoform

Answer:



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94. Haloarenes undergo Wurtz-Fitting reaction. What is Wurtz-Fitting reaction?



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95. The reaction of thionyl chloride (SOCl_2) on alcohols to form alkyl chloride gives good yields. Explain.



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96. Haloalkanes undergo β -elimination reaction in presence of alcoholic potassium hydroxide. Which is

the major product obtained by the β -elimination of 2-bromopentane.



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97. Haloalkanes undergo β -elimination reaction in presence of alcoholic potassium hydroxide. Name the rule, which leads to the product in the above elimination reaction.



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98. Write the chemical equation for the preparation of toluene by Wurtz-Fittig reaction.

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99. Nucleophilic substitution reactions are of two type - S_N^1 reaction and S_N^2 reaction. Write any two differences between S_N^1 and S_N^2 reactions

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100. Nucleophilic substitution reactions are of two type - S_N^1 reaction and S_N^2 reaction. Write any two reasons for the less reactivity of aryl halides towards nucleophilic substitution reactions.

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101. Haloarenes undergo electrophilic substitution reaction. Give three electrophilic substitution reactions of Chloro benzene.(Write down the chemical equation)



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102. An organic compound A reacts with metallic sodium in ether medium to form ethane. A also reacts with magnesium in ether medium to give B, which on hydrolysis gives methane. Identify A and B. Write down the chemical equation involved.



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103. Benzene hexachloride has a trade name called ____.



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104. 1-chloropropane and 2-chloropropane are-----

A. Position isomers

B. Chain isomers

C. Optical isomers

D. Geometrical isomers

Answer:



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105. Why is sulphuric acid not during the reaction of alcohols with KI?



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106. When benzene is treated with chlorine in the presence of sunlight a compound which is commonly used as an insecticide is formed. Identify the compound obtained.



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107. When benzene is treated with chlorine in the presence of sunlight a compound which is commonly used as an insecticide is formed. Write the chemical equation.



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108. Bromoethane when treated with alcoholic KOH gives ethene, KBr and H_2O . Identify the type of reaction.



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109. Bromoethane when treated with alcoholic KOH gives ethene, KBr and H_2O . Instead of bromoethane if you take 2-bromobutane what is the major product obtained?



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110. Bromoethane when treated with alcoholic KOH gives ethene, KBr and H_2O . Identify the type of reaction.



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111. Bromoethane when treated with alcoholic KOH gives ethene, KBr and H_2O . Instead of bromoethane, if you take 2-bromobutane, what is the major product obtained ? Write down the chemical equation for the reaction.



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112. Bromoethane when treated with alcoholic KOH gives ethene, KBr and H_2O . Explain the rule behind the above reaction .



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113. Match the following

Match the following:

Vitamin A

Starch

Aldohexose

Enzyme

Glucose

Zymase

Night blindness

Amylose

Fructose



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