

CHEMISTRY

BOOKS - BODY BOOKS PUBLICATION

CHEMICAL REACTIONS OF ORGANIC COMPOUNDS

Example

1. Complete stages 2,3 and 4 in the respective order.

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2. What are the compounds formed when $CH_3 - CH_3$ (ethane) undergoes substitution reaction with chlorine? Write them.

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3. Write down the structural formulae of ethane and ethene.

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4. What is the peculiarity of the Carbon-Carbon bond in ethene?

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5. Which of the hydrocarbons undergo addition reaction? C_2H_6 , C_3H_8 , C_3H_6 and C_2H_2

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6. Can you write the balanced chemical equation for the combustion of the fuel butane (C_4H_{10})?

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7. Complete Table containing chemical reactions of hydrocarbons

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8. $CH_3 - OH$, $CH_3 - CH_2 - OH$ Can you write the IUPAC names of these two compounds?

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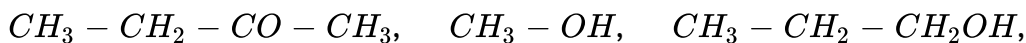
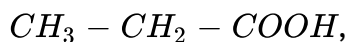
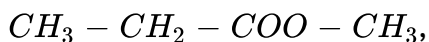
9. Write down the uses of ethanol.

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10. List out the uses of ethanoic acid.

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11. Examine the given structural formulae and select the esters. You may also identify the chemicals required for their preparation.



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12. Take 10 mL distilled water in a test tube and take the same volume of hard water in another test tube. Add a few drops of soap solution to both the test tubes and shake well. Do both the test tubes contain the same quantity of foam? Which test tube contains more foam? What do you infer?



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13. Take 10 mL distilled water in a test tube and take the same volume of hard water in another test tube. Add a few drops of soap solution to both

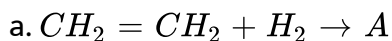
the test tubes and shake well. Do both the test tubes contain the same quantity of foam? Which test tube contains more foam? What do you infer?

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14. List out the merits and demerits of detergents, compared to soaps.

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15. Given below are two chemical equations.



b. $A + Cl_2 \rightarrow B + HCl$ Identify the compounds 'A' and 'B'. Name these reactions.

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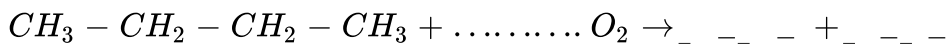
16. Name the important chemical reactions of hydrocarbons. Give one example for each.

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17. Write the chemical formula of propane. Write the names and structural formula of two compounds that may be formed during its substitution reaction with chlorine.

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18. Complete the equation for the following chemical reaction. Name this reaction.



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19. Which of the given molecules can form po-lymers? Butane, Propane, Propene, Meth-ane, Butene.

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20. You are familiar with different chemical reactions of hydrocarbons. Identify the situations in daily life in which such reactions are used.

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21. List the different uses of ethanol. Prepare an eassay on its adverse effects on human body and the related social issues when it is used as a beverage.

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22. you know how to make soap, don't you? Try to prepare soaps of different colours and fragrance. Prepare a short note on the chemistry of soaps?

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23. After completing the chemical reactions write down to which category they belong. $CH_2Cl + Cl_2 \rightarrow \dots\dots\dots + HCl$

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24. After completing the chemical reactions write down to which category they belong. $CH \equiv CH + H_2 \leftrightarrow \dots\dots\dots$

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25. After completing the chemical reactions write down to which category they belong. $CH_4 + 2O_2 \leftrightarrow \dots\dots\dots + H_2O$

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26. After completing the chemical reactions write down to which category they belong. $CH_3 - CH_2 - CH_3 \leftrightarrow \dots\dots\dots$

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27. Rearrange the table suitably.

| Reactions | Type of Reaction |
|------------------------------|-----------------------|
| 1. $C_4H_{10} + \text{Heat}$ | Combustion |
| 2. $C_4H_{10} + Cl_2$ | Substitution reaction |
| 3. $C_4H_{10} + O_2$ | Polymerisation |
| 4. $C_4H_8 + H_2$ | Thermal cracking |
| 5. $nCH_2 = CH_2$ | Addition Reaction |

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28. Methane is reacting with Cl in presence of sunlight , Complete

equation of that reaction. $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$,

$CH_3Cl + Cl_2 \rightarrow _ _ _ + HCl$,

$_ _ _ + _ _ _ \rightarrow CHCl_3 + _ _$,

$CHCl_3 + Cl_2 \rightarrow _ _ _ + HCl$: Write down the reaction of C_3H_8

with chlorine.

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29. Methane is reacting with Cl in presence of sunlight , Complete

equation of that reaction. $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$,

$CH_3Cl + Cl_2 \rightarrow _ _ _ + HCl$,

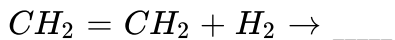
$_ _ _ + _ _ _ \rightarrow CHCl_3 + _ _$,

$CHCl_3 + Cl_2 \rightarrow _ _ _ + HCl$: Write down the reaction of C_3H_8

with chlorine.

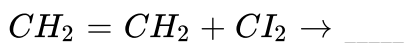
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30. Examples of addition reaction are given below, complete the equation.



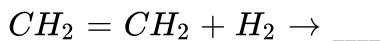
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31. Examples of addition reaction are given below, complete the equation.



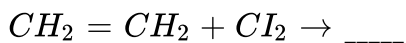
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32. Examples of addition reaction are given below, complete the equation.



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33. Examples of addition reaction are given below, complete the equation.



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34. Example for combination of Hydrocarbon are given below complete the equation and balance it. $CH_4 + O_2 \rightarrow \dots\dots\dots + \dots\dots\dots$

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35. Example for combination of Hydrocarbon are given below complete the equation and balance it. $C_2H_6 + O_2 \rightarrow \dots\dots\dots + \dots\dots\dots$

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36. Example for combination of Hydrocarbon are given below complete the equation and balance it. $C_3H_6 + O_2 \rightarrow \dots\dots\dots + \dots\dots\dots$

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37. Products formed on combustion of Hydrocarbon are _____.



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38. Name the product and what type of reaction is this?



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39. $n CH_2 = CHCl \rightarrow \dots$. Write down the names of monomer in it.



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40. Give examples for natural polymers.



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41. Complete the table.

| Monomer | Polymer | Use |
|----------------|-----------|-------|
| Vinyl Chloride | _____ | _____ |
| _____ | Polythene | _____ |
| Isoprene | _____ | _____ |
| Tetra fluoro | _____ | _____ |
| Ethene | _____ | _____ |

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42. Arrange the points in two separate columns write column heading also: Co and H_2 are reacted in presence of a catalyst to form compound. Sugar cane juice is fermented. It is known as wood spirit. It is used to make paint & varnish. Used for drinking. It is used for adding in industrial spirit.

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43. Ethanol has very large industrial utility. When it enters into our body it creates a large amount of problems in our body as well as in our society.

List out the problems happening in our body and in the society.

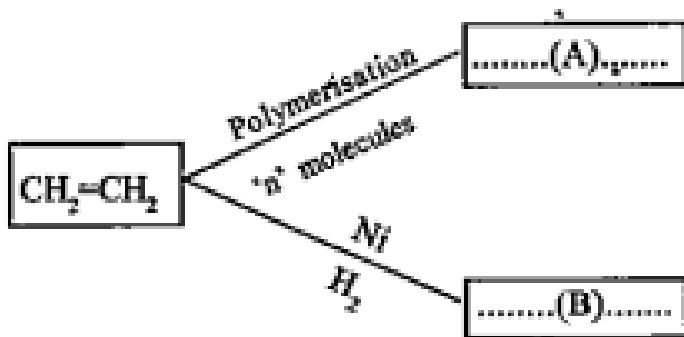
| In Human body | In society |
|-----------------------|--------------------------|
| Liver problems | Economic Problems |

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44. In industrial ethanol always Methanol is added to prevent misuse by humans. Name the process and what are the side effects formed after consuming it?

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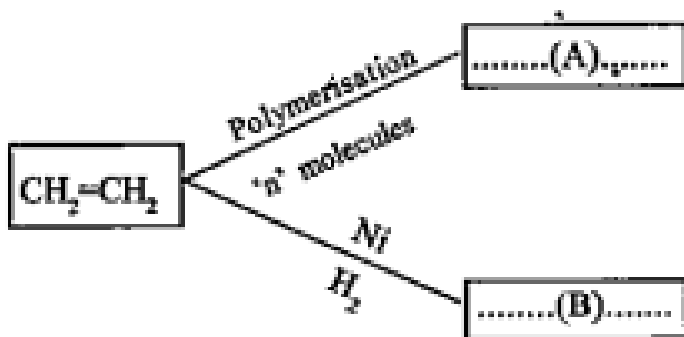
45. Analyse the reactions and answer the following questions.



Identify A, B.

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46. Analyse the reactions and answer the following questions.

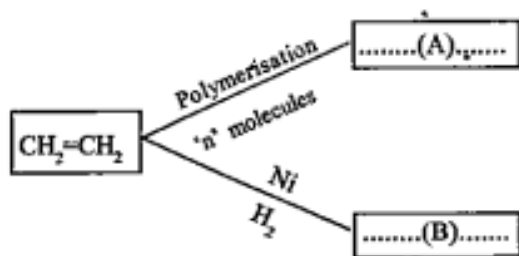


Write the

name of the compound A

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47. Analyse the reactions and answer the following questions.



Write the name of the reaction by which 'B' is formed.

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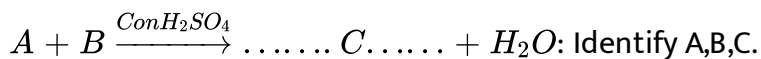
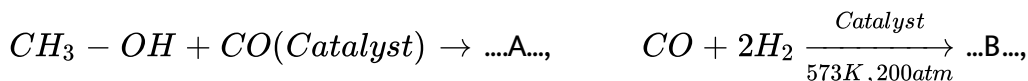
48. Some reactions of propane are given: Hydrogen atoms are substituted one by one, in presence of sunlight. When heated in the absence of air, it decomposes to hydrocarbons with lesser molecular mass. Combines with oxygen to give CO_2 and H_2O : Identify the type of reactions in each case.

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49. Some reactions of propane are given: i)Hydrogen atoms are substituted one by one, in presence of sunlight.ii) When heated in the absence of air, it decomposes to hydrocarbons with lesser molecular mass. iii)Combines with oxygen to give CO_2 and H_2O :. Write the chemical of the reaction of ii

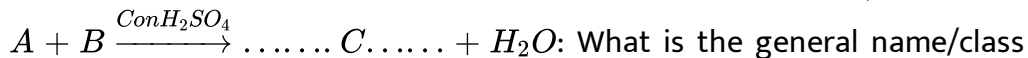
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50. Analyse the reactions and answer the following questions.



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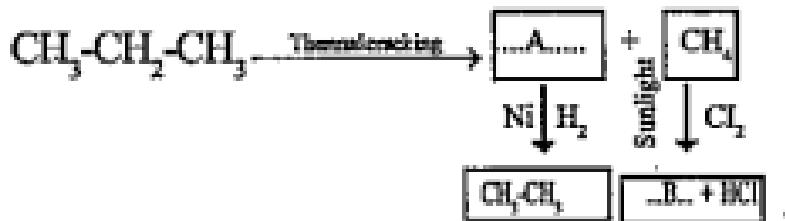
51. Analyse the reactions and answer the following questions.



to which product 'C' belongs? Write the IUPAC name.

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52. Analyse the given reactions and answer the following questions.

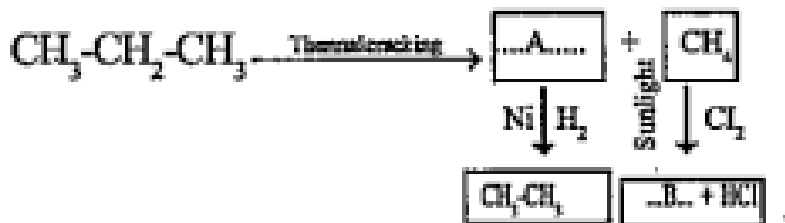


Identify A and

B.

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53. Analyse the given reactions and answer the following questions.

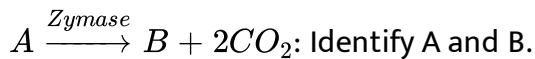
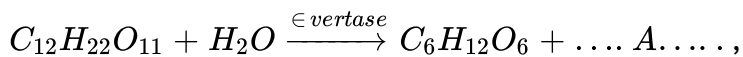


What is the

name of reaction by which 'B' is formed?

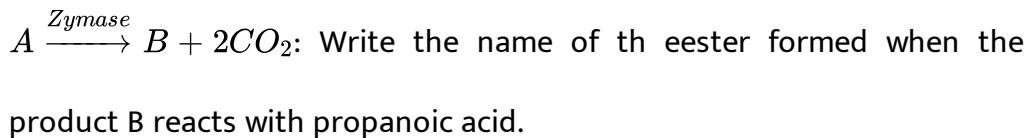
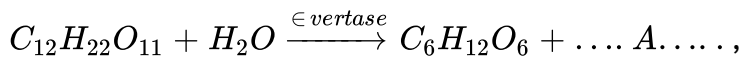
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54. Some reactions regarding the production of ethanol are given below.



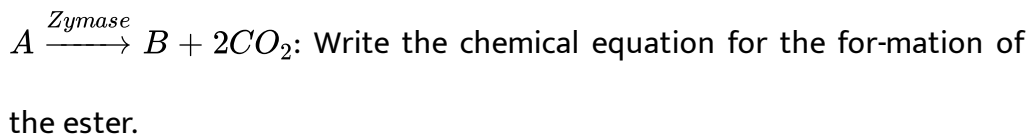
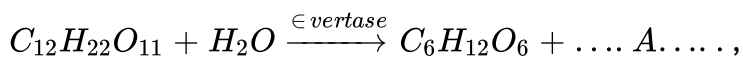
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55. Some reactions regarding the production of ethanol are given below.



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56. Some reactions regarding the production of ethanol are given below.




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57. Acetylene, (ethyne) is prepared in the laboratory when calcium carbide reacts with water. Write the chemical equation of the reaction for converting it to ethane.

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58. Complete the table.

| Name of Compound | Functional Group | Structure |
|------------------|------------------|--|
| Chlorobenzene | -Cl |  |
| Phenol |(a)..... |(b)..... |
| Nitro benzene |(c)..... |(d)..... |
| Benzoic acid |(e)..... |(f)..... |
| Toluene |(g)..... |(h)..... |



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59. Write the structure of the organic compound with molecular formula C_6H_6 .



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60. What is the name of the compound formed when one hydrogen atom of benzene is replaced with methyl radical.



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61. Two equations are given below. $CH \equiv CH + HCl \rightarrow \dots A \dots$,
 $nA \rightarrow B$: Identify A and B.

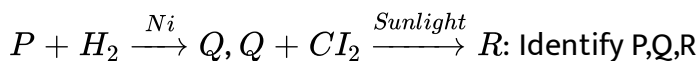
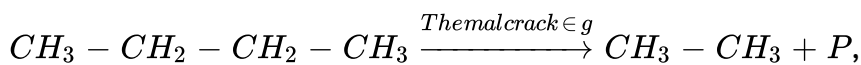


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62. Two equations are given below. $CH \equiv CH + HCl \rightarrow \dots A \dots$,
 $nA \rightarrow B$: Identify A and B.

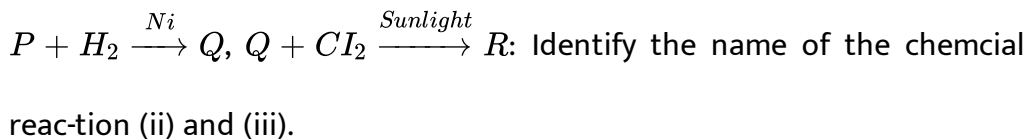
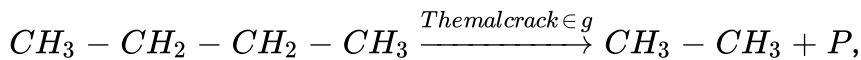
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63. Three equations are given below.



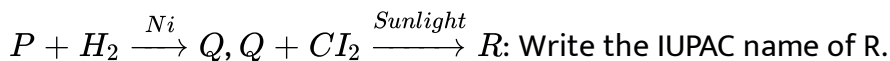
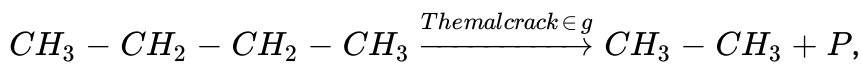
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64. Three equations are given below.



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65. Three equations are given below.



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66. Ethanol is an industrially important compound: What is the name of 8-10% solution of ethanol?

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67. Ethanol is an industrially important compound: How is it converted into rectified spirit?

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68. Ethanol is an industrially important compound: What is denatured spirit?



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69. Uses of some important organic compounds are given. Pick out the suitable compounds from the box.

**Power alcohol, Teflon, Polythene,
Ethanoic acid, Ethanol**

: For the preparation of rayon.



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70. Uses of some important organic compounds are given. Pick out the suitable compounds from the box.

**Power alcohol, Teflon, Polythene,
Ethanoic acid, Ethanol**

: For making the coating of inner surface of non-stick cookware.



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71. Uses of some important organic compounds are given. Pick out the suitable compounds from the box.

**Power alcohol, Teflon, Polythene,
Ethanoic acid, Ethanol**

: Solvent in paint industry.

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72. Uses of some important organic compounds are given. Pick out the suitable compounds from the box.

**Power alcohol, Teflon, Polythene,
Ethanoic acid, Ethanol**

: As fuel in motor vehicles.

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73. Some reactants, products and names of reaction are given in the table. Complete it.

| Reactant | Product | Name of chemical reaction |
|---|---|---------------------------|
| $\text{CH}_4 + \text{Cl}_2$ | CH_3Cl |a..... |
| $\text{CH}_3 - \text{CH}_2 - \text{CH}_3$ | $\text{CH}_4 + \dots\dots b \dots\dots$ | Thermal cracking |
| $\text{CH}_3 - \text{CH}_3 + \dots\dots c \dots\dots$ | $\text{CH}_3 - \text{CH}_2\text{Br}$ |d..... |
| $\text{CH}_3 - \text{CH}_3 + \text{O}_2$ | $\text{CO}_2 + \dots\dots e \dots\dots$ |f..... |
| $n\text{CH}_2 = \text{CH}_2$ |g..... |h..... |

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74. Pick out the suitable compounds from the box for the following reactions.



: Thermal

cracking

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75. Pick out the suitable compounds from the box for the following reactions.

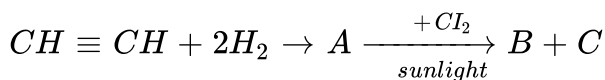


: Addition

Reaction

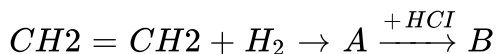
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76. Equation of some chemical Reactions are given below. Complete it.



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77. Equation of some chemical Reactions are given below. Complete it.



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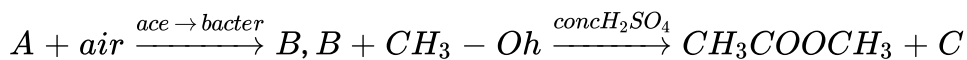
78. Teflon used as nonstick polymer: Write the structure of the monomer of this. Write the IUPAC name.

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79. Teflon used as nonstick polymer: Write the reaction equation for the preparation of the monomer.

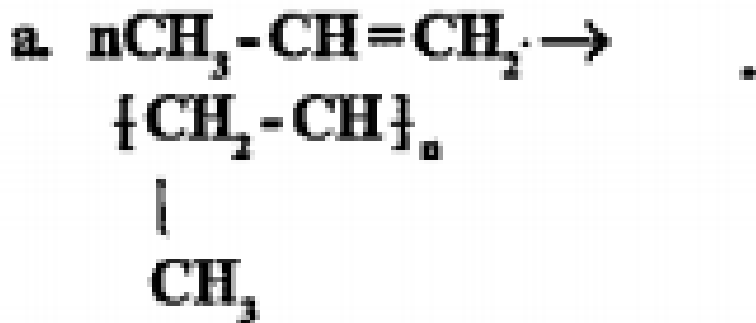
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80. Recognize and write A, B, C from following equation.



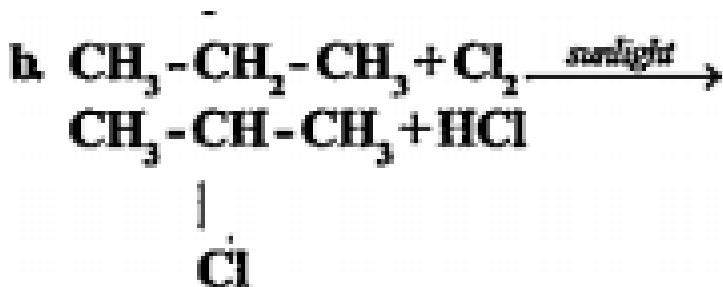
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81. Some chemical equations are given below. Write each type of chemical reaction.



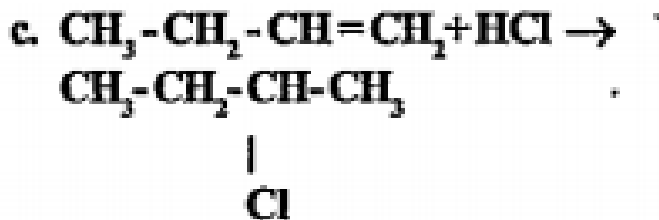
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82. Some chemical equations are given below. Write each type of chemical reaction.



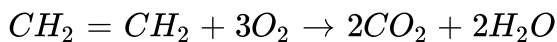
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83. Some chemical equations are given below. Write each type of chemical reaction.



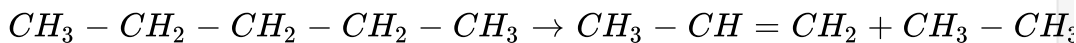
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84. A chemical equation is given below. Write type of chemical reaction.



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85. Some chemical equations are given below. Write each type of chemical reaction.



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86. write the reactions on heating pentane: In the absence of air.

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87. Write the reaction on heating pentane: In the presence of air

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88. on heating pentane: Write the name of the reaction 1)In the presence of air, 2) In the absence of air

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89. Look at the following reactions on heating pentane: 1)In the presence of air, 2) In the absence of air. Write the chemical equation for the reactions.

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90. Define the following: Molasses

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91. Wood spirit is

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92. Define the following: Vinegar

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93. Define the following: Esters

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94. Chloroform can be prepared from Methane: What is the chemical formula of chloroform?

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95. Chloroform can be prepared from Methane: What is the name of reaction when chloroform is prepared from methane?

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96. Chloroform can be prepared from Methane: Write the Chemical equation for the reaction.

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97. Methyl Ethanoate is an ester: Write the structural formula.

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98. Chloroform can be prepared from Methane: Write the Chemical equation for the reaction.

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99. Chloroform can be prepared from Methane: Write the Chemical equation for the reaction.

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100. Fill in the following: $CO + 2H_2 \xrightarrow[200atm]{catalyst, 375K} \dots\dots\dots$

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101. Fill in the following: $CO + 2H_2 \xrightarrow[200atm]{catalyst, 375K} \dots\dots\dots$

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102. Fill in the following: $C_{12}H_{22}O_{11} + H_2O \xrightarrow[200atm]{catalyst, 573K} \dots\dots\dots + \dots\dots\dots$

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103. Write one use of each of the following: Methanol

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104. Write one use of each of the following: Power alcohol

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105. Write one use of each of the following: Butane

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106. Write the reason for the following statement: Hydrocarbons like butane are used as fuel.

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107. Write the reason for the following statements: Drinking denatured spirit is harmful.

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108. Write the reason for the following statements: Esters are used in perfumes and fruit juice.

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109. Write structural formula of following compounds: Benzene

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110. Write structural formula of following compound: Phenol

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111. Write structural formula of following compound: Toluene

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112. Ethyne is a compound that belongs to the class of alkynes: Write chemical formula of ethyne.

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113. Ethyne is a compound that belongs to the class of alkynes: Write the chemical equation for the preparation of following compound from ethyne: PVC

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114. Ethyne is a compound that belong to the class of alkynes: Write the chemical equation for the preparation of following compound from ethyne: 1,2-dichloro ethane



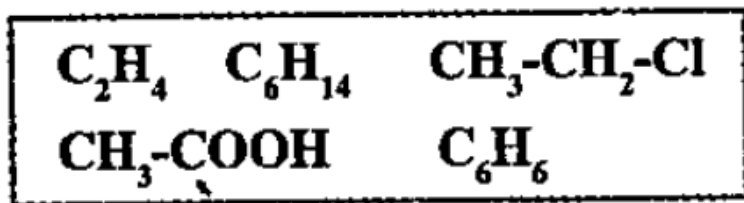
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115. Ethyne is a compound that belong to the class of alkynes: Write the chemical equation for the preparation of following compound from ethyne: Chloro ethane



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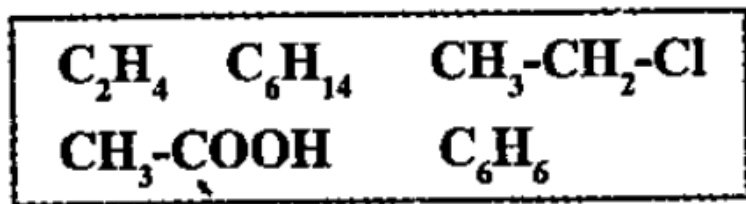
116. Molecular formula of some compounds are given in the box.



Which is aromatic compound?

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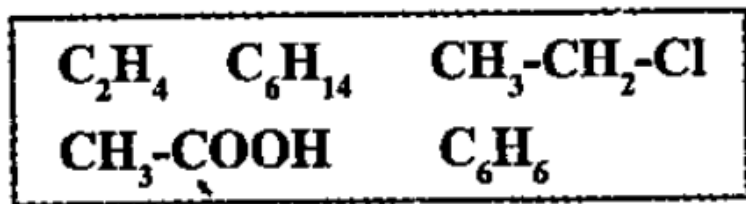
117. Molecular formula of some compounds are given in the box.



Which can be prepared by substitution reaction?

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118. Molecular formula of some compounds are given in the box.



Which monomer is used in preparation of polythene?

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119. Answer the following: Name the reaction for the conversion of sugar solution into ethanol.

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120. Answer the following: Chemical involved in grape spirit.

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121. Answer the following : Name the monomer of PVC.

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122. Answer the following : Products formed during cracking of propane.

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Exercise

1. Fill in the blanks: Methanol-Wood Spirit ::Ethanol-.....

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2. Fill in the blanks: Methanol-Wood Spirit ::Ethanol-.....

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3. Some organic compounds are given below:

$[CH_3 - OH, CH_3 - COOH, CH_3 - CH_3, CH_3 - O - CH_3]$: Which

of the above compounds are used to produce Esther?

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4. Some organic compounds are given below:

$[CH_3 - OH, CH_3 - COOH, CH_3 - CH_3, CH_3 - O - CH_3]$: write

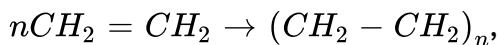
their IUPAC names.

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5. What is meant by esterification? Write a chemical equation for this.

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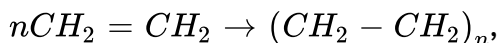
6. The equation of some reaction are given below.



: Write the name of the above reactions.

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7. The equation of some reaction are given below.



: Write the name of product obtained in the second reaction (IUPAC name)

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8. Write the chemical equation used for the preparation of propyl ethanoate.

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9. What is the maximum number of electrons that can be accommodated in 'f' subshell? (2,6,10,14)

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10. Which is the gas liberated when metals react with dilute acids?

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11. Find relation and fill in the blank:- Bauxite:Leaching, Tinstone:.....

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12. The monomer of natural rubber is(ethene, vinly chloride, isoprene, tetrafluoro ethene)

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13. The volume of one mole of any gas at STP is

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14. Select from the box, the correct gas law related to the given situations. (Boyle's law, Charles law, Avagadro's law): An inflated balloon kept at sunlight bursts after sometime.

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15. Select from the box, the correct gas law related to the given situations. (Boyle's law, Charles law, Avagadro's law): The size of an air bubble rising from the bottom of an aquarium increases.

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16. Select the correct subshell electronic configuration of ^{24}Cr from the following: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^4 4s^2$, $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$

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17. Select the correct subshell electronic configuration of ^{24}Cr from the following: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^4 4s^2$, $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$:

Write the reason for selecting this configuration.

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18. Which one of the following metals is refined by liquation? (Zinc, iron, Copper, Tin)

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19. (Zinc, iron, Copper, Tin) Among this metals which is used to conducting electricity. Which property of metal is made use of there?

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20. Give the structural formulae of the given compounds Propene, But-1-yne

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