



## CHEMISTRY

### BOOKS - USHA CHEMISTRY (ODIA ENGLISH)

#### HALOALKANES AND HALOARENES ,ALCOHOLS,PHENOLS AND ETHER

#### Exercise

1. The reaction of methyl bromide with sodium metal results ethane and the reaction is known as

A. Willamson reaction

B. Kolbe's reaction

C. Wurtz reaction

D. none of these

**Answer:**



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2. Methyl iodide reacts with sodium ethoxide to form

\_\_\_\_\_.

A. ethyl iodide

B. Methyl ethanoate

C. ethyl methyl ether

D. dimethyl ether

**Answer:**



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3. When ethyl bromide is treated with alcoholic KOH, results

- A. ethyl alcohol
- B. ethylene
- C. potassium ethoxide
- D. all of these

**Answer:**



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4.  $CH_3 - CH_2 - CH_2 - Br \xrightarrow{KOH} A \xrightarrow{HBr} B$  In this reaction 'B' is

- A. n-propyl bromide
- B. n-propyl alcohol
- C. propylene
- D. iso-propyl bromide

**Answer:**



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5. Benzene reacts with methyl chloride in presence of anhy,  $AlCl_3$ , to give \_\_\_\_\_

A. toluene

B. chlorobenzene

C. benzyl chloride

D. berzal chloride

**Answer:**



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6. When BDC is treated with  $CuBr$  in presence of  $HBr$  results

A. bromobenzene

B. benzene

C. benzene dinzonium bromide

D. chlorobenzene

**Answer:**



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7. Addition of HBr to propene in presence of  $H_2O_2$  mainly forms

A. 1-Bromopropane

B. 2-Bromopropane

C. Propan-2-ol

D. Propan-1-ol

**Answer:**



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**8. Which of the following is acidic in nature ?**

A. ethyl alcohol

B. aniline

C. phenol

D. none of these

**Answer:**

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9. Phenol reacts with an aqueous solution of bromine giving a white precipitate of

- A. o-bromophenol
- B. m-bromophenol
- C. Bromobenzene
- D. 2, 4,6-Tribromophenol

**Answer:**

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10. Picric acid is

- A. phenol
- B. Nitrobenzene
- C. 2, 4, 6, - Trinitrophenol
- D. o-hydroxy benzoic acid

**Answer:**



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11. Aniline reacts with mixture of  $NaNO_2$  and HCl at  $5^\circ$

C to give

A. BDC

B. phenol

C. Chlorobenzene

D. nitrobenzene

**Answer:**



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12. Phenol reacts with  $CCl_4$  in presence of aqueous alkali at 340 K to give

A. salicylaldehyde

B. o-hydroxy benzaldehyde

C. o-chlorophenol

D. salicylic acid

**Answer:**

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**13.** The compound which can form intra molecular H-bond is

A. p-hydroxy benzaldehyde

B. o-hydroxy benzaldehyde

C. m-nitro phenol

D. p-bydroxy benzoic acid

**Answer:**

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**14.** Which of the following is not an use of phenol?

- A. antiseptic
- B. preparation of bakelite
- C. preparation of phenolphthalein
- D. as an insecticide

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15. Which of the following does not contain carboxylic group?

A. carbolic acid

B. vinegar

C. oxalic acid

D. salicylic acid

**Answer:**

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16.  $C_6H_6 + CH_3Cl \xrightarrow{AlCl_3} C_6H_5CH_3 + HCl$  The reaction is called as \_\_\_

- A. Etard's reaction
- B. Friedel Craft's reaction
- C. Sandmeyer reaction
- D. Kolbe's reaction

**Answer:**

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**17. Amonolysis of alkyl halide in a senled tube results**

- A.  $1^\circ$  amine only
- B. mixture of  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  amines

C. mixture of  $1^\circ$ ,  $2^\circ$ ,  $3^\circ$  amines together with quaternary salt

D. mixture of  $2^\circ$  and  $3^\circ$  amines

**Answer:**

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18.  $SN^1$  reaction in alkyl halide leads to

A. inversion of configuration

B. retention of configuration

C. racemisation

D. none of these

**Answer:**

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19. Chloroform on exposure to light and air gives a poisonous substance called as \_\_\_

- A. phosgene
- B. chloral
- C. chloropicrin
- D. hydrogen chloride

**Answer:**

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20. Which of the following is the suitable reagent to get alkyl chloride from alcohol ?



D. all of these

**Answer:**



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21. When 2-Bromobutane is treated with KOH(alc) the major product is

- A. but-1-ene
- B. but-2-ene
- C. butan-2-ol
- D. butan-1-ol

**Answer:**

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22. The order of reactivity of different alkyl halides towards  $SN^2$  type reaction is

A.  $3^\circ > 2^\circ > 1^\circ$

B.  $1^\circ > 2^\circ > 3^\circ$

C.  $2^\circ > 3^\circ > 1^\circ$

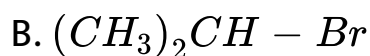
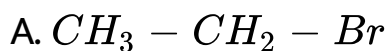
D.  $1^\circ > 3^\circ > 2^\circ$

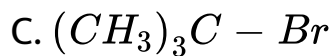
**Answer:**



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**23.** Between  $\text{CH}_3\text{-I}$  and  $\text{CH}_3\text{-Br}$  which undergoes faster  $\text{SN}^2$  reaction?





D. All have same reactivity

**Answer:**

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**24.** Which of the following is responsible for ozone layer depletion ?



B. Freon

C. DDT

D. carbon tetrachloride

**Answer:**

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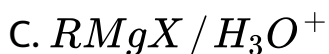
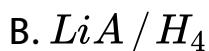
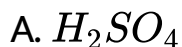
25. Phenol on oxidation with acidified sodium dichromate gives a pink coloured substance of \_\_\_

- A. cresol
- B. quinol
- C. benzoquinone
- D. hydroquinone

**Answer:**

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26. Aldehydes can be converted to alcohol without reduction by means of



**Answer:**



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27. Which among the following is most acidic ?

A. Phenol

B. 4-methyl phenol

C. 3-nitrophenol

D. benzyl alcohol

**Answer:**



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**28.** The enzyme \_\_\_ converts glucose to ethyl alcohol.

A. inverage

B. zymase

C. maltase

D. diastase

**Answer:**



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29. Anisole undergoes bromination reaction in ethanoic acid giving \_\_\_\_\_ as the major product.

A. m-bromo anisole

B. p-bromoanisole

C. o-bromonisole

D. 2,4,6-tribromoanisole

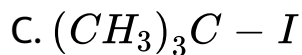
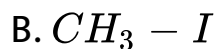
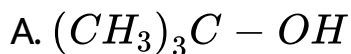
**Answer:**





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30. Write the major product in the following reaction



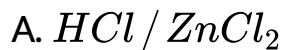
D. Pic

**Answer:**



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31. Alkyl chloride can be obtained from alcohol by reacting with



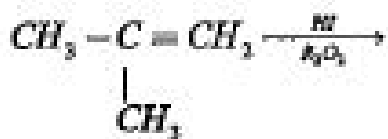
D. all of these

**Answer:**



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32. Write the product formed in the reaction



- (a)  $\text{CH}_3 - \underset{\text{CH}_3}{\overset{\text{I}}{\text{C}}} - \text{CH}_3$       (b)  $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \overset{\text{I}}{\text{CH}_2}$
- (c)  $\text{CH}_3 - \underset{\text{I}}{\text{CH}} - \text{CH}_2 - \text{CH}_3$       (d) all of these



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33. The reaction  $R - X + NaI \rightarrow R - I + NaX$  is called as

A. Frankland reaction

B. Swarts reaction

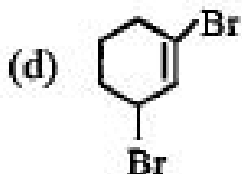
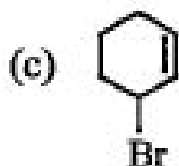
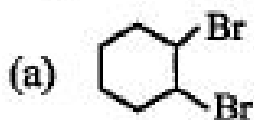
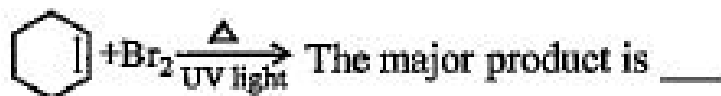
C. Finkelstein reaction

D. Williamson reaction

Answer:

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34. The major product is \_\_\_\_\_



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35. Which of the following metals react with alkyl halide giving an organo-metallic compound ?

A. Na

B. Mg

C. Zn

D. all of these

**Answer:**



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36. Aryl halides mostly undergo

A. electrophilic substitution

B. nucleophilic substitution

C. elimination reaction

D. addition reaction

**Answer:**



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**37.** Benzyl alcohol and phenol can be distinguished by the reagent

A.  $FeCl_3$

B.  $PCl_5$

C. Lucas reagent

D. none of these

**Answer:**

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**38.** An alkyl bromide when reacts with alcoholic solution of caustic potash produces a single alkene. The alkene on ozonolysis gives mixture of acetone and formaldehyde.

What is the alkyl bromide ?

A. 1-Bromo-2-methyl propane

B. 2-Bromo-2-methyl propane

C. 2-Bromo propane

D. 1-Bromo-2- methyl butane

**Answer:**

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**39.**  $3^\circ$  -alkyl halides are less reactive towards  $SN^2$  type mechanism due to

- A. inductive effect
- B. polar character
- C. steric hindrance
- D. instability



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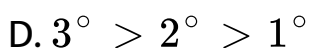
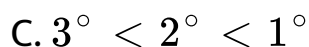
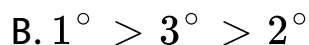
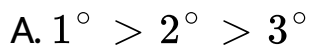
40. Toluene reacts with  $Cl_2$  in presence of  $FeCl_3$  giving

- A. benzyl chloride
- B. m-chlorotoluene
- C. O-chlorotoluene
- D. mixture of o- and p-chlorotoluene

**Answer:**

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41. The order of reactivity of alcohols towards Lucas reagent is

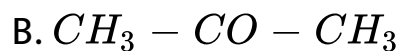
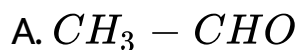


**Answer:**

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42. Which of the following on reaction with methyl magnesium iodide followed by hydrolysis will give 2-

methylpropan-2-ol ?



D. Pic

**Answer:**



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**43.** Which of the following is most reactive towards Lucas reagent ?

A. iso-propyl alcohol

B. sec-butyl alcohol

C. n-butyl alcohol

D. ter-butyl alcohol

**Answer:**



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**44.** Sodium phenoxide when heated with  $CO_2$  under pressure at  $125^\circ C$  and followed by acidification gives

A. Sodium benzoate

B. Sodium salicylate

C. Salicylic acid

D. Salicylaldehyde

**Answer:**



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**45.** When phenol is heated with zinc dust, the product is

A. toluene

B. benzene

C. cyclohexane

D. phenoxide

**Answer:**



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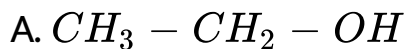
46. Phenol is more acidic than

- A. ethanoic acid
- B. p-nitrophenol
- C. p-methoxyphenol
- D. o-chlorophenol

**Answer:**

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47. Which of the following alcohol give positive iodoform test ?



C.

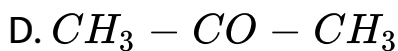
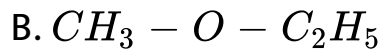
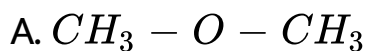
D. all of these

**Answer:**



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48. The functional isomer of propyl alcohol is \_\_\_\_



**Answer:**



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**49.** The -OH group of alcohol can be replaced by



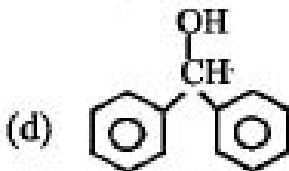


D. all of these

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50. Which of the following is most acidic ?



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51. Phenol when heated with mixture of conc.  $HNO_3$  and Conc.  $H_2SO_4$  results

A. o-nitrophenol

B. p-nitrophenol

C. m-nitrophenol

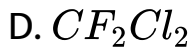
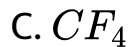
D. picric acid

**Answer:**



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52. Which of the following is used as refrigerant?

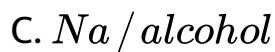
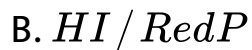
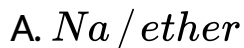


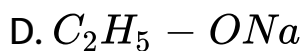
**Answer:**



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53. The reagent required to convert  $C_2H_5I$  to  $C_2H_6$  is



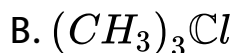
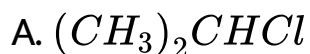


**Answer:**



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54. The compound which shows complete stereochemical inversion product during  $SN^2$  reaction is



C.

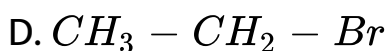
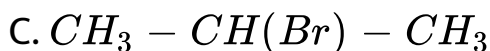
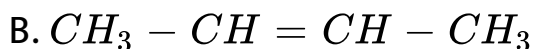
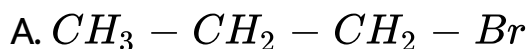


**Answer:**



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55. Which of the following will react with  $Na/ether$  to give 2,3-dimethyl butane ?



**Answer:**



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56. On heating phenyl bromide and methyl bromide with sodium in dry ether results

A. Toluene

B. Xylene

C. bromobenzene

D. 1,2-dibromno benzene

**Answer:**



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57. The product 'X' is



The product 'X' is



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58. Fluorobenzene can be prepared by

A. direct fluorination of benzene with  $\text{F}_2$  gas

B. reaction of Fluoroboric acid with BDC

C. reacting bromobenzene with NaF

D. none of these

**Answer:**

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**59.** Alkyl halides are less soluble in water, as

A. they are polar in nature

B. the C-X bond is stronger

C. they do not form H-bond with water

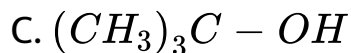
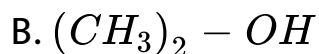
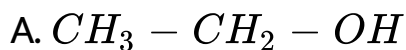
D. all of these



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60. Which of the following gives red colour in Victor Meyer's test

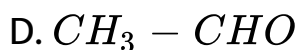
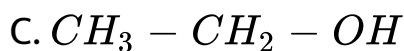
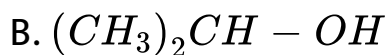
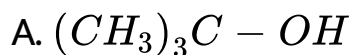


D. none of these

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61. Which of the following is not readily oxidised by acidified  $K_2Cr_2O_7$  ?



**Answer:**



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62. Heating of methyl alcohol with conc.  $H_2SO_4$  results

A. methane

B. methyl hydrogen sulphate

C. ethane

D. dimethyl ether

**Answer:**

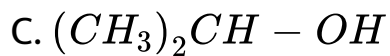


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**63.** Which of the following will give yellow precipitate with alkaline solution of iodine ?

A.  $CH_3 - CH_2 - OH$

B.  $CH_3 - CHO$



D. all of these

**Answer:**

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**64.** When phenol is treated with bromine solution in carbon disulphide the major product is

A. o-Bromophenol

B. p-Bromophenol

C. 2, 4, 6-Tribromophenol

D. a mixture of o- & p-bromophenol

**Answer:**

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65. When sodium benzene sulphonate is fused with sodium hydroxide the product formed is

- A. Phenol
- B. benzene
- C. sodium phenoxide
- D. none of these

**Answer:**

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66. The order of reactivity of benzene, chlorobenzene & phenol towards electrophilic substitution is

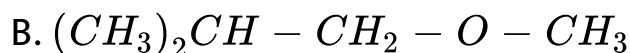
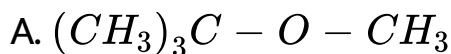
- A. benzene > chlorobenzene > phenol
- B. phenol > chlorobenzene > benzene
- C. chlorobenzene > phenol > benzene
- D. phenol > benzene > chloro-benzene

**Answer:**

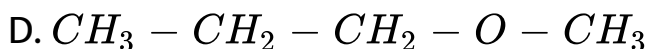


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67. Among the following ethers, which will produce methyl alcohol on treatment with HI ?



C. Pic



**Answer:**

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68. Which of the following reacts with Lucas reagent fastest and by what mechanism ?

A. 2° alcohol by  $SN^2$

B. 1° alcohol by  $SN^2$

C. 3° alcohol by  $SN^2$

D. 3° alcohol by  $SN^1$

**Answer:**

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**69.** Salicylic acid can be prepared by the reaction of phenol with

A.  $CCl_4 / NaOH$

B.  $CO_2$

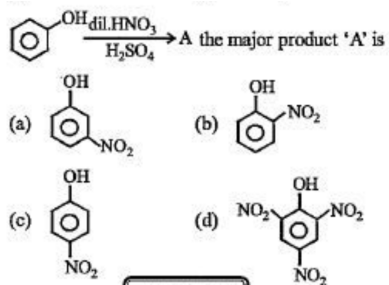


C. formic acid

D.  $CHCl_3 / NaOH$

Answer:

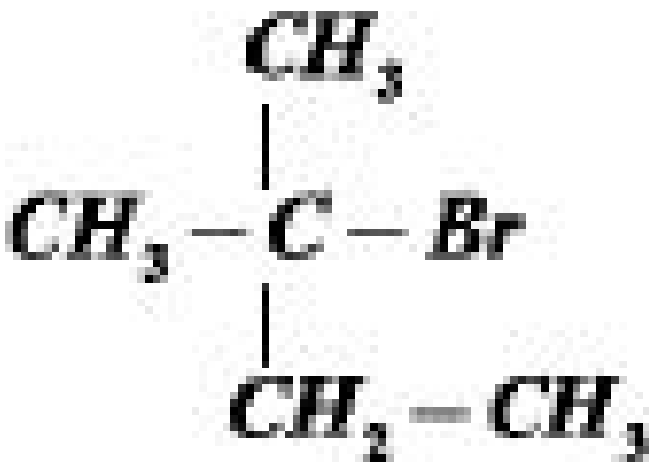
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70. the major product 'A' is

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71. Write the IUPAC name of



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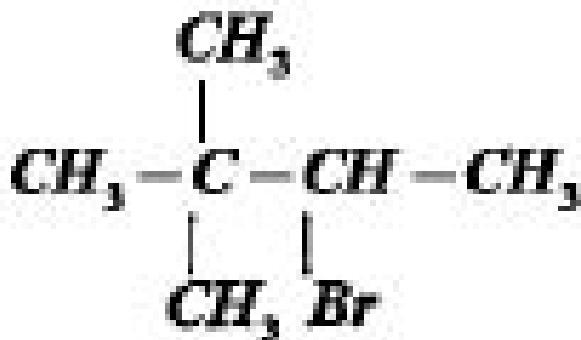
72. Write the equation for preparation of 1-iodobutane from Butan-1-ol.

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73. Which type of alkyl halides undergo  $SN^2$  type reaction ?

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74. Predict the alkene formed by dehydrohalogenation



of

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75. Do the conversion : Toluene  $\rightarrow$  benzyl alcohol

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76. Do the conversion : Benzene  $\rightarrow$  Diphenyl

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77. Complete the equation :

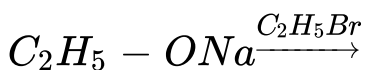


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78. Complete the equation :  $(CH_3)_3C-Br + KOH \xrightarrow[\Delta]{\text{ethanol}}$

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79. Complete the equation and name the reaction



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80. Why chlorobenzene is less reactive than alkyl chloride towards nucleophilic substitution reaction?

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**81.** Arrange the following in increasing order of reactivity towards  $S_N^2$  reaction (2-Bromobutane, 1-Bromobutane, and 2-Bromo 2-Methyl butane)

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**82.** Do the conversion : n- propyl alcohol  $\rightarrow$  iso-propyl alcohol

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**83.** How can you convert ethanol to propanenitrile

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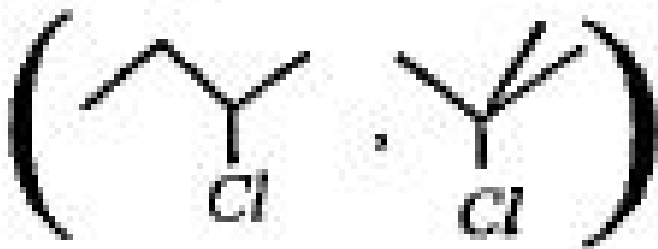
84. Complete the equation :  $C_2H_5Br \xrightarrow{Mg}$

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85. Complete the equation :  $C_2H_5 - Br \xrightarrow{Na}$

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86. Which of the following alkyl halide undergoes faster  $SN^1$  reaction?



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87. Write one use each of freon and Iodoform.

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88. 100% pure ethyl alcohol is called as \_\_\_\_\_

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89. Ethylamine reacts with nitrous acid to produce

-----

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90. Dehydration of Butan-2-ol produces But-2-ene as major product according to which rule ?

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91. Grignard reagent reacts with \_ to give  $1^\circ$  alcohol

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92. Sodium phenoxide can be converted to salicylic acid by reacting with \_\_\_\_\_ and the reaction is called as \_\_\_\_\_

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93. Electrophilic substitution in phenol takes place at \_\_\_\_\_ position.

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94. Give two uses of formaldehyde.

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95. The formation of phenol from chlorobenzene is an example of \_\_\_\_\_ substitution and the reaction is called as \_\_\_\_\_

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96. Hydrogen is the lightest element but helium has lowest boiling point why ?

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97. Explain, why ethanol is miscible in water in all proportion.

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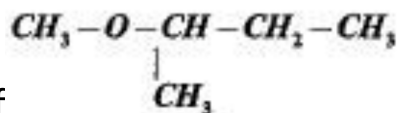
98. Give the equation for the following reaction :  
Bromine water with phenol.

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99. Write down the products of the following reactions :  
Phenol is treated with  $CCl_4$  in presence of NaOH.

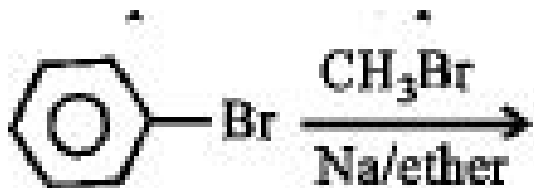
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100. Write the IUPAC name of



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101. Complete the equation and name the reaction.



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102. Write IUPAC name of \_\_\_\_\_ of \_\_\_\_\_



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**103.** Name the reagents used in Oxidation of  $1^\circ$  - alcohol to aldehyde.

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**104.** Formic acid and formaldehyde can be distinguished from each other by

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**105.** Sulphonation of phenol gives \_\_\_\_\_

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106. Benzene reacts with  $Cl_2$  in presence of direct sunlight to give \_\_\_\_\_

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107. Aniline reacts with mixture of  $NaNO_2$  and HCl at  $5^\circ C$  to give

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108. How can you account for the low reactivity of 'Cl' atom in chlorobenzene ?

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**109.** Which reagent can be used to distinguish between ethyl alcohol and phenol ?

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**110.** Write two uses of phenol.

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**111.** Write the products formed when ethyl alcohol is heated with conc.  $H_2SO_4$  at different temperature.

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112. Write the products formed when sodium phenoxide is treated with methyl bromide.

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113. What happens when anisole is treated with bromine solution in ethanoic acid ?

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114. Complete the equation :





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115. Write the major product in the following reaction



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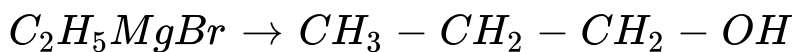
116. Write the isomeric alcohols with  $MF = C_4H_{10}O$

are classify them.



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117. Do the conversion :

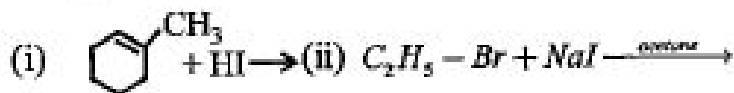


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118. What is racemic mixture ? Give an example.

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119. Complete the equation :



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120. Complete the equation :  $C_2H_5 - Br + NaI \xrightarrow{\text{acetone}}$

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121. Between  $CH_3-I$  and  $CH_3 -Br$  which undergoes faster  $SN^2$  reaction?

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122. Do the conversion 1-Bromopropane to 2-Bromopropane and vice versa.

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**123.** What happens when methyl chloride is treated with potassium cyanide ?

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**124.** Phenol is more acidic than

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**125.** What happens when ethyl iodide is treated with aqueous KOH ?

 [Watch Video Solution](#)

**126.** Arrange the following in increasing order of reactivity : (R-Cl, R-Br, R-I)

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**127.** Do the conversion : ter-butyl bromide  $\rightarrow$  isobutyl bromide.

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**128.** How can you prepare chlorobenzene from benzene?

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**129.** What happens when bromine solution in water is added to phenol ?

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**130.** Explain why chlorobenzene is less reactive than ethyl chloride.

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**131.** Discuss Reimer-Tiemann reaction.

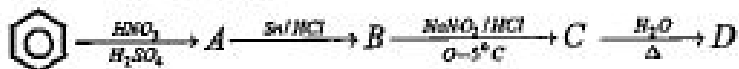
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132. How can you prepare phenol from benzene ? Write the steps only.

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133. Identify A, B, C, D

Identify A, B, C, D



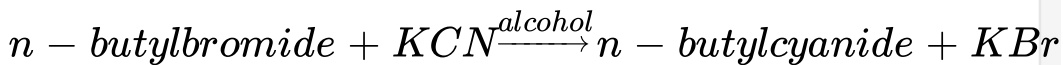
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134. Give an example of Wurtz – Fittig reaction.

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135. Suggest a possible mechanism for the following reaction :



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136. Which would undergo  $SN^1$  reaction faster in the following pair and why ? ( $CH_3 - CH_2 - Br$  &  $(CH_3)_3C - Br$ )

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137.  $SN^1$  reaction are accompanied by racemisation in optically active alkyl halide. Explain.

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138. Give a comparison between  $SN^1$  and  $SN^2$  type reactions .

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139. Arrange the following in decreasing order of reactivity towards  $SN^2$  reaction (1-Bromopropane, 2-Bromo-2-methylpropane ,2-Bromopropane)

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**140.** The treatment of ethyl bromide with aqueous KOH results ethyl alcohol but in presence of alcoholic KOH, ethylene is the major product. Explain

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**141.** Give a chemical test to distinguish between chlorobenzene and benzyl chloride.

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**142.** How will you convert : Chlorobenzene to phenol



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143. How will you convert :Chlorobenzene to toluene ?



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144. What happens when methyl iodide is treated with sodium methoxide ?



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145. Explain, why  $SOCl_2$  is preferred over  $PCl_5$  for preparation of alkyl chloride from alcohol.

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**146.** What is Saytzeff rule ? Explain with an example.

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**147.** Write the mechanism of dehydration of ethyl alcohol.

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**148.** Give a chemical test to distinguish between ethyl alcohol and methyl alcohol.



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**149.** Do the conversion : Ethyl alcohol to Methyl alcohol

 [Watch Video Solution](#)

**150.** Do the conversion : Methyl alcohol  $\rightarrow$  ethyl alcohol

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**151.** Explain, why phenol is acidic, while ethyl alcohol is neutral.

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**152.** Compare the acidic strength of phenol, p-nitrophenol, p-cresol with reason.

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**153.** What is Fries rearrangement ?

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**154.** What is wurtz reaction ? Give an example.

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155. Do the conversion : Phenol to anisole

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156. How can you prepare phenol from benzene ? Write the steps only.

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157. What is Willámson synthesis?

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**158.** Which explains that O- nitrophenol is more volatile than p- nitrophenol:

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**159.** How can you prepare phenol by Dow's process?

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**160.** Explain, why -OH is called an ortho & para directing group.

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**161.** When phenol is treated with bromine solution in carbon disulphide the major product is

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**162.** How does phenol react with Dilute  $HNO_3$ ?

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**163.** How does anisole react with methyl chloride ?

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**164.** How can you prepare alcohol from acetaldehyde without using reducing agent ?

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**165.** How maltose is converted to ethyl alcohol by fermentation process ?

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**166.** What happens when ethyl alcohol is heated with acidified potassium dichromate ?

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**167.** What happens when vapours of ter-butyl alcohol are passed over heated copper at  $300^{\circ}\text{C}$ ?



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**168.** Give a chemical test to distinguish between Isopropyl alcohol & n-propyl alcohol.



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**169.** What are the products formed when ethyl acetate is reduced with  $\text{LiAlH}_4$ ?



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170. How can you prepare phenol from cumene ?

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171. How can you distinguish  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  - alcohols by using Lucas reagent?

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172. Explain the order of reactivity of different type of alcohols towards dehydration with cone.  $H_2SO_4$ .

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173. Write two uses each of ethyl alcohol and methyl alcohol.

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174. What happens when phenol is treated with phthalic anhydride in presence of conc.  $H_2SO_4$  ?

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175. Why the taste alcoholic drinks is destroyed on exposure to air ?



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176. What is coupling reaction ? Give an example.

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177. What is esterification reaction ? Give an example.

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178. Do the conversion : n- propyl alcohol  $\rightarrow$  iso-propyl alcohol

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**179.** Do the conversion : isopropyl alcohol to n-propyl alcohol

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**180.** Do the conversion : Benzene to m-chloroaniline

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**181.** Compare the acidic strength of p-nitrophenol p-amino phenol with phenol

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**182.** What is wurtz reaction ? Give an example.

 [Watch Video Solution](#)

**183.** How does chlorobenzene react with sodium in dry ether.

 [Watch Video Solution](#)

**184.** What is Finkelstein reaction ?

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**185.** Describe with equation how alkyl halide can be prepared from alcohols.

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**186.** How does ethyl bromide react with Na ?

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**187.** How does ethyl bromide react with  $CH_3 - ONa$  ?

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**188.** When ethyl bromide is treated with alcoholic KOH, results

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**189.** How can you prepare chlorobenzene from benzene?

 [Watch Video Solution](#)

**190.** How can you prepare chlorobenzene from aniline ?

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**191.** "Direct iodination of benzene is difficult." Explain. Suggest an alternative route for the synthesis of iodo benzene.

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**192.** Write one electrophilic substitution reaction in chlorobenzene .

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**193.** Write two methods for preparation of ethyl iodide.

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194. How does ethyl iodide react with  $KCN_{(alc)}$

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195. How does ethyl iodide react with ammonia ?

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196. How does ethyl iodide react with Mg metal ?

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197. Give any two methods of preparation of ethyl alcohol.

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198. How does ethyl alcohol react with  $CH_3COOH$ ?

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199. How does ethyl alcohol react with iodine in presence of alkali ?

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**200.** How can you manufacture ethyl alcohol from starchy material ?

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**201.** Give the Victor-Meyer's method for distinction of different types of alcohol.

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**202.** Do the conversion : Ethanol  $\rightarrow$  propan-2-ol.

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**203.** How can you prepare bromobenzene by Sandmeyer's reaction ?

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**204.** Explain why chlorobenzene is less reactive than benzyl chloride.

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**205.** What is Fittig and Wurtz-Fittig reaction?

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**206.** Write down the products of the following reactions

: Toluene is treated with alkaline  $KMnO_4$ .



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**207.** Write down the products of the following reactions

: Benzene reacts with chlorine in presence of light.



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**208.** Write down the products of the following reactions

: Benzene diazonium chloride is treated with hypophosphorous acid solution.



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**209.** Write down the products of the following reactions  
: Phenol is treated with  $CCl_4$  in presence of NaOH.

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**210.** How is phenol obtained from sodium benzene sulphonate ?

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**211.** Explain the acidic character of phenol.

 [Watch Video Solution](#)

**212.** Discuss Reimer-Tiemann reaction.

 [Watch Video Solution](#)

**213.** How can you prepare phenol from chlorobenzene ?

 [Watch Video Solution](#)

**214.** What happens when phenol is heated with zinc dust

?

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215. Write the coupling reaction of BDC with phenol.



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