



CHEMISTRY

BOOKS - V PUBLICATION

HALOALKANES AND HALOARENES

Question Bank

1. Write structures of the following compounds i) 2-Chloro-3-Methylpentane ii) 1-Chloro-4 ethyl cyclohexane iii) 4 -Tert-Butyl 3-Iodoheptane iv) 1,4 -Dibromobut -2 - ene v) 1-Bromo-4-sec-butyl-2-Methyl benzene.

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

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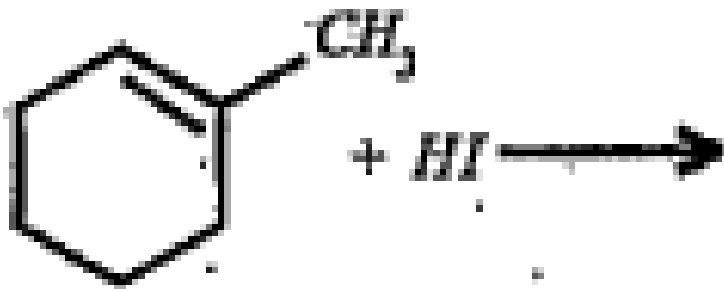
3. Write the structures of different dihalogen derivatives of propane.

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4. Among isomeric alkanes of molecular formula C_5H_{12} , identify the one that on photochemical chlorination yields 3 isomeric monochlorides

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5. Draw the structures of major monohaloproducts in each of the following :



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6. Arrange each set compounds in order of increasing boiling points.

Bromomethane, Bromoform, Chloromethane, Dibromomethane

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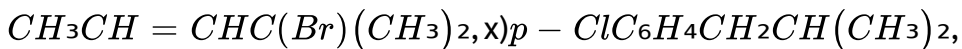
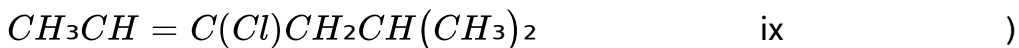
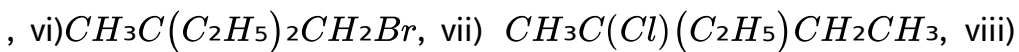
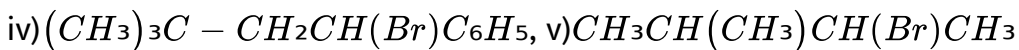
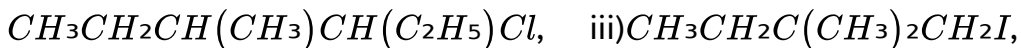
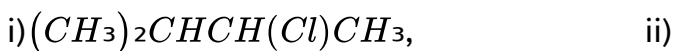
7. Which alkyl halide from the following pairs would you expect to react more rapidly by 'SN2' mechanism? Explain your answer

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8. In the following pairs of halogen compounds, which compound undergoes faster SN1 reaction?

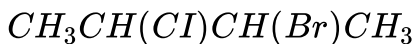
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9. Name the following halides according to IUPAC system and classify them as alkyl, allyl, benzyl-(primary, secondary, tertiary), vinyl or aryl-halides:



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10. Give the IUPAC names of the following compounds:



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11. Write the structures of the following organic halogen compounds.

- i. 2-Chloro-3-methylpentane ii. p -Bromochlorobenzene iii. 1-Chloro-4-ethylcyclohexane iv. 2 -(2 -Chlorophenyl)-1-iodooctane v. 2-Bromobutane - vi. 4 -tert-Butyl-3-iodoheptane vii. 1-Bromo-4-sec-butyl-2-methylbenzene viii. 1,4 -Dibromobut -2 -ene

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12. Which one of the following has the highest dipole moment? i.



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13. A hydrocarbon ' $C_5 H_{10}$ does not react with chlorine in dark. but gives a single monochloro compound $C_5 H_9 Cl$ in bright sunlight.

Identify the hydrocarbon

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14. Write the isomers of the compound having for C_4H_9Br

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15. Write the equations for the preparation of 1-iodobutane from i) 1-butanol ii) 1-chlorobutane iii). but-1-ene

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16. What are ambident nucleophiles ? Explain with the example.

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17. Which compound in each of the following pairs will react faster in S_N2 reaction with OH^- ? i. CH_3Br or CH_3I ii. $(\text{CH}_3)_3\text{CCl}$ or CH_3Cl

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18. Predict all the alkenes that would be formed by dehydrohalogenation of the following halides with sodium ethoxide in ethanol and identify the major alkene: i. 1-Bromo-1-methylcyclohexane ii. 2-Chloro-2-methylbutane iii. 2,2,3-Triethyl-3-bromopentane.

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19. How will you bring about the following conversions? i. Ethanol to but-1-yne ii. Ethane to bromo:ethene iii. Propene to 1 -nitropropane iv. Toluene to. benzyl alcohol v. Propene to propyne vi. Ethanol to ethyl fluoride vii. Bromomethane to propanone viii. But-1-ene to but -2-ene ix. 1 chlorobutane to n- octane x. Benzene to biphenyl.

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20. Explain why the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride? ii alkyl halides, though polar, are immiscible with water? iii. Grignard reagents should be prepared under anhydrous conditions?

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21. Give the uses of freon 12, DDT, carbon tetrachloride and iodoform.

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22. Write the structure of the major organic product in each of following reactions: i. $\text{CH}_2\text{CH}_3\text{CH}_2\text{Cl} + \text{NaI}$ / acetone, / heat ii. $(\text{CH}_3)_3\text{CBr} + \text{KOH}$ ethanol, / heat iii. $\text{CH}_3\text{CH}(\text{Br})\text{CH}_2\text{CH}_3 + \text{NaOH}$ water iv. $\text{C}_6\text{H}_5\text{ONa} + \text{C}_2\text{H}_5\text{Cl}$ v. $\text{CH}_2=\text{CH}-\text{CH}_2-\text{OH} + \text{SOCl}_2$ vi. $\text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}_2 + \text{HBr}$ vii. $\text{CH}_3-\text{CH}=\text{C}(\text{CH}_3)_2 + \text{HBr}$

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23. Write the mechanism of the following reaction $n\text{BuBr} + \text{KCN}$ gives $n\text{BuCN}$

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24. Arrange the compounds of each set in order of reactivity towards $\text{S}_\text{N}2$ displacement i. 2-Bromo-2-methylbutane, 1-Bromopentane, 2-

Bromopentane ii. 1-Bromo-3-methylbutane, 2- Bromo-2methylbutane,
3 -Bromo-2-methylbutane iii. 1-Bromobutane, 1-Bromo-2,2-
dimethylpropane, 1 -Bromo-2-methylbutane, 1-Bromo-3-methylbutane.

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25. Out of $C_6H_5CH_2Cl$ and $C_6H_5CHClC_6H_5$ which is more easily hydrolysed by aqueous KOH ?

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

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27. How the following conversions can be carried out? i. Propene to propan-1-ol

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28. The treatment of alkyl chlorides with aqueous KOH leads to the formation of alcohols, but in the presence of alcoholic KOH, alkenes are major products. Explain.

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29. Primary alkyl halide C_4H_9Br (a) reacted with alcoholic KOH to give compound (b). Compound (b) is reacted with HBr to give (c) which is an isomer of (a). When (a) is reacted with sodium metal it gives compound (d), C_8H_{18} which, is different from the compound formed when n-butyl bromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions.

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30. What happens when i. n-butyl chloride is treated with alcoholic ' KOH' ii. bromobenzene is treated with ' Mg' in the presence of dry ether, ii. chlorobenzene is subjected to hydrolysis, iv. ethyl chloride is treated with aqueous KOH, v. methyl bromide is treated with sodium in the presence of dry ether, vi. methyl chloride is treated with KCN?

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31. Explain the chemistry behind the formation of acid rain?

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32. Substantiate the following statements: i Chloroform is stored' in dark coloured bottles filled to the neck. li Iodoform gives a

precipitate with AgNO_3 on heating while chloroform does not.

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33. Compounds A and B are isomers with formula $\text{C}_2\text{H}_4\text{Cl}_2$. On treatment with aq. KOH, A gives a compound C which liberates 'H₂' gas on treatment with Na metal, B on treatment with aq. NaOH produces D which answers iodoform test. Give the structures of A, B, C and D and write the chemistry of reactions.

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34. Find true and false statements among the following and make corrections to the wrong statements. a. Chlorobenzene on further chlorination produces 'm'-dichlorobenzene b. 2 - Chlorobutane on reaction with alcoholic KOH produces 1 -butene. c. 1,1-Dichloroethane

on treatment with aq.NaOH produces acetaldehyde. d.

Trichloroacetaldehyde is also called chloritonte:

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35. Match the items of Column A,B,C

'(##VPU_HSS_CHE_XII_C10_E03_006_Q01##)'

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36. Substantiate the following. a. The use of freon as refrigerant is banned in several countries.

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37. Predict the major product of dehydrohalogenation of 4 - bromo -1 hexene.

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38. Out of the various possible isomer of C_7H_7Cl containing a benzene ring, suggest the structure with the weakest C-Cl bond

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

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40. Haloarenes are insoluble in water but soluble in benzene.

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41. Explain why thionyl chloride method is preferred for preparing alkyl chlorides from alcohols?

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42. Give one chemical test to distinguish between

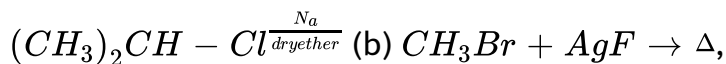
C_2H_5Br and C_6H_5Br

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43. Arrange the following halides in the increasing order of SN^2 reactivity? CH_3Cl , CH_3Br , CH_3CH_2Cl , $(CH_3)_2CHCl$.

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44. Write the main product in the following reactions (a)



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45. What happens when chlorine is passed through boiling toluene in the presence of sunlight?

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46. What effect should the following resonance of vinyl chloride have on its dipole moment

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47. Arrange the following in order of their increasing reactivity in nucleophilic substitution reactions: CH_3F , CH_3I , CH_3Br , CH_3Cl

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48. What is plane polarised light?

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49. What happens when iodoform is heated with silver powder? write chemical reaction?

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50. Under what conditions, 2-methyl propene can be converted into isobutyl bromide by hydrogen bromide?

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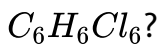
51. Which is a better nucleophile, a Bromide ion or an iodide ion?

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52. Give one example for Wurtz-Fittig reaction?

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53. Give the IUPAC and the trivial name of



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54. Arrange the following in increasing order of reactivity towards sulphonation with fuming sulphuric acid: benzene, toluene, methoxybenzene, chlorobenzene

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55. Give the structure of an optically active hydrocarbon (C_6H_{12}) which on catalytic hydrogenation gives an optically inactive compound (C_6H_{14})

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56. Write the reaction in which iodine ion replaces the diazonium group in a diazonium salt?

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57. Out of ethyl chloride and ethyl bromide, which has higher boiling point. why?

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58. How is DDT prepared?

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59. Write balanced equations for the following (i) When chloroform is oxidised by air(ii)chloroform reacts with chlorine

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60. In each of the following pairs of compounds, identify the compound which will undergo SN1 reaction faster?

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61. An organic compound (A) on analysis gives 24.24% C, 4.04 % H. Further, sodium, extract. of 1 g of A gives '2.90 g' of AgCl with acidified $AgNO_3$ solution. The compound (A) may be represented by '(C)', (B) an treatment with aqueous ' KOH' solution gives a dihydroxy compound, while (C) on similar treatment gives ethanal. Find out (A) (B) and (C) :

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62. A white precipitate was formed slowly when $AgNO_3$ was added- to a compound A with molecular formula $C_6H_{13}Cl$. Compound ' A' on treatment with hot alcoholic KOH gave a mixture of 2 isomeric alkenes B and C having formula C_6H_{12} . The mixture of B and C on ozonolysis furnished four compounds. (i) CH_3CHO (ii) C_2H_5CHO (iii) CH_3COCH_3 (iv) $(CH_3)_2CHCHO$. What are A, B and C.

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63. The following compound gives two products $C_6H_5CH_2CHClC_6H_5$ $\xrightarrow{alc. KOH}$. Write the structures of the products.

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64. Optically active 2 - iodobutane on treatment with NaI in acetone gives a product which does not show optical activity. Explain.

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65. Wurtz reaction fails in case of tert - alkyl halides. Explain?

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66. Explain why chlorination of n-butane in presence of light at 298 K gives a mixture of 72 % 2-chlorobutane and 28 % of 1-chlorobutane.

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67. p-chloronitro benzene undergoes nucleophilic substitution faster than chlorobenzene. Explain

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68. When bromobenzene is monochlorinated, two isomeric compounds *A* and *B* are obtained. Monobromination of *A* gives several isomeric products of molecular formula $C_6H_3ClBr_2$, while monobromination of *B* yields only 2 isomers *C* and *D*. Compound *C* is identical with one of the compounds obtained from bromination of *A*, however *D* is totally different from any of the isomeric compounds obtained from the bromination of *A*. Give structures of

A , B , C and D and also structures of four isomeric monobrominated products of A . Support your answer with reasoning.

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69. A hydrocarbon (A) was found to have vapour density 36. It forms only single monochloro substitution product. Suggest A .

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70. How will you distinguish 1-chloro-2-butene and 2-chloro-2-butene

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71. Toluene reacts with bromine in the presence of light to give benzyl bromide while in presence of $FeBr_3$, it gives p-bromotoluene

give explanation for the above observation.

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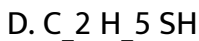
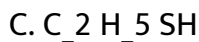
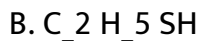
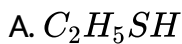
72. Among the following, the molecule with the highest dipole moment is



Answer: A

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73. Among the following, the strongest nucleophile is : A) C_2H_5SH B) CH_3COO^- C) CH_3NH_2 D) $NCCH_2^-$

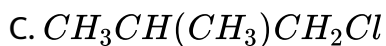
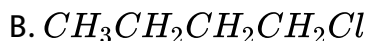


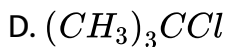
Answer: A



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74. Which of the following compounds has the highest boiling point

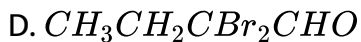
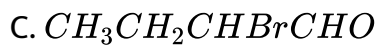
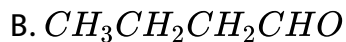
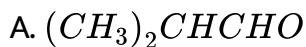




Answer: B

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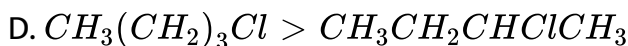
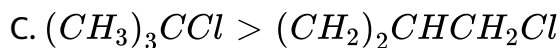
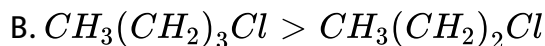
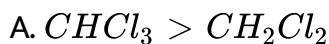
75. Which of the following compounds is expected to be optically active?



Answer: C

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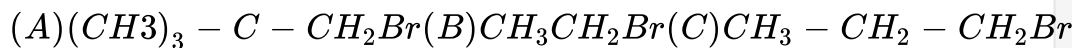
76. Which one of the following is not the correct order of boiling point of the alkyl/arylhalides



Answer: C

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77. In a SN^2 substitution reaction of the type
 $R - Br + Cl^- \xrightarrow{DMF} R - Cl + Br^-$ which one of the following has
the highest relative rate?



A. F

B. CH₃CH₂Br

C. CH₂CH₂CH₂Br

D. F

Answer: B



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78. Nucleophilicity order is correctly represented by : (1)CH₃⁻ > OH⁻ > F⁻ > NH₂⁻ > HO⁻ > F⁻ > NH₂⁻ > F⁻ > HO⁻ > CH₃⁻

A. CH₃⁻ > NH₂⁻ > HO⁻ > F⁻

B. CH₃⁻ > NH₂⁻ > OH⁻ > F⁻

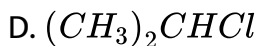
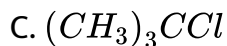
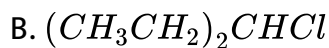
C. CH₃⁻ > NH₂⁻ > OH⁻ > F⁻

D. NH₂⁻ > F⁻ > OH⁻ > CH₃⁻

Answer: C

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79. The organic chlorine compound which shows complete stereochemical inversion during a SN^2 reaction is



Answer: A

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80. The order of reactivities of the following alkyl halides for a SN^2 reaction is

A. $R F > R Cl > R Br > R I$

B. $R F > R Br > R Cl > R I$

C. $R Cl > R Br > R F > R I$

D. $R I > R Br > R Cl > R F$

Answer: D

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81. Which of the following is correct order of decreasing SN^2 reactivity

A. $R_2CHX > R_3CX > RCH_2X$

B. $RCH_2X > R_3CX > R_2CHX$

C. $RCH_2X > R_2CHX > R_3CX$



(X- halogen)

Answer: C

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82. The SN^2 reactivity of the following halides will be in the order

(i) $(CH_3)_3CBr$ (ii) $(C_6H_5)_2CHBr$ (iii) $(C_6H_5)_2C(CH_3)Br$ (iv)
 $(CH_3)_2CHBr$ (v) C_2H_5Br

A. (v) > (iv) > (i) > (ii) > (iii)

B. (ii) > (iii) > (v) > (ii) > (iv)

C. (i) > (iii) > (v) > (i) > (iv)

D. (v) > (i) > (i i) > (i v) > (i i i)

Answer:



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83. Which of the following shows SN^2 reaction most readily : $FFFF$

A. F

B. F

C. F

D. F

Answer: B

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84. The reaction is described FIGURE

A. SE^2

B. SN'

C. SN^2

D. SN^{circ}

Answer: C



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85. The reactivity order of halides for dehydrohalogenation is

A. $\text{R-F} > \text{R-Cl} > \text{R-Br} > \text{R-I}$

B. $\text{R-I} > \text{R-Br} > \text{R-Cl} > \text{R-F}$

C. $\text{R-I} > \text{R-Cl} > \text{R-Br} > \text{R-F}$

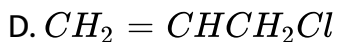
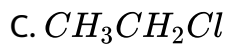
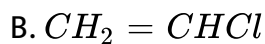
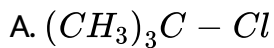
D. $\text{R-F} > \text{R-I} > \text{R-Br} > \text{R-Cl}$

Answer: B



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86. Which of the following is least reactive in a nucleophilic substitution reaction?



Answer: B



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87. Tertiary alkyl halides are practically inert to substitution by SN^2 mechanism because of

A. insolubility

B. instability

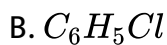
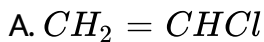
C. inductive effect

D. steric hindrance

Answer: D

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88. Which of the following is most reactive towards nucleophilic substitution reaction?



Answer:

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89. Which of the following undergoes nucleophilic substitution exclusively by SN^2 mechanism?

- A. Ethyl chloride
- B. Isopropyl chloride
- C. Benzyl chloride
- D. Chlorobenzene

Answer: C

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90. In the following groups: $-OAc(I)$, $-OMe(II)$

$-OSO_2Me(III)$ $-OSO_2CF_3(IV)$ the order of leaving group ability

is : $I > II > III > IV$ $IV > III > I, II$ $III > II > I > IV$

$II > III > IV > I$

A. IgtIIgtIIIgtIV

B. IVgtIIIgtI.II

C. IIIgtIIgtIgtIV

D. IIgtIIIgtIVgtI

Answer: B

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91. $CH_3Br + Nu^- \rightarrow CH_3 - Nu + Br^-$ The decreasing order of the rate of the above reaction with nucleophiles (Nu^-) $A \rightarrow D$ is

($Nu = (A)pho^-$, ($B)AcO$ ($C)HO^-$ ($D)CH_3O^-$:

$D > C > A > B$, $D > C > B > A$, $A > B > C > D$,

$B > D > C > A$

A. DgtCgtAgtB

B. DgtCgtBgtA

C. AgtBgtCgtD

D. BgtDgtCgtA

Answer: B

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92. For the following (a) I^- (b) Cl^- (c) Br^- the increasing order of nucleophilicity would be

A. $Br^- < Cl^- < I^-$

B. $I^- < Br^- < Cl^-$

C. $Cl^- < Br^- < I^-$

D. $I^- < Cl^- < Br^-$

Answer: C

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93. The addition of propene with HOCl proceeds via the addition of

- A. H^+ in the 1st step
- B. Cl^+ in the 1st step
- C. OH^- in the 1st step
- D. Cl^+ and OH^- in a single step

Answer: B

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94. In the presence of peroxide, hydrogen chloride and hydrogen iodide do not give anti Markovnikov's addition to alkenes because : both are highly ionic, one is oxidising and the other is reducing, one of the steps is endothermic in both the cases, all the steps are exothermic in both the reactions

- A. both are highly ionic
- B. one is oxidising and the other is reducing
- C. one of the steps is endothermic in both the cases
- D. all the steps is exothermic in both the reactions

Answer: C

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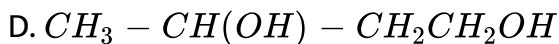
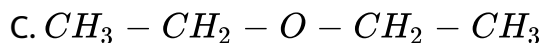
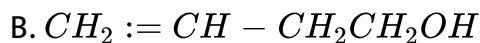
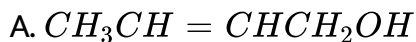
95. The decreasing order of nucleophilicity among the nucleophiles is

- (1) CH_3CO^-
- (2) CH_3O^-
- (3) CN^-
- (4) F^-

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96. The major product formed in the following reaction

$CH_3CH(Cl)CH_2CH_2OH$ react with aq, KOH is



Answer: D

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97. predict-the-product-c-obtained-in-the-following-reaction-of-1-

butyne $CH_3CH_2 - C \equiv CH + HCl \rightarrow B + HI \rightarrow C$

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98. FIGURE

A. FIGURE

B. FIGURE

C. FIGURE

D. FIGURE

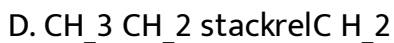
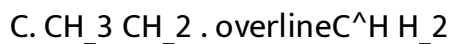
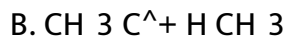
Answer: D

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99. The major product P in the following reaction is ' $\text{C H}_3\text{CH}=\text{CH}_2$ '
react with peroxide /HI.

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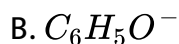
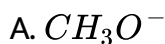
100. The intermediate during the addition of HCl to propene in presence of peroxide is : CH_3CHCH_2Cl , $CH_3CH^+CH_3$, $CH_3CH_2CH \cdot CH_2$, $CH_3CH_2CH_2$,

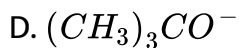
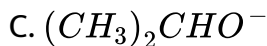


Answer: B

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101. The most reactive nucleophile among the following is

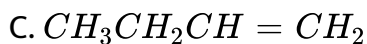
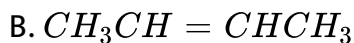




Answer: A

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102. The major product obtained on treatment of $CH_3CH_2CH(F)CH_3$ with $\frac{CH_3O^-}{CH_3OH}$



Answer: C

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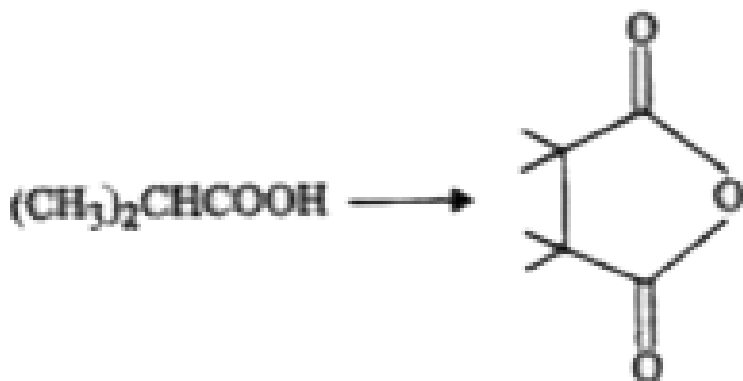
103. HBr reacts with $CH_2 = CH - OCH_3$ under anhydrous conditions at room temperature to give

- A. CH_3CHO and CH_3Br
- B. $BrCH_2CHO$ and CH_3OH
- C. $BrCH_2CH_2OCH_3$
- D. $CH_3CHBrOCH_3$

Answer: D

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104. The correct set of reagents for the following conversion is,



- A. alcoholic KOH
- B. alcoholic KOH followed by NaNH_2
- C. aqueous KOH followed by NaNH_2
- D. $\text{Zn}/ \text{CH}_3\text{OH}$

Answer: B

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105. which of the following sequence of reactions(reagents) can be used for conversion of $C_6H_5CH_2CH_3$ into $C_6H_5CH = CH_2$?

A. $SOCl_2, H_2O$

B. $SO_2Cl_2, alc. KOH$

C. Cl_2hv, H_2O

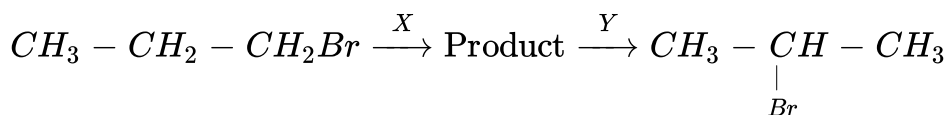
D. $SOCl_2, alc. KOH.$

Answer: B



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106. Identify the set of reagent/reaction conditions X and Y, in the following set of transformations.



A. X - dil aqueous NaOH, 20°C
Y - HBr / acetic acid, 20°C

B.

X - Conc. alcoholic NaOH, 80°C

Y - HBr / acetic acid, 20°C

C.

X - dil, aqueous NaOH, 20°C

Y - Br₂ / CHCl₃, 0°C

D.

X - Conc. alcoholic NaOH, 80°C

Y - Br₂ / CHCl₃, 0°C

Answer: B

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107. An alkyl bromide produces a single alkene when it reacts with sodium ethoxide and ethanol. This alkene on hydrogenation produces 2-methyl butane. What is the identity of the alkyl halide?

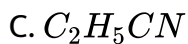
- A. 1-Bromo-2,2-dimethyl propane
- B. 1-Bromo butane
- C. 1-Bromo -2-methyl butane
- D. 2-Bromo-2-methyl butane

Answer: C

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108. Ethyl chloride on treatment with AgCN forms a compound X. The functional isomer of X is

- A. $\text{C}_2\text{H}_5\text{NC}$
- B. $\text{C}_2\text{H}_5\text{NH}_2$

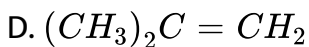
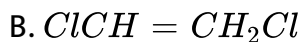
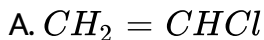


D. none of these

Answer: C

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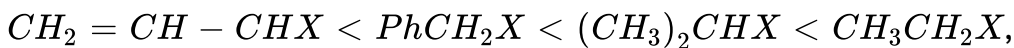
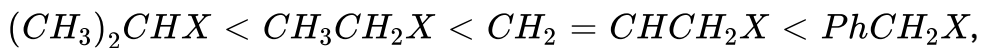
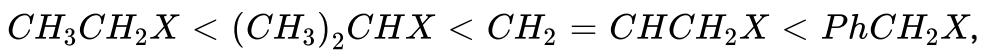
109. The addition of HBr is easiest with



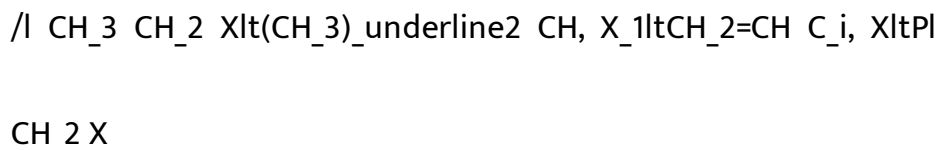
Answer: D

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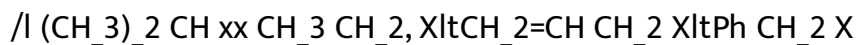
110. The correct increasing order of reactivity of halides for SN' reaction is :



A.



B.



C.



D.



XltC : H₃ CH_a X

Answer: A

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111. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives predominantly

- A. m- Chlorotoluene
- B. benzoyl chloride
- C. Benzyl chloride
- D. o-andp-chlorotoluene

Answer: D

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112. An alkyl halide by formation of its Grignard reagent and heating with water yield propane. What is the original alkyl halide.

- A. methyl iodide
- B. ethyl iodide
- C. ethyl iodide
- D. propyl bromide

Answer: D

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113. Alkyl halides are less soluble in water because

- A. They ionise in water
- B. They do not form H bonds with H_2O
- C. They are highly viscous

D. They have very strong C-X bond

Answer: B

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114. Chlorination of toluene in presence of light and heat followed by treatment with aqueous NaOH gives

A. o-cresol

B. p-cresol

C. mixture of o-cresol and p-cresol

D. benzoic acid

Answer: D

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115. Catalyst used in the preparation of alkyl chlorides by the action of dry HCl on an alcohol is

A. anhydrous $AlCl_3$

B. $FeCl_3$

C. anhydrous $ZnCl_2$

D. Cu

Answer: C

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116. $(CH_3)_3CMgBr$ on reaction with D_2O produces

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD_3)_3CD$

D. $(CD_3)_3OD$

Answer: A

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117. Silver salt of a fatty acid on refluxing with an alkyl halide gives an

A. acid

B. ester

C. ether

D. amine

Answer: B

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118. FIGURE The compound A is

A. F

B. F

C. F

D. F

Answer: A



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119. The compound Q is

A. bromobenzene

B. chlorobenzene

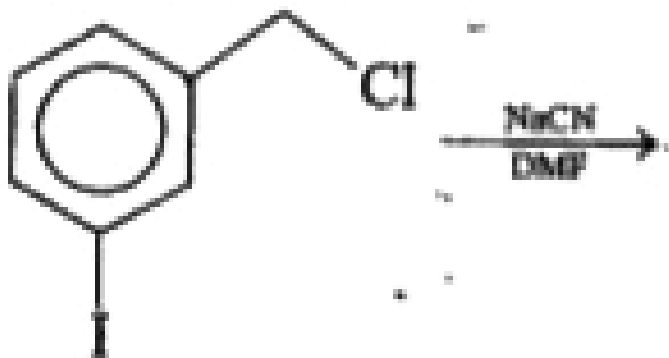
C. benzyl bromide

D. benzyl chloride

Answer: A

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120. The structure of the major product formed in the following reaction is:



A. F

B. F

C. F

D. F

Answer: D

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121. Consider the following compounds (i) CHCl_3 (ii) CCl_4 (iii) CH_2Cl_2 (iv) CH_3Cl (v) CH_4 The compounds with a net zero dipole moment are

- A. (ii) and (v) only
- B. (ii) only
- C. (iii) and (iv) only
- D. (i) and (iv) only

Answer: A

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122. The raw materials for the commercial manufacture of DDT are

- A. chlorobenzene and chloroform
- B. chlorobenzene and chloromethane
- C. chlorobenzene and chloral
- D. Chlorobenzene and iodoform

Answer: C

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123. Two bottles containing C_6H_5I and $C_6H_5CH_2I$ lost their original labels. They were labelled as A and B for testing A and B were separately taken in test tubes and boiled with Na OH solution. The solution in each tube was made acidic with dilute HNO_3 and some $AgNO_3$ solution was added. Substance B gave a yellow precipitate. Which of the following statements is true for this experiment :

Addition of HNO_3 was unnecessary, A was C_6H_5I , A was $C_6H_5CH_2I$,

B was C_6H_5I

A. Addition of HNO_3 was unnecessary

B. A was C_6H_5I

C. A was $C_6H_9CH_2I$

D. B was C_6H_5I

Answer: B

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124. The substance added to chloroform for preventing the formation of phosgene is

A. CH_3COCH_3

B. C_2H_5OH

C. CH_3COOH

D. CH_3OH

Answer: B

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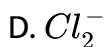
125. Fluorobenzene C_6H_5F can be synthesised in the laboratory

- A. by heating phenol with HF and KF
- B. from aniline by diazotisation followed by heating the diazonium salt with HBF_4
- C. by direct fluorination of benzene with F_2 gas
- D. by reacting bromobenzene with NaF solution

Answer:

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126. In chlorination of benzene, the reactive species is



Answer: A



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127. When primary amine reacts with chloroform in ethanolic KOH the product is

A. an isocyanide

B. an aldehyde

C. a cyanide

D. an alcohol

Answer: A

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128. Which of the following is responsible for depletion of the ozone layer in the upper strata of the atmosphere

A. ferrocene

B. fullerenes

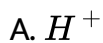
C. freons

D. polyhalogens

Answer: C

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129. In the addition of HBr to propene in the absence of peroxides, the 1st step involves the addition of



Answer: A



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130. (X) on treatment with sodium hydroxide followed by the addition of silver nitrate gives white precipitate at room temperature which is soluble in NH_4OH . (X) can be:

A. chlorobenzene

B. vinyl chloride

C. ethyl bromide

D. benzyl chloride

Answer: D

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131. Alkyl halides is converted into an alcohol by

A. Addition

B. substitution

C. dehydrohalogenation

D. elimination

Answer: B

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132. SN_2 mechanism proceeds through the intervention of

- A. carbocation
- B. transition state
- C. free radical
- D. carbanion

Answer: B

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133. Geometrical isomerism is shown by

- A. $CH_2 = C(Br)I$
- B. $CH_3CH = C(Br)I$
- C. $(CH_3)_2C = C(Cl)Br$
- D. $CH_3CH = CCl_2$

Answer: B

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134. Which of the following reactions is most suitable for the preparation of n-propyl benzene. : Friedel-crafts reaction, Wurtz reaction, Wurtz - Fittig reaction, Grignard reaction

- A. Friedel-crafts reaction
- B. Wurtz reaction
- C. Wurtz - Fittig reaction
- D. Grignard reaction

Answer: C

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135. Allyl chloride on dehydrochlorination gives

A. propadiene

B. propylene

C. allyl alcohol

D. acetone

Answer: A

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136. Chloropicrin is obtained by the reaction of

A. nitric acid on chlorobenzene

B. chlorine on picric acid

C. nitric acid on chloroform

D. steam on carbon tetrachloride

Answer: C

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137. What is the major product of the following reaction?



A. F

B. F

C. F

D. F

Answer: D

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138. $C_3H_8 + Cl_2 \xrightarrow{\text{light}} C_3H_7Cl + HCl$ is an example of

- A. substitution
- B. elimination
- C. addition
- D. rearrangement reaction

Answer: A

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139. When hydrochloric acid gas is treated with propene in presence of benzoyl peroxide, it gives

- A. 2-chloropropane
- B. allyl chloride
- C. no reaction

D. n-propyl chloride

Answer: A

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140. In the reaction of p-chlorotoluene with KNH_2 in liq NH_3 , the major product is

A. o-toluidine

B. m-toluidine

C. p-toluidine

D. p-chloroaniline

Answer: B

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141. An SN_2 reaction at an asymmetric carbon of a compound always gives

- A. an enantiomer of the substance
- B. a product with opposite optical rotation
- C. a mixture of diastereomers
- D. a single stereoisomer

Answer: D



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142. Alkyl halides react with metallic sodium in dry ether producing

- A. alkanes with same number of carbon atoms
- B. alkanes with double the number of carbon atoms
- C. alkanes with triple number of carbon atoms

D. alkenes with double the number of carbon atoms

Answer: B

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143. If one H is replaced by a Cl atom in C_4H_9Cl , the total number of structural isomers will be 4 5 7 10

A. 4

B. 5

C. 7

D. 10

Answer: D

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144. The number of stereoisomers obtained by bromination of trans-2-butene is

A. 1

B. 2

C. 3

D. 4

Answer: A



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