doubtnut
India's Number 1 Education App

CHEMISTRY

BOOKS - MTG GUIDE

HALOALKANES AND HALOARENES

Illustration

1. Write the IUPAC names of the following compounds:

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2. Complete the equation for the following reactions:

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3. Complete the equation for the following reactions:

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4. Write the mechanism of the following reaction :

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5. How would you account for the following :

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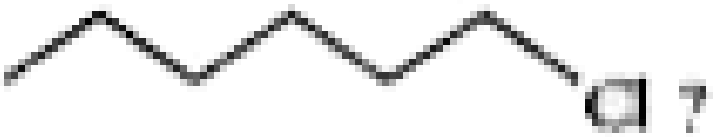
6. How would you account for the following :

undersegoes faster S_N1 reaction than



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7. Out of $(CH_3)_3C-Br$ and $(CH_3)_3C-I$, which one is more reactive towards S_N1 and why ?

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8. Why dextro and laevo-rotatory isomers of Butan-2-ol are difficult to separate by fractional distillation?

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9. Why is sulphuric acid not used during the reaction of alcohols with KI in the conversion of an alcohol to the alkyl iodide?

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10. Haloalkanes undergo nucleophilic substitution whereas haloarenes undergo electrophilic substitution. Explain.

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11. Explain why the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride.

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12. Give reason for the following :

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13. Give reason for the following :

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14. Write a chemical test to distinguish between: Chloroform and carbon tetrachloride.

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Neet Cafe Topicwise Practice Questions

1. Amongst the C - X bond (where X = Cl Br, I), the correct bond energy order is

A. $C-Cl>C-Br>C-I$

B. $C-I>C-Cl>C-Br$

C. $C-Br>C-Cl>C-I$

D. $C-I>C-Br>C-Cl$

Answer: A

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2. The IUPAC name of the compound,

A. 1,3-dibromo-3-methylbutane

B. 3-methyl-1,2-dibromobutane

C. 3-methyl-1,3-dibromopropane

D. none of these.

Answer: A

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3. The IUPAC name of the given compound is

A. 3-bromo-2-methylbut-1-ene

B. 4-bromo-3-methylpent-2-ene

C. 1-bromo-2-methylbut-2-ene

D. none of these.

Answer: B

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4. Which of the following is not an allylic halide?

A. 4-Bromopent-2-ene

B. 3-Bromo-2-methylbut-1-ene

C. 1-Bromobut-2-ene

D. 4-Bromobut-1-ene

Answer: D

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5. $C_7H_8 \xrightarrow{3Cl_2/\Delta} A \xrightarrow{Br_2/Fe} B \xrightarrow{Zn/HCl} C.$

A. o-bromotoluene

B. m-bromotoluene

C. p-bromotoluene

D. 3-bromo-2,2,6-trichlorotoluene.

Answer: B

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6. Chlorobenzene can be prepared by reacting aniline with

A. hydrochloric acid

B. cuprous chloride

C. chlorine in presence of anhydrous aluminium chloride

D. nitrous acid followed by heating with cuprous chloride.

Answer: D

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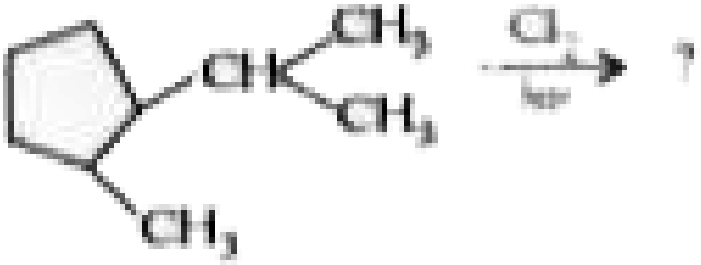
7. Which of these compounds represents the major monochlorination isomer formed in the following reaction?



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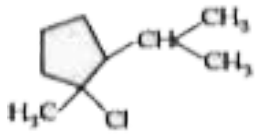
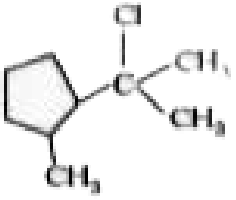
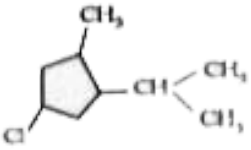


B. 

C. 

D. 

Answer: B

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8. An organic compound A forms B with sodium metal and again A forms C with PCI, but B and C form diethyl ether. Therefore A, B and C are

A. $C_2H_5OH, C_2H_5ONa, C_2H_5Cl$

B. $C_2H_5Cl, C_2H_5ONa, C_2H_5OH$

C. $C_2H_5OH, C_2H_6, C_2H_5Cl$

D. $C_2H_5OH, C_2H_5Cl, C_2H_5ONa.$

Answer: A

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9. The best method to prepare fluoroethane is

A. $C_2H_5OH \xrightarrow{HF / H_2SO_4, \Delta}$

B. $C_2H_5OH \xrightarrow{HF}$

C. $C_2H_5Cl \xrightarrow{Hg_2F_2 / \Delta}$

D. $C_2H_6 \xrightarrow{F_2 . hv}$

Answer: C

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10.

The product P and Q are

	P	Q
(a)	*p*-bromonitrobenzene	*p*-bromoaniline
(b)	*o*-bromonitrobenzene	*o*-bromoaniline
(c)	*o*,*p*-dibromonitrobenzene	*o*,*p*-dibromoaniline
(d)	*m*-bromonitrobenzene	*m*-bromoaniline

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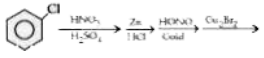
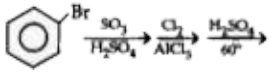
11. Which of the following is the best method for synthesis of 1-bromo-3-chlorobenzene?

A. 

B. 

C. 

D. 

Answer: B

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12. 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. $BrCH_2 - CH_2 - OCH_3$

D. $H_3C - CHBr - OCH_3$

Answer: B

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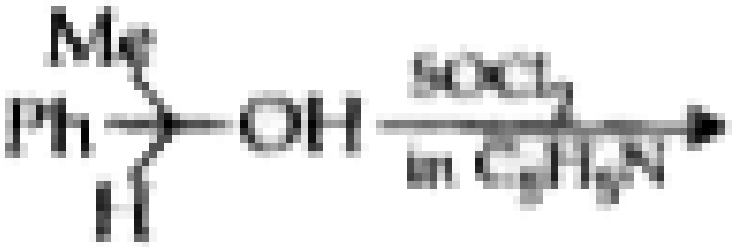
13. 

Which statement is true for the above reaction?

A. Retention of configuration

B. Inversion of configuration

C. Inversion and retention both

D. None of the above.

Answer: B

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14. 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: B

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15. The number of structural and configurational isomers of a bromo compound, C_5H_9Br, formed by the addition of HBr to 2-pentyne respectively are

A. 1 and 2

B. 2 and 4

C. 4 and 2

D. 2 and 1

Answer: B

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16. Ethylene on treatment with chlorine gives

A. ethylene dichloride

B. ethylene chlorohydrin

C. CH_4

D. C_2H_6

Answer: A

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17. For the reaction, $C_2H_5OH + HX \xrightarrow{ZnX_2} C_2H_5X$, the order of reactivity is

A. $HI > HCl > HBr$

B. $HI > HBr > HCl$

C. $HCl > HBr > HI$

D. $HBr > HI > HCl$

Answer: B

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18. $CH_3 - CH_2 - \underset{Cl}{CH} - CH_3$ obtained by chlorination of n-butane will be

A. meso-form

B. racemic mixture

C. d-form

D. l-form

Answer: B

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19. Chlorobenzene is prepared commercially by

A. Grignard reaction

B. Raschig process

C. Wurtz-Fittig reaction

D. Friedel-Crafts reaction

Answer: B

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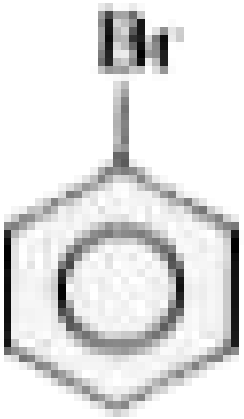
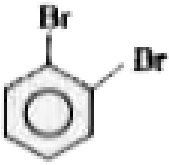
20. Identify Y in the following reaction,

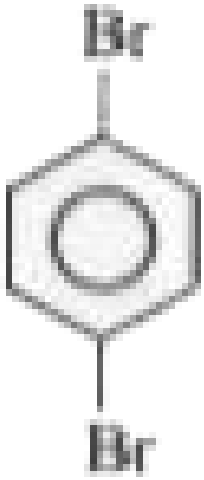
$$C_6H_5NH_2 \xrightarrow[280K]{NaNO_2/HCl} X \xrightarrow{CuBr/HBr} Y$$



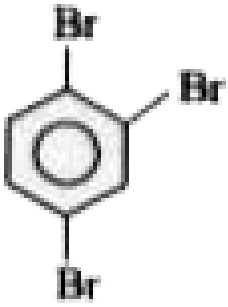
A.



B.



C.

D. 

Answer: A

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21. The reaction of toluene with chlorine in presence of $FeCl_3$ gives predominantly

A. a mixture of o-and p-chlorotoluene

B. benzyl chloride

C. m-chlorotoluene

D. benzoyl chloride

Answer: A

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22. Allylic halogen substitution can be done with

A. halogen at high temperature

B. NBS in sunlight

C. sulphonyl chloride in sunlight

D. all of these.

Answer: D

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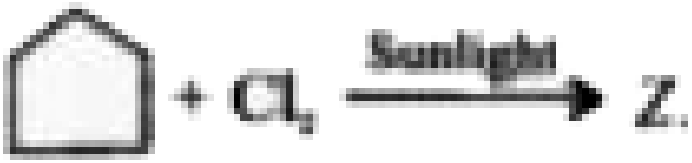
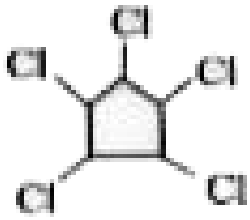
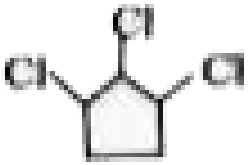
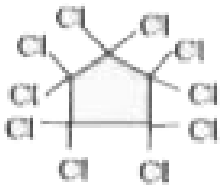
23. 

Product (Z) may be

A. 

B. 

C. 

D. 

Answer: D

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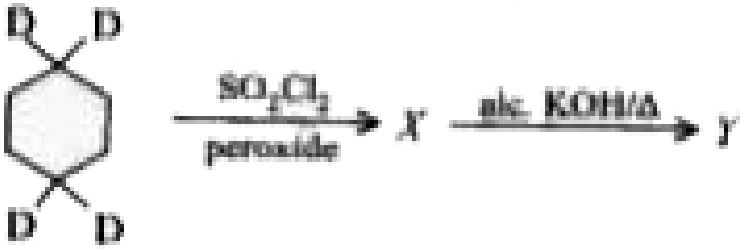
24. Which observation/s will be correct about the major products X and Y of the following reaction?



A. (i) and (ii)

B. (ii) and (iv)

C. (i) and (iii)

D. (i) and (iv)

Answer: B

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25. Benzyl chloride $(C_6H_5CH_2Cl)$ can be prepared from toluene by chlorination with

A. HOCl

B. $SOCl_2$

C. Cl_2

D. $NaOCl$

Answer: C

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26. Which is finally produced when acetylene reacts with HCI?

A. $CH_2 = CHCl$

B. CH_3CHCl_2

C. $ClCH = CHCl$

D. None of these

Answer: B

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27. Preparation of alkyl halides in laboratory is least preferred by

A. halide exchange

B. direct halogenation of alkanes

C. treatment of alcohols

D. addition of hydrogen halides to alkenes

Answer: B

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28. $CH_2 - CH = CH_2 + HI \rightarrow X$. Here X is

A. $CH_3CH_2CH_2I$

B. CH_3CHICH_3

C. $CH_3CH_2CH_3$

D. $CH_3CH_3 + CH_4$

Answer: B

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29. The reaction,

$$CH_2 = CH - CH_3 + HBr \rightarrow CH_3 - \overset{Br}{\overset{|}{C}}HCH_3$$

A. nucleophilic addition

B. electrophilic addition

C. electrophilic substitution

D. free radical addition

Answer: B

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30. Alkyl halide cannot be obtained from alkane or alkene by reaction with

A. HBr

B. HCl

C. PCl_5

D. Cl_2

Answer: C

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31. When toluene reacts with Cl_2 at a low temperature in presence of a catalyst $(FeCl_2)$ the product obtained is

A. only o-chlorotoluene

B. only m-chlorotoluene

C. only p-chlorotoluene

D. a mixture of ortho-and para-chlorotoluene.

Answer: D

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32. When chlorine is passed through propene at $400^{\circ} C$, which of the following is formed?

A. PVC

B. Allyl chloride

C. Propyl chloride

D. 1,2-Dichloroethane

Answer: B

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33. The synthesis of alkyl fluorides is best accomplished by heating an alkyl chloride/bromide in the presence of metallic fluoride such as AgF, Hg_2F_2, CoF_2 or SbF_3. The reaction is termed as

A. Etard reaction

B. Swarts reaction

C. Birch reduction

D. Dieckmann reaction.

Answer: B

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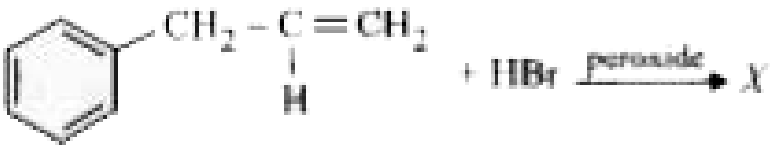
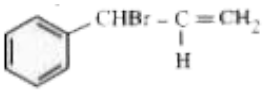
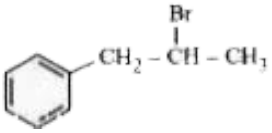
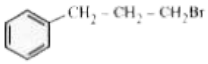
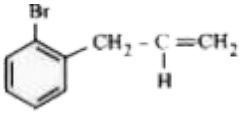
34. 

What is X?

A. 

B. 

C. 

D. 

Answer: C

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35. Ethyl bromide can be obtained by

A. $CH_3COOC_2H_5 \xrightarrow{LiAlH_4} \xrightarrow{HBr}$

B. $CH_3CH_2COOAg + Br_2 \xrightarrow{CCl_4}$

C. $CH_3CH_2COOH + Br_2 \xrightarrow[\Delta]{P} \xrightarrow{\text{Sodalime}}$

D. all of the above

Answer: D

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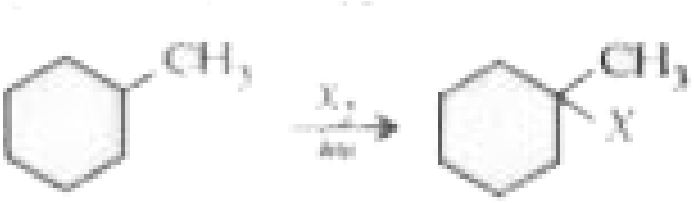
36.



A. Chlorination

B. Bromination

C. No such preference

D. Both would give very poor yield

Answer: B

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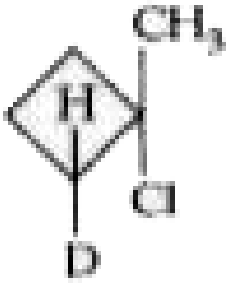
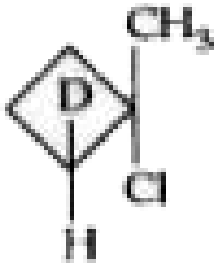
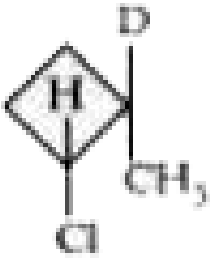
37. The major product of the following reaction is

A. 

B. 

C. 

D. both (a) and (b)

Answer: D

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38. Predict the correct stereoisomeric product for the following reaction :

A. d-form

B. l-form

C. racemic mixture

D. meso form.

Answer: C

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39. When ethyl iodide and n-propyl iodide are allowed to react with sodium metal in ether, the number of alkanes that could be produced is

A. only one

B. two alkanes

C. three alkanes

D. four alkanes

Answer: C

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40. Iso-propyl chloride undergoes hydrolysis by

A. S_N1 mechanism

B. S_N2 mechanism

C. S_N1 and S_N2 mechanism

D. neither S_N1 nor S_N2 mechanism.

Answer: C

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41. The order of reactivity of alkyl halides towards elimination reaction is

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

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

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

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

Answer: A

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42. Arrange the following halides in the decreasing order of S_N1 reactivity:

A. $I > II > III$

B. $II > I > III$

C. $II > III > I$

D. $III > II > I$

Answer: C

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43. Aryl halides are less reactive towards nucleophilic substitution reaction as compared to alkyl halides due to

A. the formation of less stable carbonium ion

B. resonance stabilization

C. longer carbon-halogen bond

D. the inductive effect

Answer: B

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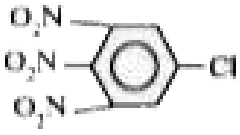
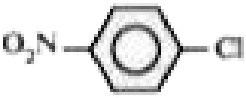
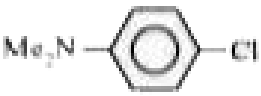
44. Which chloroderivative of benzene among the following would undergo hydrolysis most readily with aqueous sodium hydroxide to furnish the corresponding hydroxy derivative?

A. 

B. 

C. 

D. C_6H_5Cl

Answer: A

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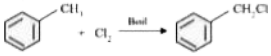
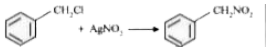
45. Which of the following is a free radical substitution reaction?

A. 

B. 

C. 

D. $CH_3CHO + HCN \rightarrow CH_3CH(OH)CN$

Answer: A

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46. In which of the following reactions, the product is an ether?

A. $C_6H_6 + CH_3COCl$// anhydrous $AlCl_3$

B. $C_2H_5Cl + aq.\ KOH$

C. $C_6H_6 + C_6H_5COCl$/ anhydrous $AlCl_3$

D. $C_2H_5Cl + C_2H_5ONa$

Answer: D

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47. Arrange the given compounds in decreasing order of boiling points.

A. $I > III > II$

B. $II > I > III$

C. $I > II > III$

D. $III > I > II$

Answer: A

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48. The compound that forms racemic products on reaction with aqueous KOH is

A. 3, 4-dimethyl-1-iodopentane

B. 2, 3-dimethyl-3-iodopentane

C. 1-iodo-3-methylpentane

D. 1-iodo-4-methylpentane.

Answer: B

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49. Chlorobenzene on heating with NaOH at $300^{\circ}C$ under pressure gives

A. phenol

B. benzaldehyde

C. chlorophenol

D. none of these.

Answer: A

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50. C_6H_5Cl on treating with NaOH at $300^\circ C$ gives phenol. However the yield is poor because of side reaction producing

A. C_6H_5ONa

B. $C_6H_5OCH_3$

C. $C_6H_5OC_6H_5$

D. none of these

Answer: C

View Text Solution

51. Which of the following undergoes nucleophilic substitution exclusively by S_N1 mechanism?

A. Benzyl chloride

B. Ethyl chloride

C. Chlorobenzene

D. Iso-Propyl chloride

Answer: A

View Text Solution

52. The most reactive compound for electrophilic nitration will be

A. benzyl chloride

B. benzoic acid

C. nitrobenzene

D. chlorobenzene

Answer: A

View Text Solution

53. Which of the following compounds on oxidation gives benzoic acid?

A. Chlorophenol

B. Chlorotoluene

C. Chlorobenzene

D. Benzyl chloride

Answer: D

View Text Solution

54. $R-CH_2-Br+Ag-C\equiv N \xrightarrow{\text{alcohol}} Z$

A. $R-CH_2-C\equiv N$

B. $R-CH_2-N\equiv C$

C. $R-CH_2-CH_2-C\equiv N$

D. both $R-CH_2-CH_2-R$ and $R-CH_2-CN$.

Answer: B

View Text Solution

55.

A. aq. NOH

B. alc. KOH

C. $(C_2H_5)_3N$

D. both (b) and (c)

Answer: D

View Text Solution

56. The organic chloro compound, which shows complete stereochemical inversion during a S_N2 reaction, is

A. CH_3Cl

B. $(C_2H_5)_2CHCl$

C. $(CH_3)_3CCl$

D. $(CH_3)_2CHCl$

Answer: A

View Text Solution

57. Which of the following compounds does not rotate the plane polarised light?

A. 2-Chloropropanoic acid

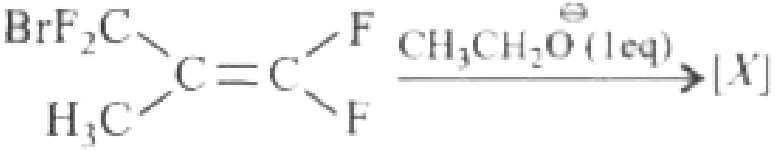
B. 2-Chlorobutane

C. 4-Hydroxyheptane

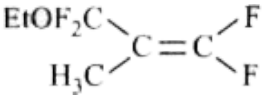
D. 2-Chloro-1-deuteropropane

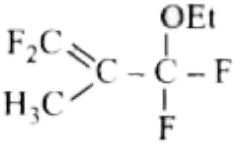
Answer: C

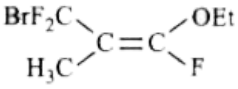
View Text Solution

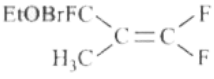
58.  [x]

major product is

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

59. $CH_3CH = CHCl \xrightarrow[\text{Acetone}]{I^{\ominus}}$

A. $CH_3CH = CHI$

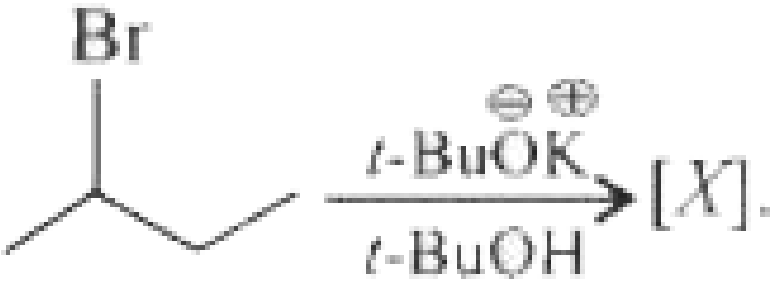
B. $CH_3CH = CH - CH = CH - CH_3$

C. both(a) and (b)

D. none of these

Answer: D

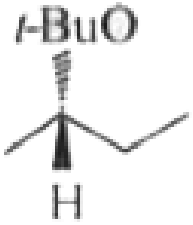
View Text Solution

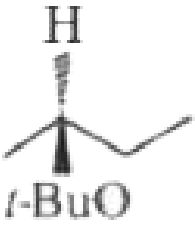
60. 

. The major product [X] is

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

61. product.

The formation of product involves

A. S_N1 reaction

B. S_N2 reaction

C. E1 reaction

D. none of these.

Answer: B

View Text Solution

62. $CH_3I \xrightarrow{DMSO} [X]$. The major product [X] is

A. $\left[Me_3\overset{\oplus}{S}=O\right]I^{\ominus}$

B. $\left[Me_2\overset{\oplus}{S}-OMe\right]I^{\ominus}$

C. both (a) and (b)

D. none of these.

Answer: A

View Text Solution

63.

$$H_3C - CH_2 - \overset{*}{\underset{\underset{Cl}{|}}{C}}H - CH_3 \rightarrow H_3C - CH_2 - \overset{*}{\underset{\underset{Cl}{|}}{C}}H - CH_2 - Cl$$

A. Racemised product

B. Inverted product

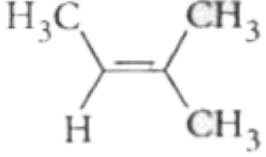
C. Retained product

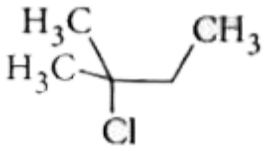
D. More inverted than retained

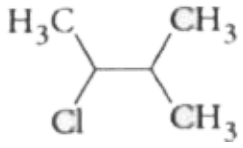
Answer: C

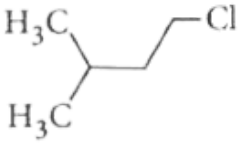
View Text Solution

64. When $(CH_3)_3CCH_2Cl$ is heated at $300^\circ C$, it gives

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

65. o-Chlorotoluene can undergo

A. only (i)

B. (i) and (iv)

C. (i), (ii) and (iv)

D. all of these

Answer: C

View Text Solution

66. S_N1 reactivity of the following halides will be in the order

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

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

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

D. (iii) $>$ (ii) $>$ (i) $>$ (iv) $>$ (v)

Answer: D

View Text Solution

67. Which of the following is correct?

A. S_N1 reaction involves transition state and completed in polar protic solvents.

B. S_N2 reaction is stereoselective as well as stereospecific.

C. Walden inversion is S_N1 reaction.

D. None of these

Answer: B

View Text Solution

68. The reactivities of methyl chloride (A), propyl chloride (B) and chlorobenzene (C) are in the order

A. $A > B > C$

B. $C > B > A$

C. $A > C > B$

D. $B > A > C$

Answer: A

View Text Solution

69. The product obtained on reaction of C_2H_5Cl with hydrogen over palladium carbon is

A. C_3H_8

B. C_4H_{10}

C. C_2H_6

D. C_2H_4

Answer: C

View Text Solution

70. Ethyl iodide on reduction with Zn-Cu couple and alcohol produces

A. ethane

B. methane

C. butane

D. propane

Answer: A

View Text Solution

71. Mustard gas is

A. dichlorodiethylsulphide

B. dichlorodimethylsulphide

C. dichlorodimethylether

D. none of these

Answer: A

View Text Solution

72. Which of the following is involved in Sandmeyer's reaction?

A. Ferrous salt

B. Diazonium salt

C. Ammonium salt

D. Cupramonium salt

Answer: B

View Text Solution

73. The major product obtained on treatment of $CH_3CH_2CH(F)CH_3$ with CH_3O^-/CH_3OH is

A. $CH_3CH_2CH(OCH_3)CH_3$

B. $CH_3CH = CHCH_3$

C. $CH_3CH_2CH = CH_2$

D. $CH_3CH_2CH_2CH_2OCH_3$

Answer: B

View Text Solution

74. The final product of the following sequence of reactions is

A. acetic acid

B. acetaldehyde

C. ethyl alcohol

D. formic acid

Answer: C

View Text Solution

75. Methyl bromide and ethyl bromide are mixed in equal proportion and the mixture is treated with sodium, the number of possible organic products is

A. 1

B. 2

C. 3

D. 4

Answer: C

View Text Solution

76. The general reaction is expected to follow decreasing order of reactivity as in(t-Bu = tertiary butyl group)

A. t-BuI $>$ 1-BuBr $>$ t-BuCl $>$ -Buf

B. 1-BuF $>$ -BuCl $>$ t-BuBr $>$ t-BuI

C. t-BuBr $>$ 1-BuCl $>$ t-BuI $>$ t-BuF

D. t-BuF $>$ t-BuCl $>$ t-BuI $>$ 1-BuBr

Answer: A

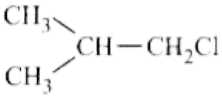
View Text Solution

77. Under basic conditions which one suffers elimination the most?

A. $(CH_3)_3CCl$

B. $CH_3CH_2 - \underset{\underset{Cl}{|}}{CH} - CH_3$

C. $CH_3CH_2CH_2 - CH_2 - Cl$

D. 

Answer: A

View Text Solution

78. Among the following the most highly ionised in water is

A. $CH_3CH_2CH(Cl)COOH$

B. $CH_3CH_2CCl_2COOH$

C. $CH_3CH(Cl)CH_2COOH$

D. $CH_2(Cl)CH_2CH_2COOH$

Answer: B

View Text Solution

79. Alkyl chlorosilanes are made by RX with silicon in presence of

A. Cu powder

B. NH_4OH

C. Mn powder

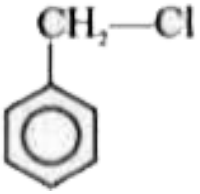
D. Zn powder.

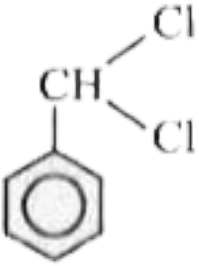
Answer: A

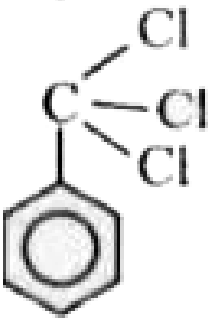
View Text Solution

80. Which compound on nitration will give highest amount of m- substituted product?

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

81. Ethyl chloride is converted into diethyl ether by

A. Perkin's reaction

B. Grignard reagent

C. Wurtz reaction

D. Williamson's synthesis

Answer: D

View Text Solution

82. The main product of the given reaction is

A. phenyl cyanide

B. nitrophenol

C. aniline

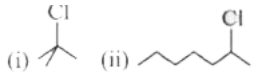
D. hydroxylamine .

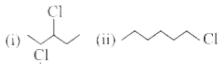
Answer: C

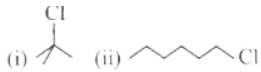
View Text Solution

83. In the following pairs of halogen compounds , which compound undergoes faster S_N1 reaction :?

A. 

B. 

C. 

D. 

Answer: B

View Text Solution

84. To prepare a pure sample of n-hexane using sodium metal as one reactant, the other reactant or reactants will be

A. ethyl chloride and n-butyl chloride

B. ethyl chloride and n-butyl bromide

C. n-propyl bromide

D. methyl bromide and n-pentyl chloride

Answer: C

View Text Solution

85. Which of the following compounds is not chiral?

A. 1-Chloropentane

B. 2-Chloropentane

C. 1-Chloro-2-methylpentane

D. 3-Chloro-2-methylpentane

Answer: A

View Text Solution

86. Phosgene is a common name for

A. phosphoryl chloride

B. thionyl chloride

C. carbon dioxide and phosphine

D. carbonyl chloride

Answer: D

View Text Solution

87. The main compound obtained when chlorobenzene is heated with chloral in presence of concentrated H_2SO_4 is

A. DDT

B. TNT

C. BHC

D. none of these

Answer: A

View Text Solution

88. A compound has vapour density 29. On warming with a solution of iodine in alkali, it gives a yellow precipitate, the compound is

A. CH_3CH_2CHO

B. CH_3COCH_3

C. $CH_3CHOHCH_3$

D. $CH_2 = CHCH_2Br$.

Answer: B

View Text Solution

89. Chloroform on reduction with Zn and HCl (alc.) gives

A. formic acid

B. chloretone

C. chloropicrin

D. methylene dichloride

Answer: D

View Text Solution

90. The shape of $CHCl_3$ molecule is

A. pyramidal

B. linear

C. tetrahedral

D. trigonal pyramidal

Answer: C

View Text Solution

91. Chloroform on reaction with conc. HNO_3 gives

A. chloropicrin

B. nitromethane

C. picric acid

D. acetylene

Answer: A

View Text Solution

92. Which set of reagents will produce CCl_2F_2?

A. $C + F_2 + Cl_2$

B. $CH_3Cl + F_2$

C. $CCl_4 + HF \xrightarrow{SbCl_5}$

D. All of these

Answer: C

View Text Solution

93. Chloropicrin used as an insecticide and a war gas is

A. CH_2ClCCl_3

B. CCl_3NO_2

C. $CH_2(OH)CH_2Cl$

D. CHI_3

Answer: B

View Text Solution

Check Your Neet Vitals

1. Which of the following compounds will give 1-bromo-4-trichloromethylbenzene?

A. Toluene $\xrightarrow[FeBr_3]{Br_2}$ o-Bromotoluene $\xrightarrow[hv,\ \text{heat}]{Cl_2}$

B. Toluene $\xrightarrow[Fe]{Br_2}$ p- Bromotoluene $\xrightarrow[hv,\text{heat}]{Cl_2}$

C. Toluene $\xrightarrow[\text{hv, heat}]{Cl_2}$ Trichloromethylbenzene $\xrightarrow[Fe]{Br_2}$

D. Toluene $\xrightarrow[Fe]{Cl_2}$ p - Chlorotoluene $\xrightarrow[Fe]{Br_2}$

Answer: B

View Text Solution

2. Consider the following alkyl halides :

I. $(CH_3)_3CBr$ II . CH_3Br

III. C_2H_5Br IV . $CH_3CHBrCH_3$

Arrange these alkyl halides in decreasing order of reactivity in Williamson reaction.

A. $I > IV > III > II$

B. $I > II > III > IV$

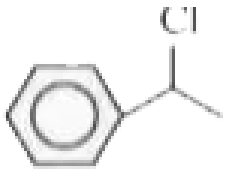
C. $IV > III > II > I$

D. $II > III > IV > I$

Answer: D

View Text Solution

3. Which is hydrolysed at the fastest rate?

A. 

B. 

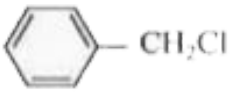
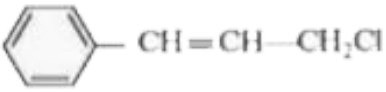
C. 

D. 

Answer: A

View Text Solution

4. Arrange the following compounds in the decreasing order of their reactivity towards S_N2 reaction :

(i)  (ii) 

A. $iv > iii > i > ii$

B. $ii > i > iii > iv$

C. $i > ii > iv > iii$

D. $iii > ii > i > iv$

Answer: B

View Text Solution

5. An organic compound X (C_4H_9Cl) on reaction with Na/diethyl ether gives a hydrocarbon which on monochlorination gives only one chloro derivative. Then, X is

A. t-butyl chloride

B. s-butyl chloride

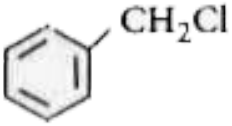
C. iso-butyl chloride

D. n-butyl chloride.

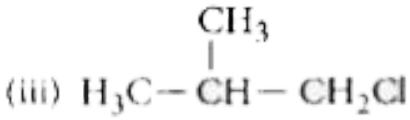
Answer: A

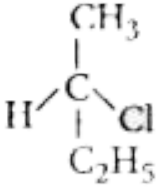
View Text Solution

6. Which of the following compounds will undergo racemisation when solution is hydrolysed with KOH?

(i) 

(ii) $CH_3CH_2CH_2Cl$

(iii) 

(iv) 

A. Only (i) and (ii)

B. Only (ii) and (iv)

C. Only (iii) and (iv)

D. Only (iv)

Answer: D

View Text Solution

7. The best method for the conversion of an alcohol into an alkyl chloride is by treating the alcohol with

A. PCl_5

B. $SOCl_2$ in presence of pyridine

C. PCl_3

D. dry HCl in presence of anhydrous $ZnCl_2$.

Answer: B

View Text Solution

8. Mg reacts with alkyl bromide best in

A. $C_6H_5OCH_3$

B. $C_6H_5N(CH_3)_2$

C. $C_2H_5OC_2H_5$

D. equally in all three solvents.

Answer: C

View Text Solution

9. Which of the following is a primary halide?

A. Isopropyl iodide

B. Secondary butyl iodide

C. Tertiary butyl bromide

D. Neohexyl chloride

Answer: D

View Text Solution

10. The compound $H-\overset{H}{\underset{H}{C}}-\overset{CH_3}{\underset{CH_3}{C}}-Cl$ has its IUPAC name as

A. 1-chloro-1, 1-dimethylethane

B. 2-chloro-2-methylpropane

C. tert-butyl chloride

D. 2-methyl-2-propyl chloride.

Answer: B

View Text Solution

11. Regarding addition of HBr to 2-butene, which of the following is true?

A. Markownikoff's rule is not obeyed.

B. Abnormal condition will take place in the presence of peroxide.

C. Normal and abnormal conditions will give the isomers.

D. In any case, the product is the same.

Answer: D

View Text Solution

12. Select the by-product formed in the reaction :

$ROH + PCl_5 \rightarrow RCl + \ldots\ldots\ldots + \ldots\ldots\ldots$

A. $POCl_3 + HCl$

B. $H_3PO_3 +$ no other by -product

C. $H_3PO_3 + HCl$

D. $POCl_3 +$ No other by - product

Answer: A

View Text Solution

13. In this reaction $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{Br}{|}}{C}} - CH_2 - CH_3 \xrightarrow[\text{Alcoholic}]{C_2H_5ONa}$

A. 2-ethoxy-2-methylbutane is the major product in the presence of ethoxide ion

B. mixture of 2-methyl-2-butene and 2-methyl 1-butene is formed in the presence of ethoxide ion

C. both are correct

D. none of these.

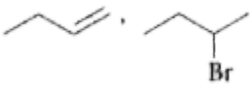
Answer: B

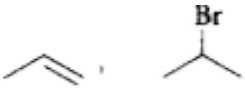
View Text Solution

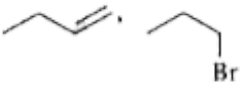
14. Consider the following reactions :

$$CH_3 - \underset{Br}{understand}(|)CH - CH_3 \xrightarrow{\text{alc. KOH}} X \xrightarrow[\text{Organic peroxide}]{HBr} Y$$

The products X and Y are respectively

A. 

B. 

C. 

D. 

Answer: D

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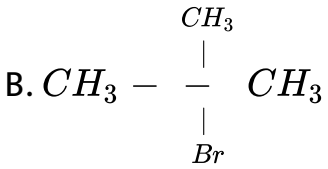
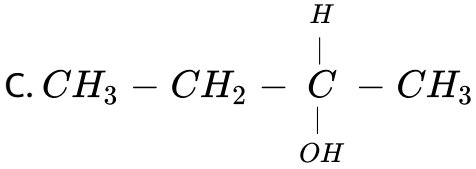
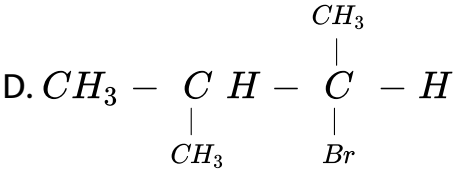
15. An organic halogen compound X on hydrolysis using aqueous KOH gives Y which liberates H_2 gas with metallic sodium. X is optically active whereas Y does not rotate the plane polarized light, so X is possibly

A. $CH_3 - CH_2 - CH_2 - CH_2 - Cl$

B. 

C. 

D. 

Answer: D

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16. An alkyl halide of formula C_4H_9Cl on treatment with alcoholic potash gives alkenes C_4H_8. Both alkenes on treatment with HI give 2-iodobutane. Isomeric alkenes are

A. $CH_3CH_2CH = CH_2$ and $CH_3CH = CHCH_3$

B. $CH_3CH_2CH = CH_2$ and $(CH_3)_2C = CH_2$

C. $CH_3CH = CH_2$ and $CH_3CH = CHCH_3$

D. $CH_3CH_2CH = CH_2$ and $CH_3CH = CH_2$

Answer: A

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17. Some statements are given below:

1. Kharasch effect is only applicable for HI.

2. Wurtz reaction can be used to ascend the alkane series.

3. Ease of elimination of R-X is $1^{\circ} > 2^{\circ} > 3^{\circ}$.

4. Addition of H-X in alkene is an example of positive electromeric effect. Among the above, the correct statement(s) is/are

A. only 4

B. only 1 and 2

C. only 3 and 4

D. only 2 and 4

Answer: D

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18. iso-Propyl chloride undergoes hydrolysis by

A. S_N1 mechanism

B. S_N2 mechanism

C. either S_N1 or S_N2 mechanism

D. neither S_N1 nor S_N2 mechanism.

Answer: C

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19. During S_N1 reaction mechanism of alkyl halides, the change observed is

A. retention of configuration

B. inversion of configuration

C. both retention and inversion of configuration

D. retention of geometry

Answer: C

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20. The order of reactivity towards S_N1 reactions of following compounds is

II. 

III. 

A. $I > II > III$

B. $III > I > II$

C. $III > II > I$

D. $II > III > I$

Answer: C

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21. Pick out the correct statement.

1. The C -Cl bond in chlorobenzene is shorter than methyl chloride.

2. The C -Cl bond in chlorobenzene has some double bond character.

3. It is difficult to replace chlorine from chlorobenzene than from benzyl chloride

A. Only 1, 2

B. Only 1,3

C. All 1, 2 and 3

D. Only 1

Answer: C

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22. Aryl halides are less reactive than alkyl halides in nucleophilic substitution reaction which is due to

1. the formation of less stable carbonium ion

2. resonance stabilization

3. longer C—X bond

4. the inductive effect

5.sp^2-hydridized carbon atom attached to halogen.

A. 1,3,5

B. $2, 4, 5$

C. 2, 3,5

D. 2,5

Answer: D

View Text Solution

23. Chlorobenzene can be prepared by reacting aniline with

A. hydrochloric acid

B. cuprous chloride

C. chlorine in presence of anhydrous aluminum chloride

D. nitrous acid followed by heating with cuprous chloride.

Answer: D

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24. Which of the following compounds are arranged in order of decreasing reactivity towards electrophilic substitution?

A. p-Chlorotoluene > o-Chlorotoluene > p-Nitrochlorobenzene

B. p-Nitrochlorobenzene > o-Chlorotoluene > p-Chlorotoluene

C. p-Chlorotoluene > p-Nitrochlorobenzene > o-Chlorotoluene

D. o-Chlorotoluene > p-Chlorotoluene > p-Nitrochlorobenzene

Answer: A

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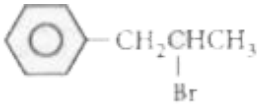
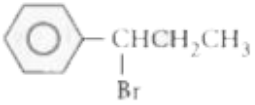
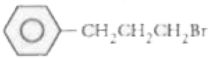
25. Major product of this reaction is

A. 

B. 

C. 

D. No reaction

Answer: B

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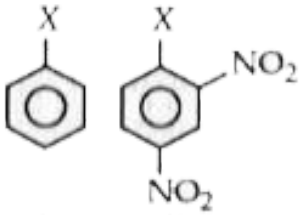
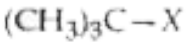
Aimpt Neet

1. The correct order of increasing reactivity of C-X bond towards nucleophile in the following compounds is



I II



III

IV

A. $I < II < IV < III$

B. $II < III < I < IV$

C. $IV < III < I < II$

D. $III < II < I < IV$

Answer: A

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2. In the following reaction

$C_6H_5CH_2Br \xrightarrow[2.H_3O^+]{1.Mg,\text{Ether}} X$, the product 'X' is

A. $C_6H_5CH_2OCH_2C_6H_5$

B. $C_6H_5CH_2OH$

C. $C_6H_5CH_3$

D. $C_6H_5CH_2CH_2C_6H_5$

Answer: C

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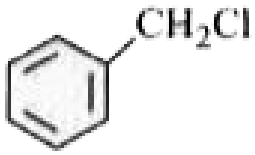
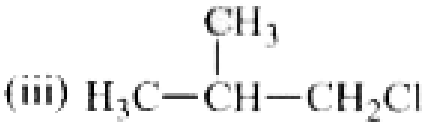
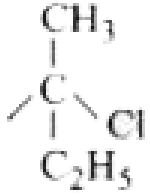
3. Which of the following compounds will undergo racemisation when solution of KOH hydrolyses?

(i) 

(ii) $CH_3CH_2CH_2Cl$

(iii) 

(iv) 

A. (i) and (ii)

B. (ii) and (iv)

C. (iii) and (iv)

D. (i) and (iv)

Answer:

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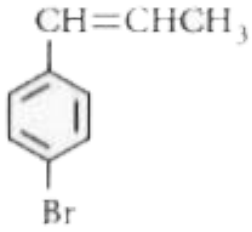
4. The reaction of $C_6H_5CH = CHCH_3$ with HBr produces

A. $C_6H_5CH_2CH_2HC_2Br$

B. 

C. $C_6H_5\underset{\underset{Br}{|}}{C}HCH_2CH_3$

D. $C_6H_5CH_2\underset{\underset{Br}{|}}{C}HCH_3$

Answer: C

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5. Two possible stereo-structures of $CH_3CHOHCOOH$, which are optically active, are called

A. atropisomers

B. enantiomers

C. mesomers

D. diastereomers

Answer: B

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6. In an S_N1 reaction on chiral centres, there is

A. inversion more than retention leading to partial racemisation

B. 100% retention

C. 100% inversion

D. 100% racemisation.

Answer: A

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7. Consider the reaction,

$$CH_3CH_2CH_2BR + NaCN \rightarrow CH_3CH_2CH_2CN + NaBr$$

This reaction will be the fastest in

A. ethanol

B. methanol

C. N,N'-dimethylformamide (DMF)

D. water

Answer: C

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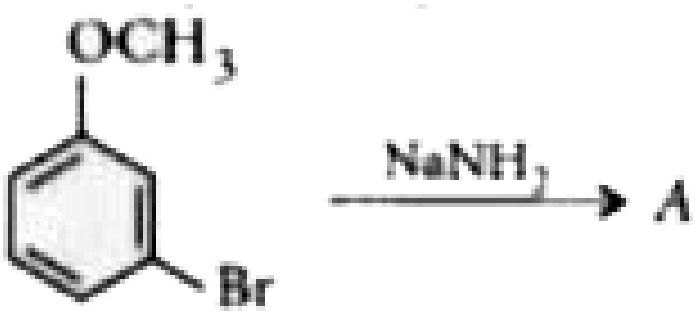
8. Identify A and predict the type of reaction.



A.  and elimination addition reaction

B.  and cinc substitution reaction

C.  and cine substitution reaction

D.  and substitution reaction

Answer: D

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9. The compound A on treatment with Na gives B, and with PCl_5 gives C. B and C react together to give diethyl ether. A, B and C are in the order

A. $C_2H_5OH, C_2H_6, C_2H_5Cl$

B. $C_2H_5OH, C_2H_5Cl, C_2H_5ONa$

C. $C_2H_5Cl, C_2H_6, C_2H_5OH$

D. $C_2H_5OH, C_2H_5ONa, C_2H_5Cl$

Answer: D

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10. The compound C_7H_8 undergoes the following reactions :

$$C_7H_8 \xrightarrow{3Cl_2/\Delta} A \xrightarrow{Br_2/Fe} B \xrightarrow{Zn/HCl} C$$

The product C is

A. m-bromotoluene

B. o-bromotoluene

C. 3-bromo-2,4,6-trichlorotoluene

D. p-bromotoluene.

Answer: A

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