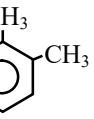
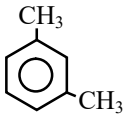
NEET AROMATIC HYDROCARBON 1

Q.1 Which is not a reasonable structure for dimethyl benzene -

(1) 

(2) 

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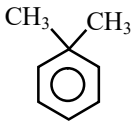
(4) 

Q.2 The general formula of arenes is -

(1) $C_n H_{2n}$ (2) C_nH_{2n-6}

(3) C_nH_{2n-4} (4) C_nH_{2n+2}

Q.3 Which of the following statements is incorrect for benzene –

(1) It is insoluble in water

(2) It has tetrahedral structure

(3) It freezes at 5.5ºC

(4) It floats in water

Q.4 Which one of the following statements is wrong -

(1) Aromatic compounds are generally unstable

(2) Aromatic compounds are richer in carbon content

(3) Aromatic compounds show substitution reactions

(4) Aromatic compounds burn with smoky flame

Q.5 Benzene reacts with fuming sulphuric acid to give -

(1) Sodium benzene sulphonate

(2) Benzene sulphonic acid

(3) Sodium benzoate

(4) All the above

Q.6 Which of the following reactions is shown by benzene –

(1) Addition reaction

(2) electrophilic substitution

(3) π–Complex formation

(4) All the above

Q.7 Among the following groups, the group that deactivates the benzene ring for further electrophilic substitution, is –

(1) Hydroxyl (2) Methyl

(3) Chloro (4) Amino

Q.8 Benzene reacts with benzoyl chloride to form -

(1) Benzophenone (2) Acetophenone

(3) Benzylchloride (4) Maleic anhydride

Q.9 The addition of chlorine to form B.H.C. happens when –

(1) Chlorine is doubled through benzene

(2) When the mixture is kept in dark

(3) When the mixture is exposed to sun light

(4) Aqueous sodium chloride solution is shaken with benzene

Q.10 Benzene $\xrightarrow[100^\circ]{?}$ 1,3,5–trinitrobenzene

The reagent in this case is –

(1) Conc. HNO_3

(2) Dil. HNO_3

(3) Nitrogen dioxide dissolved in conc. HNO_3

(4) Acetyl nitrate

Q.11 Reaction of $\overset{\oplus}{NO_2}$ is easier in –

(1) Benzene (2) Toluene

(3) Nitrobenzene (4) All the above

Q.12 Benzene reacts with sulphuric acid only when the acid is –

(1) Dilute and cold

(2) Dilute and hot

(3) Hot and concentrated

(4) Mixed with HNO_3

Q.13 Carbocations are formed by all of the following reactions except –

(1) Addition of acid in an alkanol

(2) Abstraction of a hologen from an alkyl halide by Lewis acid

(3) Pyrolysis of alkanes

(4) Addition of a mineral acid to an alkene

Q.14 Benzene on air oxidation gives -

(1) CO_2 & H_2O (2) CO and H_2O

(3) Maleic anhydride (4) None of these

Q.15 Friedel–Craft's reaction does not occur in case of –

(1) Toluene (2) Benzene

(3) Naphthalene (4) Pyridine

Q.16 Cumene $\left(\underset{\bullet\bullet}{\text{isopropyl benzene}}\right)$ isopropyl benzene is formed in the reaction –

(1) $C_6H_6 + CH_2 = CH - CH_3 \xrightarrow{AlCl_3}$

(2) $C_6H_6 + CH_3 - CH_2 - CH_2Cl \xrightarrow{AlCl_3}$

(3) Both the above (4) None of the above

Q.17 $C_6H_6 + (A) \xrightarrow{AlCl_3} C_6H_5CONH_2$

(A) in the above reaction is –

(1) NH_2CONH_2 (2) $ClCONH_2$

(3) CH_3CONH_2 (4) $CH_2(Cl)CONH_2$

Q.18 Benzene is obtained when phenol is distilled with -

(1) Copper turnings (2) Aluminium dust

(3) Zinc dust (4) Pumice stone

Q.19 Benzene is obtained by all the following reactions except -

(1) Decarboxylation of sodium benzoate

(2) Deoxygenation of phenol

(3) Reduction of diazonium chloride

(4) Catalytic hydrogenation of acetylene

Q.20 Heating a mixture of sodium benzoate and soda lime gives -

(1) Methane

(2) Phenol

(3) Calcium benzoate

(4) Benzene

Q.21 Benzene can be obtained by -

(1) $C_6H_5OH + NaOH \xrightarrow[\Delta]{CuO}$

(2) $C_6H_5OH + Zn \xrightarrow{\Delta}$

(3) $C_6H_5–N=N–Cl + H_2O \longrightarrow$

(4) All of these

Q.22 Acetylene on polymerisation gives -

(1) Mesitylene (2) Benzene

(3) Ethyl benzene (4) Propyle benzene

Q.23 Benzene is obtained by fractional distillation of -

(1) Light oil (2) Middle oil

(3) Heavy oil (4) Anthracene oil

Q.24 When vapour of n-hexane are passed over Pt supported on Al_2O_3 at 500ºC benzene forms. The reaction involves -

(1) Cyclisation (2) Dehydrogenation

(3) Aromatisation (4) All of above

Q.25 Benzene when heated with chromic chloride in the presence of aluminium chloride and aluminium metal gives –

(1) $C_6H_6–Cr–C_6H_6$

(2) $(C_6H_6)_2\overset{\oplus}{C}r\ AlCl_4^{\ominus}$

(3) $C_6H_5–Cr–C_6H_5$

(4) $(C_6H_6)_2\overset{\oplus}{A}l\ AlCl_4^{\ominus}$

Q.26 The reaction of benzene with CO and HCl in the presence of anhydrous $AlCl_3$ gives –

(1) Chlorobenzene (2) Toluene

(3) Benzyl chloride (4) Benzaldehyde

Q.27 The products A and B in the reaction sequence. –

$$C_6H_6 \xrightarrow[conc.H_2SO_4]{conc.HNO_3} A \xrightarrow[Reduction]{Sn+HCl} B$$

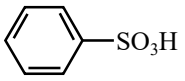
(1) Nitrobenzene, phenylhydroxylamine

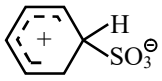
(2) Nitrobenzene, aniline

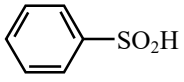
(3) Benzene sulphonic acid, benzene

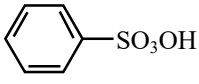
(4) Nitrobenzene, azobenzene

Q.28 The reaction of benzene with SO_3 dissolved in H_2SO_4 gives as a intermediate –

(1) 

(2) 

(3) 

(4) 

Q.29 Benzene does not undergo addition reactions easily because -

(1) It has a cyclic structure

(2) Double bonds in it are very strong

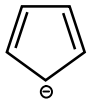
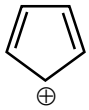
(3) Resonance stabilized system is to be preserved

(4) It has six hydrogen atoms

Q.30 The number of possible dichloronitrobenzene isomers is -

(1) 3 (2) 4 (3) 6 (4) 8

Q.31 Among the following species, which one is expected to show the greatest stability ?

(1)  (2) 

(3)  (4) 

Q.32 Among the following statements on the nitration ofaromatic compounds, the false one is -

(1) The rate of nitration of benzene is almost the same as that of hexadeuterobenzene

(2) The rate of nitration of toluene is greater than that of benzene

(3) The rate of nitration of benzene is greater than that of hexadeuterobenzene

(4) Nitration is an electrophilic substitution reaction

Q.33 The main product of the reduction of benzaldehyde with Zn-Hg/conc. HCl is -

(1) Benzyl alcohol
(2) Cyclohexyl methanol
(3) Toluene
(4) None of these

Q.34 Which can be used in Friedel – Craft acylation -

(1) $CH_3CO.O.COCH_3$ (2) CH_3COCl

(3) CH_3CH_2COCl (4) All

Q.35 Anhydrous $AlCl_3$ is used in the Friedel – Craft's reaction because it is -

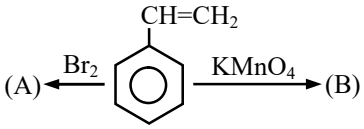
(1) Electron rich
(2) Soluble in ether
(3) Ionisable to chloride and aluminium ions
(4) Electron deficient

Q.36 Chlorination of toluene in the presence of light and heat followed by treatment with aq. NaOH gives -

(1) o – Cresol
(2) p – Cresol
(3) 2,4–Dihydroxytoluene (4) Benzoic acid

Q.37 Nitration of toluene takes place at -

(1) o – Position
(2) m –Position
(3) p – Position
(4) Both o– and p – positions

Q.38 

Compound (A) and (B) respectively are –

(1) o – Bromostyrene, benzoic acid

(2) p – Bromostyrene, benzaldehyde

(3) m – Bromostyrene., benzaldehyde

(4) Styrene dibromide, benzoic acid

Q.39 Toluene is mainly obtained by -

(1) Reforming of *n* – heptane

(2) Distillation of acetone with conc. H_2SO_4

(3) Trimerisation of propyne

(4) Reaction of chlorobenzene with chloromethane in the presence of a lewis acid

Q.40 Reforming of *n* – octane gives -

(1) Toluene and m – dimethyl benzene

(2) o – Xylene and ethyl benzene

(3) Toluene and o – xylene

(4) o – Xylene and p – xylene

Q.41 Cumene or isopropyl benzene is formed in the reaction –

(1) $C_6H_6 + CH_2 = CH - CH_3 \xrightarrow{AlCl_3}$

(2) $C_6H_6 + CH_3 - CH_2 - CH_2Cl \xrightarrow{AlCl_3}$

(3) Both of the above

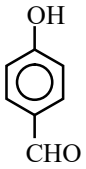
(4) None of the above

Q.42 Which of the following reactions is not an example of electrophilic substitution –

(1) $C_6H_6 + {}^{+}NO_2 \rightarrow C_6H_5NO_2 + H^+$

(2) $C_6H_6 + CH_3Cl \xrightarrow{AlCl_3} C_6H_5{-}CH_3 + HCl$

(3) $C_6H_6 + Cl_2 \xrightarrow{UV\ light} C_6H_6Cl_6$

(4) $C_6H_5OH + CO + HCl \xrightarrow[AlCl_3]{Anhy.}$ 

Q.43 Which of the following is T.N.T. –

(1) 2,4 – Dinitrotoluene

(2) 1,2,3 – Trinitrotoluene

(3) 2,4,6 – Trinitrotoluene

(4) o– and p– dinitrotoluene

Q.44 Which of the following is Wurtz – fitting reaction –

(1) $C_6H_5I + 2Na + ICH_3 \rightarrow C_6H_5 - CH_3 + 2NaI$

(2) $C_6H_5I + Cu + IC_6H_5 \rightarrow C_6H_5 - C_6H_5 + CuI_2$

(3) $CH_3I + 2Na + ICH_3 \rightarrow CH_3 - CH_3 + 2NaI$

(4) None of the above

Q.45 Toluene is not obtained by which of the following reactions ?

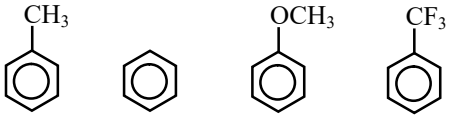
(1) $C_6H_5Br + CH_3Br \xrightarrow[\text{Ether}]{Na}$

(2) $C_6H_6 + CH_3Br \xrightarrow[AlCl_3]{\text{Anhy.}}$

(3) $C_6H_5MgBr + CH_3Br \xrightarrow{\text{Ether}}$

(4) $C_6H_6 + Br_2 \xrightarrow{FeBr_2}$

Q.46 Among the following compounds,



I II III IV

the order of decreasing reactivity towards electrophilic substitution is–

(1) II > I > III > IV (2) III > I > II > IV

(3) IV > I > II > III (4) I > II > III > IV

Q.47 In Friedel-Crafts acylation reaction the electrophile is -

(1) R^+

(2) $R-\overset{+}{C}=O$

(3) $R-\overset{\bullet}{C}=O$

(4) $R-\underset{Cl}{\overset{+}{C}}-O-\bar{A}lCl_3$

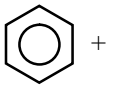
Q.48 Which of the following methods would you consider to be the best for preparing n-propylbenzene -

(1) $C_6H_6 + CH_3CH_2CH_2Cl \xrightarrow[\text{heat}]{AlCl_3}$

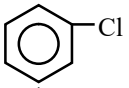
(2) $C_6H_6 + CH_3CH{=}CH_2 \xrightarrow[250°C]{H_3PO_4}$

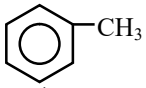
(3) $C_6H_5Br + CH_3CH_2CH_2Br \xrightarrow[Et_2O,\text{heat}]{Na}$

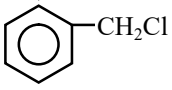
(4) $C_6H_6 \xrightarrow[2.\ H_2O]{1.\ C_2H_5COCl/AlCl_3} \xrightarrow{3.\ Zn-Hg/HCl}$

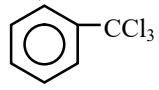
Q.49  $+ CH_3-Cl \xrightarrow{\text{Anhy. } AlCl_3} A$

product A is -

(1) 

(2) 

(3) 

(4) 

Q.50 The chlorination of toluene in the presence of ferric chloride gives predominantly -

(1) Benzyl chloride

(2) m-chlorotoluene
(3) Benzal chloride
(4) o-and- p-chlorotoluene

Q.51 Chlorination of toluene in the presence of light and heat followed by treatment with aqueous NaOH gives -

(1) o-cresol

(2) p-cresol

(3) 2,4-dihydroxytoluene

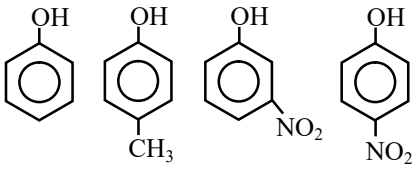
(4) Benzoic acid

Q.52 Benzyl chloride ($C_6H_5CH_2Cl$) can be prepared from toluene by chlorination with -

(1) $SO_2Cl_2/h\upsilon$ (2) $SOCl_2$

(3) PCl_5 (4) NaOCl

Q.53 In the following compounds –



(I) (II) (III) (IV)

The order of acidic strength is –

(1) III > IV > I > II (2) I > IV > III > II

(3) II > I > III > IV (4) IV > III > I > II

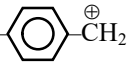
Q.54 $C_6H_6 \xrightarrow[AlCl_3]{CH_3COCl} (A) \xrightarrow[HCl]{Zn-Hg} (B)$

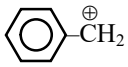
The end product (B) in the above sequence is –

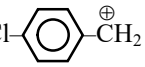
(1) Toluene (2) Ethyl benzene

(3) Both the above (4) None

Q.55 Which of the following species is most stable ?

(1) 

(2) 

(3) 

(4)