CHEMISTRY

BOOKS - MODERN PUBLICATION CHEMISTRY (KANNADA ENGLISH)

HYDROCARBONS

Level I

1. The carbon-carbon bond length is shortest in :

A. ethane

B. propane

C. ethene

D. ethyne

Answer: D

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2. Which of the following alkanes cannot be prepared by Wurtz reaction ?

A. CH_4

B. C_2H_6

C. C_5H_{12}

D. C_7H_{16}

Answer: A

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3. Which of the following halogens is least reactive towards alkanes in the presence of sunlight ?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: D

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4. The chlorination of methane is an example of :

A. elimination reaction

B. substitution reaction

C. addition reaction

D. oxidation reaction

Answer: B

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5. Which of the following has the least boiling point ?

A. n-Hexane

B. n-Pentane

C. 2-Methyl butane

D. 2, 2-Dimethylpropane

Answer: D

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6. The oxidation of isobutane with alk. $KMnO_4$ gives d:

A. CO_2 and H_2O

B. isopropene

C. tert-butyl alcohol

D. butanoic acid

Answer: C

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7. $R-X+2Na+X-R \xrightarrow[\Delta]{\text{Dry other}} R-R+2NaX.$ If R is aryl group , what is the name of the reaction.

A. Kolbe's reaction

B. Wurtz reaction

C. Friedel Crafts reaction

D. Grignard reaction

Answer: B

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8. Arrange the following in decreasing order of their boiling points.

(a) n-butane

(b) n-pentane

(c) 2-methylbutane

(d) 2, 2-dimethylpropane

A. $a > b > c > d$

B. $b > c > d > a$

C. $d > c > b > a$

D. $c > b > d > a$

Answer: D

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9. Arrange the halogens F_2, Cl_2, Br_2, I_2, in order of their increasing reactivity with alkanes.

A. $I_2 < Br_2 < Cl_2 < F_2$

B. $Br_2 < Cl_2 < F_2 < I_2$

C. $F_2 < Cl_2 < Br_2 < I_2$

D. $Br_2 < I_2 < Cl_2 < F_2$

Answer: A

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10. Which of the following steps represents chain terminating step in the mechanism of chlorination of methane ?

A. $CH_4 + Cl^{\cdot} \rightarrow CH_3^{\cdot} + HCl$

B. $CH_3^{\cdot} + Cl^{\cdot} \rightarrow CH_3Cl$

C. $CH_3^{\cdot} + Cl_2 \rightarrow CH_3Cl + Cl^{\cdot}$

D. $Cl_2 \xrightarrow{hv} 2Cl^{\cdot}$

Answer: B

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11. The typical reactions of olefinic bond are :

A. Electrophilic addition

B. Electrophilic substitution

C. Nucleophilic addition

D. Nucleophilic substitution

Answer: A

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12. In the reaction : $(CH_3)_2C = CH_2 + HOC1$, the major product is

:

A. $(CH_3)_2 \underset{OC1}{\underset{|}{C}} - CH_3$

B. $(CH_3)_2 - \underset{OH}{\underset{|}{CH}} - \underset{C1}{\underset{|}{CH_2}}$

C. $(CH_3)_2 - \underset{C1}{\underset{|}{CH}} - \underset{OH}{\underset{|}{CH_2}}$

D. $(CH_3)_2 - CH_2 - CH_2OC1$

Answer: B

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13. The main product in the reaction of :

$CH_3 - CH_2 - \underset{C1}{\underset{|}{CH}} - CH_3 + \underset{(alc.)}{KOH}$ is :

A. $CH_3 - CH = CH - CH_3$

B. $CH_2 = CH - CH_2 - CH_3$

C. $CH_3 - CH_2 - \underset{\underset{Cl}{|}}{CH} - CH_2OH$

D. $CH_3 - CH_2 - \underset{\underset{OH}{|}}{CH} - CH_3$

Answer: A

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14. Propene is more reactive than ethene towards HBr because :

A. propene can more readily undergo a free radical chain reaction

B. propene gives rise to more stable carbonium ion

C. the double bond in case of propene is unstable

D. the methyl group attached to double bond withdraws the electrons and facilitates the attack.

Answer: B

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15. The ozonolysis of $(CH_3)_2C = C(CH_3)_2$ followed by treatment with zinc and water will give :

A. acetone

B. acetaldehyde and acetone

C. formaldehyde and acetone

D. acetic acid

Answer: A

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16. Ethylene is shaken with a water solution of Br_2 and NaC1. Which of the following will not be the possible product ?

A. $BrCH_2CH_2C1$

B. $BrCH_2CH_2Br$

C. $BrCH_2CH_2OH$

D. $C1CH_2CH_2C1$

Answer: D

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17. Which of the following compounds has maximum stability ?

A. $CH_2 = CH - CH_2 - CH = CH_2$

B. $(CH_3)_2C = CH - CH_2 - CH = CH_2$

C. $CH_2 = CH - CH = CH_2$

D. $CH_2 = CH - \underset{\underset{CH_3}{|}}{CH} - CH = CH_2$

Answer: C

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18. Which of the following alkenes is expected to be more reactive towards electrophilic addition reactions ?

A. $(CH_3)_2C = CH_2$

B. $(CH_3)_2C = CHCH_3$

C. $CH_2 = CH_2$

D. $(CH_3)_2C = C(CH_3)_2$

Answer: D

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19. What is the major product in the reaction ?

$$CH_3 - CH = CH_2 + HBr \xrightarrow{(C_6H_5CO)_2O_2}$$

A. $CH_3 - CH_2 - CH_2Br$

B. $CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3$

C. $\underset{\underset{Br}{|}}{CH_2} - \underset{\underset{Br}{|}}{CH} - CH_3$

D. $\underset{\underset{Br}{|}}{CH_2} - CH = CH_2$

Answer: A

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20. Which of the following is the major product of dehydration of 3, 3-dimethylbutan-2-o1 using H_2SO_4 ?

A. 3, 3-Dimethyl but-1-ene

B. 2, 3-Dimethyl but-1-ene

C. 2, 3-Dimethyl but-2-ene

D. 3-Methyl pent-2-ene

Answer: C

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21. Which product do you expect from the reaction ?

$$CH_3-\overset{CH_3}{\overset{|}{C}}=CH_2 \xrightarrow[(ii)\,H_2O_2,OH]{(i)\,(BH_3)_2}$$

A. $CH_3-\overset{CH_3}{\overset{|}{C}}H-CH_2OH$

B. $CH_3-\overset{CH_3}{\overset{|}{\underset{OH}{\underset{|}{C}}}}-CH_3$

C. $CH_3-\underset{OH}{\underset{|}{CH}}-\overset{CH_3}{\overset{|}{C}}H_2$

D. $CH_3-\underset{CH_3}{\underset{|}{CH}}-CHO$

Answer: A

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22. Ethylene reacts with alkaline $KMnO_4$ to give :

A. acetaldehyde

B. ethylene glycol

C. formaldehyde

D. ethylene oxide

Answer: B

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23. Oxidation of propene with Baeyer's reagent gives :

A. Glycol

B. Propane-1, 2-diol

C. Propane-1, 2, 3-triol

D. Oxalic acid

Answer: B

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24. Ethylene is formed by the dehydration of

A. CH_3CHO

B. C_2H_5OH

C. Propyl alcohol

D. Ethyl acetate

Answer: B

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25. Propene reacts with HBr in the presence of a peroxide to form :

A. n-propyl bromide

B. isopropyl bromide

C. 1, 3-dibromopropane

D. propane

Answer: A

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26. Ethylene on interaction with sulphur monochloride gives :

A. Mustard gas

B. Lewish gas

C. CH_3CH_2Cl and S

D. None of these

Answer: A

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27. The typical reactions of olefinic bond are :

A. Electrophilic addition

B. Electrophilic substitution

C. Nucleophilic addition

D. Nucleophilic substitution

Answer: A

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28. The products obtained on the ozonolysis of pent-2-ene are :

A. Propanal and ethanal

B. Methanal and ethanal

C. Propanol and propanone

D. Ethanal and propanone

Answer: A

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29. Name the reagent used in the dehydrohalogenation of haloalkanes .

A. alc. KOH

B. aq. KOH

C. sodamide

D. NaOH + CaO

Answer: A

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30. The alkene which on oxidation with acidified $KMnO_4$ gives acetic acid is :

A. Ethylene

B. Propylene

C. 1-Butene

D. 2-Butene

Answer: D

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31. Which of the following has smallest heat of hydrogenation per mole ?

A. 1-Butene

B. Trans-2-butene

C. Cis-2-butene

D. 1, 3-Butadiene

Answer: B

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32. Which of the following is most stable alkene ?

A. $CH_3CH = CH_2$

B. $(CH_3)_2C = C(CH_3)_2$

C. $CH_3CH = CHCH_3$

D. $CH_2 = CH_2$

Answer: B

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33. Addition of HBr to 2-methyl propene in the presence of peroxide mainly forms :

A. 2-Bromopropane

B. 1-Bromopropane

C. 1-Bromo-2-methyl propane

D. 2-Bromo-2-methyl propane

Answer: C

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34. Addition of HBr to an alkene in the presence of peroxides follows :

A. Nucleophilic addition

B. Electrophilic addition

C. Free radical addition

D. Nucleophilic substitution

Answer: C

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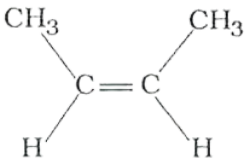
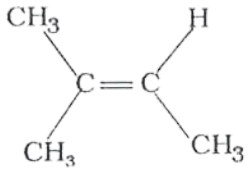
35. The compound which reacts with HBr obeying Markovnikov's rule is :

A. $CH_2 = CH_2$

B. 

C.



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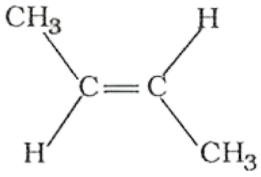

Answer: D

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36. When propene is chlorinated at 773 K, the product is :

A. 1, 2-dichloropropene

B. propylchloride

C. allyl chloride

D. 1, 2-dichloropropane

Answer: C

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37. Products of the following reaction

$$Me_2C = CHCH_3 \xrightarrow[(ii)\ (CH_3)_2S]{(i)\ O_3} \ ?\ \text{are :}$$

A. $CH_3CHO + CH_3COOH$

B. $Me_2CO + CH_3CHO$

C. $Me_2CO + CH_3COOH$

D. $2Me_2CO$

Answer: B

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38. Among the following, the alkene on ozonolysis giving rise to only one aldehyde as the product is :

A. 1-Butene

B. Propane

C. 2-Butene

D. 2-Methylprop-1-ene

Answer: C

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39. Which of the following is formed when propyne reacts with chlorine water ?

A. 1-Chloropropanone

B. Propanone

C. 1, 1-Dichloropropanone

D. 2, 2-Dichloroethanal

Answer: C

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40. Which of the following shows acidic character ?

A. Ethane

B. Ethylene

C. Propylene

D. Acetylene

Answer: D

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41. In the reaction : $CH_3 - \overset{\overset{Br}{|}}{\underset{\underset{Br}{|}}{C}} - \overset{\overset{Br}{|}}{\underset{\underset{Br}{|}}{C}} - H \xrightarrow{Zn}$ the product is :

A. 1. $CH_3 - C \equiv CH$

B. 2. $CH_3 - CH = CH_2$

C. 3. $CH_3 - \underset{\underset{Br}{|}}{C} = \underset{\underset{Br}{|}}{CH}$

D. 4. $CH_3CH_2CH_3$

Answer: A

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42. Which of the following is most acidic ?

A. $CH_3 - C \equiv CH$

B. $CH_3 - C \equiv C - CH_3$

C. $CH_3 - CH_2 - C \equiv CH$

D. $CH \equiv CH$

Answer: D

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43. Which of the following will not react with ammoniacal solution of silver nitrate ?

A. $HC \equiv HC$

B. $CH_3 - C \equiv CH$

C. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - C \equiv CH$

D. $CH_3 - C \equiv C - CH_3$

Answer: D

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44. Which of the following reactions of propyne is electrophilic in nature ?

A. H_2O

B. CH_3OH

C. HCN

D. HOCl

Answer: D

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45. Which of the following can undergo nucleophilic addition reactions ?

A. $CH_3 - C \equiv CH$

B. $CH_3 - CH = CH_2$

C. $CH_3 - CH_2 - CH_3$

D. $CH_3 - CH_2 - Br$

Answer: A

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46. In the reaction : $\begin{matrix} CH \\ \| \\ CH \end{matrix} + O \xrightarrow{\text{alk.}KMnO_3} A$ the product is :

A. $\begin{matrix} CH_2 & - & CH_2 \\ | & & | \\ OH & & OH \end{matrix}$

B. CH_3COOH

C. $\begin{matrix} COOH \\ | \\ COOH \end{matrix}$

D. CH_3CHO

Answer: C

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47. When propyne is treated with aqueous H_2SO_4 in presence of $HgSO_4$, the major product is

A. Propanal

B. Propyl hydrogen sulphate

C. Acetone

D. Propanol

Answer: C

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48. When acetylene is passed through dil.H_2SO_4 in presence of $HgSO_4$,the compound formed is

A. Ethanol

B. Acetone

C. Acetaldehyde

D. acetic acid

Answer: C

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49. Which of the following gives a red precipitate with an ammoniacal solution of cuprous chloride ?

A. acetylene

B. ethylene

C. ethane

D. All the three

Answer: A

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50. Which of the following does not give a precipitate with an ammoniacal solution of silver nitrate but decolourises $KMnO_4$?

A. ethane

B. ethyne

C. ethylene

D. propyne

Answer: C

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51. 1-Butyne can be prepared by treating sodium acetylide with :

A. ethyl bromide

B. Methyl bromide

C. ethyl alcohol

D. acetic acid

Answer: A

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52. Industrially acetylene is prepared by the hydrolysis of :

A. calcium carbide

B. sodalime

C. ethyl bromide

D. calcium carbonate

Answer: A

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53. Which of the following reagents can be used to distinguish ethylene from acetylene ?

A. ammoniacal Cu_2Cl_2

B. alkaline $KMnO_4$

C. bromine water

D. chlorine water

Answer: A

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54. 2-Butyne on oxidation with alkaline $KMnO_4$ at 298-303 gives :

A. Oxalic acid

B. 2-Butanone

C. 2, 3-Butanedione

D. 2-Keto propanoic acid

Answer: C

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55. In the reaction : $HC \equiv CH \xrightarrow{NaNH_2} X \xrightarrow{CH_3I} Y \xrightarrow[HgSO_4]{H_2O, H_2SO_4} Z$, Z is :

A. CH_3CHO

B. $CH_3CH_2CH = CH_2$

C. CH_3COCH_3

D. CH_3CH_2CHO

Answer: C

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56. Acetylene when passed through 20% H_2SO_4 at $80^\circ C$ gives acetaldehyde. The catalyst required for the conversion is :

A. anhydrous $AlCl_3$

B. $HgSO_4$

C. Pb

D. Pt

Answer: B

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57. $CH_3C \equiv CCH_3 \xrightarrow[(ii)\, H_2O/Zn]{(i)\, X} H_3C - \underset{\underset{O}{||}}{C} - \underset{\underset{O}{||}}{C} - CH_3$

In the above reaction X is

A. O_2

B. O_3

C. HNO_3

D. $KMnO_4$

Answer: B

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58. Acetylene on ozonolysis gives ozonide which on hydrolysis gives :

A. glyoxal

B. oxalic acid

C. glycol

D. acetaldehyde

Answer: A

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59. The best catayst used to reduce an alkyne to alkene is :

A. Molybdenum oxide

B. Raney nickel

C. Lindlar's catalyst

D. Zinc dust

Answer: C

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60. The reagent required to convert 1-butyne to 2-butanone is :

A. dil. H_2SO_4

B. $ZnCl_2 + HCl$

C. alc. KOH

D. dil. H_2SO_4 in the presence of Hg^{2+}

Answer: D

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61. Acetylene when oxidised with alk. $KMnO_4$ gives :

A. Oxalic acid

B. ethylene glycol

C. Glycerol

D. Acetic acid

Answer: A

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62. The reaction $CH \equiv CH + HCN \xrightarrow{Hg^{2+}} CH_2 = CHCN$ is an example of :

A. Electrophilic addition

B. nucleophilic addition

C. nucleophilic substitution

D. free radical addition

Answer: B

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63. Which reagent can distinguish butyne-1 and butyne-2 ?

A. Br_2 water

B. alk. $KMnO_4$

C. Ag^+

D. alc. KOH

Answer: C

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64. Butyne-2, on heating with sodalime in an inert solvent, gives :

A. Butyne-1

B. Butene-2

C. Butyl alcohol

D. Butanoic acid

Answer: A

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65. Number of acidic hydrogen in 1-butyne is

A. 1

B. 2

C. 3

D. 4

Answer: A

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66. The alkyne which will react with $KMnO_4$ to give pyruvic acid is :

A. Ethyne

B. Propyne

C. Butyne

D. 2-Pentyne

Answer: B

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67. During the reaction :

$CH_3 - C \equiv CH + H_2 \xrightarrow{\text{Catalyst}} CH_3 - CH = CH_2$ The catalyst is :

A. Ni

B. $LiAlH_4$

C. Pt

D. Pd poisoned with $BaSO_4$ and quinoline

Answer: D

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68. $1 - \text{Pentyne} \xrightarrow[CH_3I\,,\text{THE}]{NaNH_2} X \xrightarrow[\text{Lindlar catalyst}]{H_2} Y, Y$ is :

A. cis-2-hexene

B. trans-2-hexene

C. Hexane

D. 2-Pentene

Answer: A

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69. Which of the following reacts with sodamide in liquid ammonia to form an alkynide ?

A. $CH_2 = CH_2$

B. C_6H_6

C. $CH_3C \equiv CH$

D. $CH_3C \equiv CCH_3$

Answer: C

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70. Hydration of which of the following yields ketone ?

A. Propyne

B. Ethene

C. Propene

D. Ethyne

Answer: A

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71. The IUPAC name of the compound having the formula $CH \equiv C - CH = CH_2$ is :

A. 1-Butyne-3-ene

B. but-1-yne-3-ene

C. 1-buten-3-yne

D. 3-buten-1-yne

Answer: C

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72. Sulphonation of benzene is carried out by treating benzene with concentrated sulphuric acid at 330 K in the presence of :

A. SO_3

B. HNO_3

C. HIO_3

D. $AlCl_3$

Answer: A

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73. (a) How does benzene reacts with acetyl- chloride in the presence of anhydrous $AlCl_3$? Give equation.

(b) (i) Write general equation for esterification reaction.

(ii) Name the product obtained when benzoic acid is heated with ammonia.

(c) Name the reagent used in the Clemmensen reduction.

A. toluene

B. acetophenone

C. ethyl benzene

D. acetaldehyde

Answer: B

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74. Benzene on heating strongly in the presence of V_2O_5 gives :

A. maleic acid

B. benzaldehyde

C. benzoic acid

D. CO_2 and H_2O

Answer: A

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75. In benzene, each carbon atom undergoes :

A. sp hybridisation

B. sp^2 hybridisation

C. sp^3 hybridisation

D. sp and sp^2 hybridisation

Answer: B

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76. In Friedel Crafts reaction, anhydrous $AlCl_3$ is used. Its function is to :

A. absorb HCl

B. absorb H_2O

C. produce electrophile

D. produce nucleophile

Answer: C

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77. Benzene reacts with CH_3COCl in the presence of $AICI_3$ to give

A. toluene

B. naphthalene

C. acetophenone

D. benzophenone

Answer: D

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78. The attacking reagent in electrophilic sulphonation of benzene is :

A. SO_4^{2-}

B. SO_3^{2-}

C. SO_2

D. SO_3

Answer: D

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79. When nitrobenzene is treated with bromine, it gives :

A. toluene

B. o-Nitrobromobenzene

C. m-bromonitrobenzene

D. Bromobenzene

Answer: C

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80. Benzene reacts with a mixture of conc. H_2SO_4 and HNO_3 to give :

A. phenol

B. benzene diazonium chloride

C. benzene sulphonic acid

D. nitrobenzene

Answer: D

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81. Friedel Crafts alkyation of benzene is an example of :

A. nucleophilic substitution reaction

B. electrophilic substitution reaction

C. electrophilic addition reaction

D. free radical substitution reaction

Answer: B

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82. The electrophile in nitration of benzene reaction is :

A. NO_2

B. NO_2^-

C. NO_2^+

D. NO

Answer: C

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83. Benzene can be converted into acetophenone by treating it with :

A. acetone in the presence of HCl

B. acetyl chloride in the presence of $AlCl_3$

C. methyl chloride in the presence of $AlCl_3$

D. acetaldehyde in the presence of Fe

Answer: C

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84. Benzene can be converted into toluene by :

A. Wurtz reaction

B. Wurtz Fitting reaction

C. Friedel Crafts reaction

D. Kolbe's reaction

Answer: A

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85. The gas which gives benzene on passing through a red hot tube is

:

A. C_2H_6

B. C_2H_4

C. C_2H_2

D. CH_4

Answer: C

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86. Which of the following compounds can be easily sulphonated ?

A. m-Xylene

B. Nitrobenzene

C. Toluene

D. Chlorobenzene

Answer: B

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87. In the reaction : $C_6H_6 + RCOCl \xrightarrow{AlCl_3} C_6H_5COR + HCl$ the attacking electrophile is :

A. $AlCl_2^+$

B. R^+

C. RCO^+

D. $AlCl_4^-$

Answer: C

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88. According to Huckel rule, the aromatic compounds must have delocalised π-electrons equal to (n is integer) :

A. (4n + 1)

B. (4n + 2)

C. 4n

D. (2n + 2)

Answer: B

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89. During the nitration of benzene, nitric acid is used in the presence of conc. Sulphuric acid. The sulphuric acid is used :

A. as dehydrating agent

B. as solvent

C. to generate nitronium ion

D. as sulphonating agent

Answer: C

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90. Benzene does not undergo addition reactions easily because :

A. it has a cyclic structure

B. resonance stabilized system is to be maintained

C. of strong double bonds in the molecule

D. it has only six hydrogen atoms

Answer: B

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91. In Friedel Crafts reaction, anhydrous $AlCl_3$ is used. Its function is to :

A. absorb water

B. absorb HCl

C. produce a nucleophile

D. produce an electrophile

Answer: D

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92. n-Propyl chloride and benzene react in the presence of anhydrous $AlCl_3$ to form :

A. ethyl benzene

B. methyl benzene

C. n-propyl benzene

D. iso-propyl benzene

Answer: C

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93. Which order is correct for the decreasing reactivity to monobromination of the following compounds ?

$C_6H_5CH_3(I), \quad C_6H_5COOH(II), \quad C_6H_6(III), \quad C_6H_5NO_2(IV)$

A. $I > II > III > IV$

B. $I > III > II > IV$

C. $II > III > IV > I$

D. $III > I > II > IV$

Answer: C

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94. Which of the following is not meta-directing group in electrophilic aromatic substitution reactions ?

A. $-CN$

B. $-CHO$

C. $-OCH_3$

D. $-COCH_3$

Answer: C

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95. Which of the following has maximum reactivity with an electrophile E^+ ?

A. Toluene

B. $p-CH_3-C_6H_4-NO_2$

C. $p - NO_2 - C_6H_4 - NO_2$

D. Benzene

Answer: A

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96. Benzene $+ O_3 \rightarrow Y$. In this reaction Y is :

A. Benzene monoozonide

B. Benzene diozonide

C. Benzene triozonide

D. Succinic acid

Answer: C

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97. Toluene on oxidation with chromyl chloride produces :

A. Benzoic acid

B. Benzaldehyde

C. Chlorobenzene

D. Chromium salt of benzene

Answer: B

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98. The number of π-electrons in phenanthracene is :

A. 14π electrons

B. 10π electrons

C. 12π electrons

D. 16π electrons

Answer: A

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99. Toluene reacts with Cl_2 in presence of light to give

A. Benzyl chloride

B. Benzoyl chloride

C. p-chlorotoluene

D. o-chlorotoluene

Answer: A

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100. Which of the following is less reactive than benzene towards electrophilic substitution reaction ?

A. Nitrobenzene

B. Aniline

C. Bromobenzene

D. Chlorobenzene

Answer: A

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101. Which of the following gives phthalic acid on oxidation with $KMnO_4$?

A. o-Cresol

B. o-Methylphenol

C. o-Xylene

D. Toluidine

Answer: A

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102. An aromatic compound X, C_7H_7Cl on oxidation gives an aromatic compound Y. The sodalime decarboxylation of Y produces benzene. X is :

A. o-chlorotoluene

B. p-chlorotoluene

C. benzyl chloride

D. m-chlorotoluene

Answer: C

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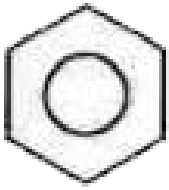
103. Which of the following is nonaromatic ?

A. 

B. 

C. 

D. 

Answer: C

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104. In Friedel Crafts synthesis of toluene, reactants in addition to anhydrous $AlCl_3$ are :

A. $C_6H_6 + CH_4$

B. $C_6H_6 + CH_3Cl$

C. $C_6H_5Cl + CH_3Cl$

D. $C_6H_5Cl + CH_4$

Answer: B

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105. The correct order of reactivity towards electrophilic substitution of the compounds :

aniline (I), benzene (II) and nitro benzene (III) is :

A. $III > II > I$

B. $II > III > I$

C. $I < II < III$

D. $I > II > III$

Answer: D

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106. The order of decreasing reactivity towards electrophilic reagent, for the following compounds :

(a) Benzene

(b) Toluene

(c) Chlorobenzene

(d) Phenol

Would be :

A. $b > d > a > c$

B. $d > c > b > a$

C. $d > b > a > c$

D. $a > b > c > d$

Answer: C

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107. In electrophilic aromatic substitution reaction, the nitro group is meta directing because it :

A. decreases electron density at meta position

B. increases electron density at meta position

C. increases electron density at ortho and para positions

D. decreases electron density at ortho and para positions

Answer: D

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108. The carbon-carbon bond length in benzene is :

A. same as in C_2H_4

B. in between C_2H_6 and C_2H_2

C. in between C_2H_4 and C_2H_2

D. in between C_2H_6 and C_2H_4

Answer: D

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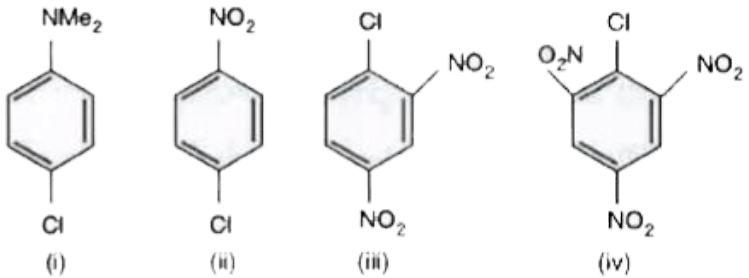
109. Order of reactivity towards nucleophili substitution reaction of the compounds :



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

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

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

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

Answer: A

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110. Which one of the following is aromatic ?

A. Cyclopentadienyl cation

B. Cyclo octatetraene

C. Cyclo heptatriene

D. Cycloheptatrienyl cation

Answer: D

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Level Ii

1. The main product in the dehydration of :

$(CH_3)_3\underset{\underset{OH}{|}}{C}CHCH_2CH_3$ in the presence of conc. H_2SO_4 at $170^\circ C$ is :

A. $(CH_3)_3CCH = CHCH_3$

B. $(CH_3)_2C = \underset{\underset{CH_3}{|}}{C}\ CH_2CH_3$

C. $(CH_3)_2CH\ \underset{\underset{CH_3}{|}}{C}\ = CHCH_3$

D. $(CH_3)_3CCH_2CH = CH_2$

Answer: B

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2. Propanol is heated with conc. H_2SO_4 at $170^\circ C$ and the gas produced is reacted with HBr. What is the formula of the final product ?

A. $CH_3 - CH_2CH_2Br$

B. $CH_3\underset{\underset{Br}{|}}{CH} - \underset{\underset{Br}{|}}{CH_2}$

C. $CH_3 - \underset{\underset{Br}{|}}{CH} - CH_2OH$

D. $CH_3 - \underset{\underset{Br}{|}}{CH} - CH_3$

Answer: D

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3. Ozonolysis of an alkene [A] followed by decomposition with water and a reducing agent gave a mixture of two isomers of the formula C_3H_6O. The structure of alkene is :

A. $CH_2 = CHCH_2CH(CH_3)_2$

B. $(CH_3)_2C = CHCH_2CH_3$

C. $(CH_3)_2CHCH = CHCH_3$

D. $CH_3\underset{\underset{CH_2}{||}}{C}CH_2CH_2CH_3$

Answer: B

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4. The reaction of chlorine with propene at $500 - 600^\circ C$ proceeds through the formation of :

A. propyl carbonium ion

B. allyl carbonium ion

C. allyl free radical

D. vinyl free radical

Answer: C

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5. A compound, C_7H_{14}, on ozonolysis gives ethanal and 3-pentanone.

The structure of the compound is :

A. $CH_3CH_2CH_2CH_2CH_2CH=CH_2$

B. $(CH_3)_2C=C(CH_3)CH_2CH_3$

C. $CH_3CH_2-C(C_2H_5)=CH-CH_3$

D. $CH_3-\underset{\underset{CH_3}{|}}{C}=CH-CH_2CH_2CH_3$

Answer: C

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6. 2-Chlorobutane was treated with alc. KOH and the product formed was reacted with dil. $KMnO_4$ to give the product B. The structure of B is :

A. $CH_3 - \underset{\underset{OH}{|}}{CH} - CH_2 - CH_3$

B. $CH_3 - CH = CH - CH_2OH$

C. $CH_3 - \underset{\underset{OH}{|}}{CH} - \underset{\underset{OH}{|}}{CH}CH_3$

D. $\underset{\underset{OH}{|}}{CH_2} - \underset{\underset{OH}{|}}{CH}CH_2CH_3$

Answer: C

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7. In the reaction : $CH_2 = CH - CH = CH_2 + Br_2 \xrightarrow{-40^\circ C}$ the predominant product is :

A. 3, 4-Dibromo but-1-ene

B. 1, 4-Dibromo but-2-ene

C. 1, 2, 3, 4-Tetrabromobutane

D. 2, 4-Dibromo but-2-ene

Answer: B

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8. which of the following statements is not true regarding addition of bromine to ethylene ?

A. The reaction is termed as electrophilic addition reaction

B. In the first step, bromine adds to ethylene to form a cyclic bromonium ion.

C. Bromine is less reactive than chlorine for the reaction

D. The final product is cis-dibromoethane

Answer: D

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9. A hydrocarbon X decolourises bromine water and with HI it forms isopropyl iodide X is :

A. Propyne

B. Propylene

C. Ethylene

D. Isobutylene

Answer: B

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10. A colourless compound X on treatment with alc. KOH gave a gaseous compound Y. The compound Y decolourises bromine water and alkaline $KMnO_4$ solution but gives no precipitate with ammoniacal cuprous chloride. The compound X is :

A. Ethylene

B. Ethyne

C. Ethylene dibromide

D. Ethyl bromide

Answer: D

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11. In the reaction : $CH_3CH_2Br \xrightarrow[\text{Ether}]{Mg} X \xrightarrow[\text{Ether}]{CH_3Br} Y + MgBr_2Y$ is :

A. Ethane

B. Propane

C. Isopropyl alcohol

D. Propyl alcohol

Answer: B

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12. In the reaction : $CH_3COOH \xrightarrow{NaOH} X \xrightarrow[\text{Heat}]{NaOH, CaO} Y$, Y is :

A. CH_3CHO

B. CH_4

C. CH_3COCH_3

D. C_2H_6

Answer: B

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13. In the reaction : $A \xrightarrow{HBr} B \xrightarrow[\text{alcohol}]{KOH} C \xrightarrow[Zn\,,H_2O]{O_3} HCHO + CH_3CHO$

the compound A is :

A. Ethylene

B. Acetic acid

C. Propene

D. Ethyl alcohol

Answer: C

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14. Formation of alkane by the action of zinc on alkyl halide is called :

A. Frankland reaction

B. Kolbe's reaction

C. Wurtz reaction

D. Cannizzaro's reaction

Answer: A

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15. The sodium salt of which acid will be needed for the preparation of propane by decarboxylation reaction ?

A. $CH_3CH_2CH_2CH_2COOH$

B. CH_3CH_2COOH

C. $CH_3CH_2CH_2COOH$

D. CH_3COOH

Answer: C

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16. Which of the following has highest melting point ?

A. n-pentane

B. n-hexane

C. 2-methylbutane

D. 2, 2-dimethylpropane

Answer: B

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17. The number of σ and π bonds in 1, 3, 5, 7-octatetraene are respectively.

A. 17, 4

B. 9, 3

C. 16, 4

D. 6, 4

Answer: A

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18. The function of sodalime, a mixture of solid NaOH and CaO in the preparation of alkanes is :

A. to decrease the rate of reaction

B. to increase the rate of reaction

C. to keep the reaction homogeneous

D. to get pure alkane

Answer: A

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19. Which of the following compounds will yield ethane on treatment with sodium in dry ether ?

A. C_2H_4

B. C_2H_5Cl

C. C_2H_5OH

D. CH_3Br

Answer: D

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20. Electrolysis of concentrated solution of potassium acetate gives :

A. Ethane

B. Ethylene

C. Butane

D. Acetylene

Answer: A

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21. The most volatile of the following compounds is :

A. n-Pentane

B. Isobutane

C. 2, 2-Dimethylbutane

D. 2, 2-Dimethylpropane

Answer: D

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22. Iodiantion of alkanes is carried out in the presence of :

A. carbon tetrachloride

B. an oxidising agent

C. a reducing agent

D. excess air

Answer: B

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23. When methane mixed with oxygen is passed through heated molybdenum oxide, the main product formed is :

A. Formaldehyde

B. Acetic acid

C. Formic acid

D. Carbon monoxide + carbon

Answer: A

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24. When sodium propionate is heated with soda lime, the produce is :

A. Propane

B. Ethane

C. Ethylene

D. Methane

Answer: B

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25. Which of the following carbides gives methane on treatment with water ?

A. Aluminium carbide

B. Iron carbide

C. Calcium carbide

D. Silicon carbide

Answer: A

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26. The dehalogenation of vicinal dihalides with zinc dust gives :

A. alkenes

B. alcohols

C. alkanes

D. alkynes

Answer: A

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27. Electrolysis of a concentrated solution of sodium fumarate gives :

A. Ethylene

B. Ethane

C. Acetylene

D. Vinyl alcohol

Answer: C

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28. A gas on passing through ammonical solution of $AgNO_3$ does not give any percipitate but decolourises alkaline $KMnO_4$ solution. The gas may be

A. CH_4

B. C_2H_6

C. C_2H_4

D. C_2H_2

Answer: C

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29. Iodides of alkanes can be conveniently prepared by treating the chloro or bromo-derivative with sodium iodide in acetone. The reaction is known as :

A. Finkelstein reaction

B. Frankland reaction

C. Fitting reaction

D. Kolbe's reaction

Answer: A

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30. Acetone will be formed by the ozonolysis of :

A. Butene-1

B. Butene-2

C. Isobutene

D. Butyne-2

Answer: C

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31. Addition of hypochlorous acid to propyne gives :

A. Dichloroacetaldehyde

B. 1, 1-Dichloroacetone

C. 1, 2-Dichloropropane

D. Ethylidene Chloride

Answer: B

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32. When isopropyl bromide is heated with sodium in the presence of dry ether, we get :

A. isopentane

B. 2, 3-dimethylbutane

C. n-hexane

D. Isohexane

Answer: B

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33. A mixture of propyl iodide and ethyl iodide is subjected to Wurtz reaction. Which of the following hydrocarbons is not formed during the reaction ?

A. Propane

B. Butane

C. Pentane

D. Hexane

Answer: A

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34. A hydrocarbon with molecular formula C_8H_{18} gives only one monochloro derivative. It can be :

A. n-octane

B. 2-methyl heptane

C. 2, 2, 3, 3-tetramethyl butane

D. 2, 2, 4-trimethyl pentane

Answer: C

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35. Teflon is a polymer of the monomer :

A. Monofluoroethene

B. Difluoroethene

C. Tetrafluoroethene

D. Tetrofluoroethane

Answer: C

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36. In order to synthesise acetophenone from acetyl chloride, we can use :

A. Wurtz reaction

B. Friedel-Crafts reaction

C. Cannizzaro's reaction

D. Liebermanns reaction

Answer: B

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37. A conjugated diene wil have two double bonds in :

A. adjacent positions

B. alternate positions

C. isolated positions

D. any position

Answer: B

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38. $X \xrightarrow[\text{warm acid}]{KMnO_4} (CH_3)_2CHCOOH + HOOCCH_2CH_2CH_3$ X is hydrocarbon and is :

A. 6-Methylhept-3-yne

B. 6-Methylhepta-2, 4-diene

C. 5-Methylhept-3-yne

D. 2-Methylhept-3-yne

Answer: D

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39. On being heated with alcoholic KOH, neopentyl bromide gives mainly :

A. but-2-ene

B. 2-methyl but-1-ene

C. 2-Methyl but-2-ene

D. 2, 2-dimethyl but-1-ene

Answer: C

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40. Which of the following reaction will give 2, 2-dibromopropane ?

A. $CH_3 - C \equiv CH + 2HBr \rightarrow$

B. $CH_3CH = CH_2 + HBr \rightarrow$

C. $CH_3CH = CHBr + HBr \rightarrow$

D. $HC \equiv CH + 2HBr \rightarrow$

Answer: A

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41. When acetylene is passed through dil.H_2SO_4 in presence of $HgSO_4$,the compound formed is

A. ether

B. ketone

C. acetic acid

D. acetaldehyde

Answer: D

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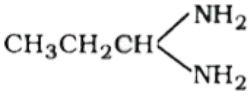
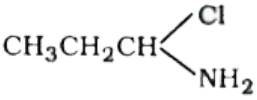
42. When $CH_3CH_2CHCl_2$ is treated with $NaNH_2$, the product formed is :

A. $CH_3CH = CH_2$

B. $CH_3C \equiv CH$

C. 

D. 

Answer: B

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43. Which of the compounds with molecular formula C_5H_{10} yields acetone on ozonolysis ?

A. 3-Methyl-1-butene

B. Cyclopentane

C. 2-Methyl-1-butene

D. 2-Methyl-2-butene

Answer: D

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44. The order of reactivity of the alkenes :

$$\underset{(I)}{(CH_3)_2C=CH_2}, \quad \underset{(II)}{CH_3CH=CH_2}, \quad \underset{(III)}{CH_2=CH_2}$$

When subjected to acid catalysed hydration is :

A. $I > II > III$

B. $I > III > II$

C. $III > II > I$

D. $II > I > III$

Answer: A

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45. In the following reaction : $RCH_2CH=CH_2 + Icl \rightarrow [A]$

Markovinkoff's product [A] is :

A. $RCH_2\underset{\underset{Cl}{|}}{CH} - CH_2I$

B. $RCH_2 - \underset{I}{CH} - CH_2Cl$

C. $RCH - \underset{I}{CH} = CH_2$

D. $RCH = CH - CH_2I$

Answer: A

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46. The most reactive towards electrophilic nitration is :

A. toluene

B. benzene

C. Benzoic acid

D. Nitrobenzene

Answer: A

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47. Arrange the following compounds in order of their decreasing reactivity with an electrophile :

(i) Chlorobenzene

(ii) 2, 4-dinitrochlorobenzene

(iii) p-nitrochlorobenzene

A. $iii > ii > i$

B. $ii > iii > i$

C. $i > iii > ii$

D. $i > ii > iii$

Answer: C

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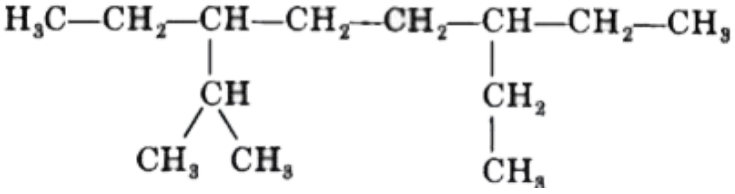
48. The correct IUPAC name of the following alkane is



A. 3, 6-Diethyl-2-methyloctane

B. 5-Isopropyl-3-ethyloctane

C. 3-Ethyl-5-isopropyloctane

D. 3-Isopropyl-6-ethyloctane

Answer: A

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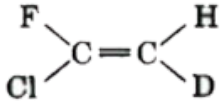
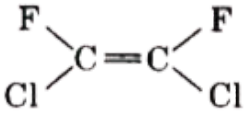
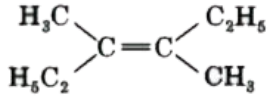
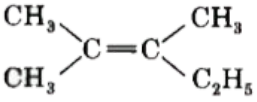
49. Which of the following will not show geometrical isomerism?

A. 

B. 

C. 

D. 

Answer: D

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50. Arrange the following alkyl halides in decreasing order of the rate of β-elimination reaction with alcohlic KOH.

(i) $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{H}{|}}{C}} - CH_2Br$

(ii) $CH_3 - CH_2 - Br$

(iii) $CH_3 - CH_2 - CH_2 - Br$

A. $i > ii > iii$

B. $iii > ii > i$

C. $ii > iii > i$

D. $i > iii > ii$

Answer: D

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51. Baeyer's reagent is

A. aqueous $KMnO_4$

B. neutral $KMnO_4$

C. alkaline $KMnO_4$

D. aqueous bromine water

Answer: C

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52. $C_2H_2 \xrightarrow[H_2SO_4, H_2O]{Hg^{2+}} A \xrightarrow{[O]} B$, The compound B is

A. an acid

B. an aldehyde

C. ketone

D. ethanol

Answer: A

Watch Video Solution

53. Which alkenes on ozonolysis gives CH_3CH_2CHO and CH_3COCH_3

A. $CH_3CH_2CH = C(CH_3)_2$

B. $CH_3CH_2CH = CHCH_2CH_3$

C. $CH_3CH_2CH = CHCH_3$

D. $(CH_3)_2C = CHCH_3$

Answer: A

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54. Products of the following reaction CH3.C ≡C.CH 2 CH3 on reaction with (1) O3+ (2) hydrolysis gives are:

A. $CH_3COOH + CO_2$

B. $CH_3COOH + HOOCCH_2CH_3$

C. $CH_3CHO + CH_3CH_2CHO$

D. $CH_3COOH + CH_3COCH_3$

Answer: B

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55. Predict the product 'C' obtained in the following reaction of butyne-1

$$CH_3CH_2 - C \equiv CH + HCl \rightarrow B \xrightarrow{HI} C$$

A. $CH_3CH_2 - \underset{\underset{Cl}{|}}{\overset{\overset{I}{|}}{C}} - CH_3$

B. $CH_3 - \underset{\underset{Cl}{|}}{CH} - CH_2CH_2I$

C. $CH_3CH_2CH_2 - \underset{\underset{Cl}{|}}{\overset{\overset{I}{|}}{C}} - H$

D. $CH_3 - CH_2 - \overset{\overset{I}{|}}{CH} - CH_2Cl$

Answer: A

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56. Which of the compounds with molecular formula C_5H_{10} yields acetone on ozonolysis ?

A. 2-Methyl-1-butene

B. 2-Methyl-2-butene

C. 3-Methyl-1-butene

D. Cyclopentane

Answer: B

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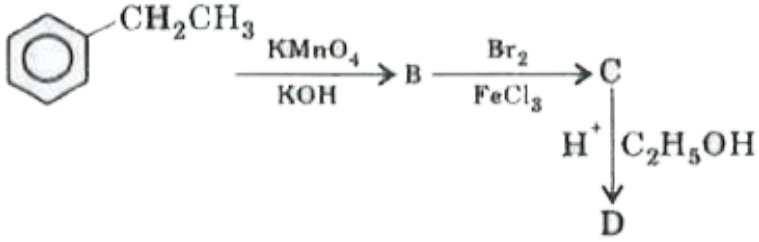
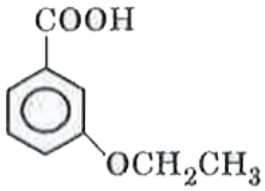
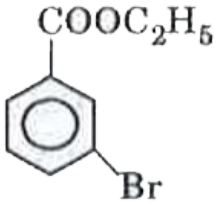
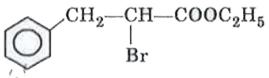
57. In a set of reactions, ethyl benzene yielded a product D.

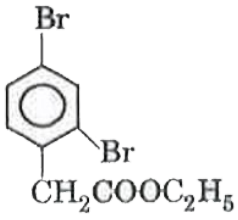


'D' would be :

A. 

B. 

C. 

D. 

Answer: B

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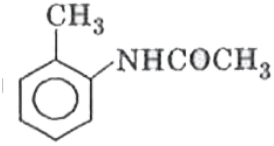
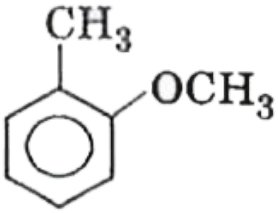
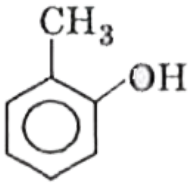
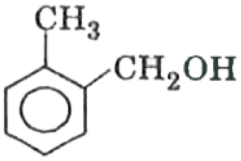
58. Which one is most reactive towards electrophilic reagent ?

A. 

B. 

C. 

D. 

Answer: C

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59. An alkane with a molecular formula C_6H_{14} reacts with chlorine in the presence of light and heat to give two constitutionally isomeric

monochlorides of molecular formula $C_6H_{13}Cl$. What is the most reasonable starting alkane ?

A. n-Hexane

B. 2, 2-Dimethylbutane

C. 2, 3-Dimethylbutane

D. 3-Methylpentane

Answer: C

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60. In organic reactions, metallic lithium in liquid ammonia behaves as

A. oxidising agent

B. reducing agent

C. bleaching agent

D. dehydrating agent

Answer: B

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61. In the following sequence of reactions, the end product is

$$CaC_2 \xrightarrow{H_2O} A \xrightarrow{Hg^{2+}/H_2SO_4} B \xrightarrow{[O]} C \xrightarrow{Ca(OH)_2} D \xrightarrow{\text{heat}} E$$

A. acetaldehyde

B. formaldehyde

C. acetic acid

D. methane

Answer: D

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62. When 3-phenylpropene reacts with HBr in the presence of peroxide, the major product formed is

A. 2-bromo-1-phenylpropane

B. 1, 2-dibromo-3-phenylpropane

C. 3-(o-bromophenyl) propene

D. 1-bromo-3-phenylpropane

Answer: D

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63. When one mole of an alkene on ozonolysis produces 2 moles of propanone, the alkene is

A. 3-methyl-1-butene

B. 2, 3-dimethyl-2-butene

C. 2, 3-dimethyl-2-pentene

D. 2, 3-dimethyl-2-pentene

Answer: D

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64. Reaction of hydrogen bromoide with propene in the absence of peroxide is a/an

A. free radical addition

B. nucleophilic addition

C. electrophilic substitution

D. electrophilic addition

Answer: D

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65. Increasing order of carbon-carbon bond length for the following is :

(i) C_2H_4

(ii) C_2H_2

(iii) C_6H_6

(iv) C_2H_6

A. $ii < iii < i < iv$

B. $iii < ii < i < iv$

C. $ii < i < iii < iv$

D. $iv < iii < i < ii$

Answer: C

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66. Ozonolysis of an organic compound gives formaldehyde as one of the products. This confirms the presence of :

A. two ethylenic double bonds

B. a vinyl group

C. an isopropyl group

D. an acetylenic triple bond

Answer: B

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67. When HBr adds on hex-1-ene in the presence of benzoyl peroxide, the product is

A. 2-bromohexane

B. 2, 3-dibromohexane

C. 1, 2-dibromohexane

D. 1-bromohexane

Answer: D

68. For an electrophilic aromatic substitution reaction :

A. Chlorine is o-p directing group and also electron releasing group

B. chlorine is o-p directing group and also electron withdrawing group

C. chlorine is meta directing group and also electron releasing group

D. chlorine is meta directing group and also electron withdrawing group

Answer: B

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69. "Anti-Markovnikov addition of HBr is not observed in

A. propene

B. butene

C. but-2-ene

D. pent-2-ene

Answer: C

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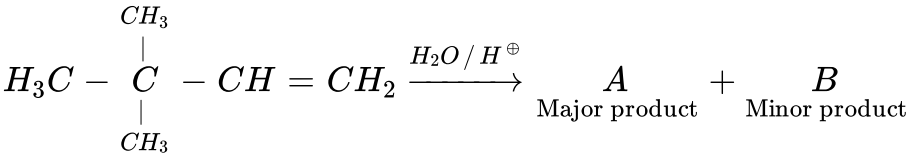
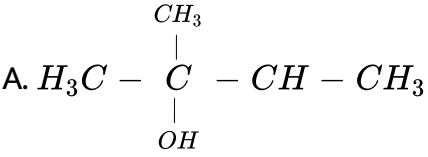
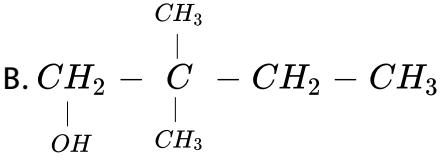
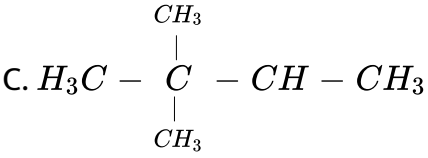
70. In the following reaction

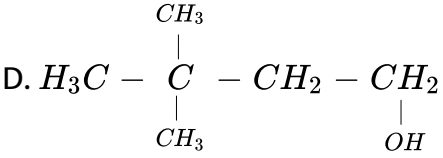


The major product is

A. 

B. 

C. 

D. 

Answer: A

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71. The ozonolysis of an olefin gives only propanone. The olefin is

A. but-1-ene

B. but-2-ene

C. 2, 3-dimethylbut-2-ene

D. propene

Answer: C

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72. Propyne and propene can be distinguished by :

A. Conc. H_2SO_4

B. Br_2 in CCl_4

C. dil H_2SO_4

D. $AgNO_3$ in ammonia

Answer: D

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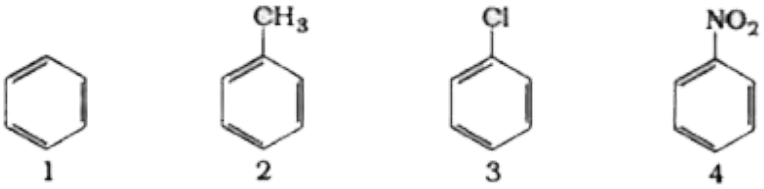
73. Identify the correct order of reactivity in electrophilic substitution reactions of the following compounds.



A. $1 > 2 > 3 > 4$

B. $4 > 3 > 2 > 1$

C. $2 > 1 > 3 > 4$

D. $2 > 3 > 1 > 4$

Answer: C

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74. Butene-1 can be converted to butane by reaction with :

A. Pd / H_2

B. Zn, HCl

C. Sn, HCl

D. Zn, Hg

Answer: A

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75. Which one of the following has minimum boiling point ?

A. n-butane

B. isobutane

C. 1-Butene

D. 1-butyne

Answer: B

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76. Which one of the following is reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon ?

A. Ethyl acetate

B. Butan-2-one

C. Acetamide

D. Acetic acid

Answer: B

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77. Among the following compounds, which one will be dehydrated very easily :

A. $CH_3CH_2CH_2CH_2CH_2OH$

B. $CH_3CH_2\underset{\underset{CH_3}{|}}{CH}CH_2CH_2OH$

C. $CH_3CH_2\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}CH_2CH_3$

D. $CH_3CH_2CH_2\underset{\underset{OH}{|}}{CH}CH_3$

Answer: C

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78. 2-Methylbutane on reacting with bromine in the presence of sunlight gives mainly

A. 1-bromo-2-methylbutane

B. 2-bromo-2 methylbutane

C. 2-bromo-3-methylbutane

D. 1-bromo-3-methylbutane

Answer: B

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79. Acid catalysed hydration of alkenes except ethene leads to the formation of

A. primary alcohol

B. secondary or tertiary alcohol

C. mixture of primary and secondary alcohols

D. mixture of secondary and tertiary alcohols

Answer: B

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80. Elimination of bromine from 2-bromobutane results in the formation of

A. equimolar mixture of 1 and 2-butene

B. predominantly 2-butene

C. predominantly 1-butene

D. predominantly 2-butyne

Answer: B

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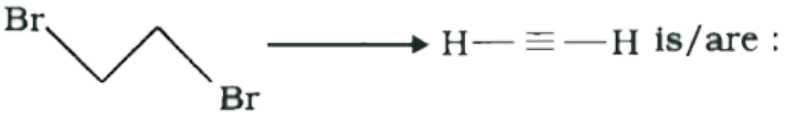
81. The reagent(s) for the following conversion :



is/are :

A. alcoholic KOH

B. alcoholic KOH followed by $NaNH_2$

C. aqueous KOH followed by $NaNH_2$

D. Zn / CH_3OH

Answer: B

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

A. Benzyl chloride

B. o- and p-chlorotoluene

C. m-chlorotoluene

D. benzoyl chloride

Answer: B

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83. Which of the following reactions will yield 2, 2-dibromopropane ?

A. $CH_3CH = CHBr + HBr \rightarrow$

B. $CH \equiv CH + 2HBr \rightarrow$

C. $CH_3 - CH = CH_2 + HBr \rightarrow$

D. $CH_3 - C \equiv CH + 2HBr \rightarrow$

Answer: D

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

A. Benzyl chloride

B. o- and p-chlorotoluene

C. m-chlorotoluene

D. benzoyl chloride

Answer: B

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85. In the following sequence of reactions, the alkene affords the compound B

$CH_3CH = CHCH_3 \xrightarrow{O_3} A \xrightarrow{Zn} B$ The compound B is

A. CH_3CHO

B. CH_3CH_2CHO

C. CH_3COCH_3

D. $CH_3CH_2COCH_3$

Answer: A

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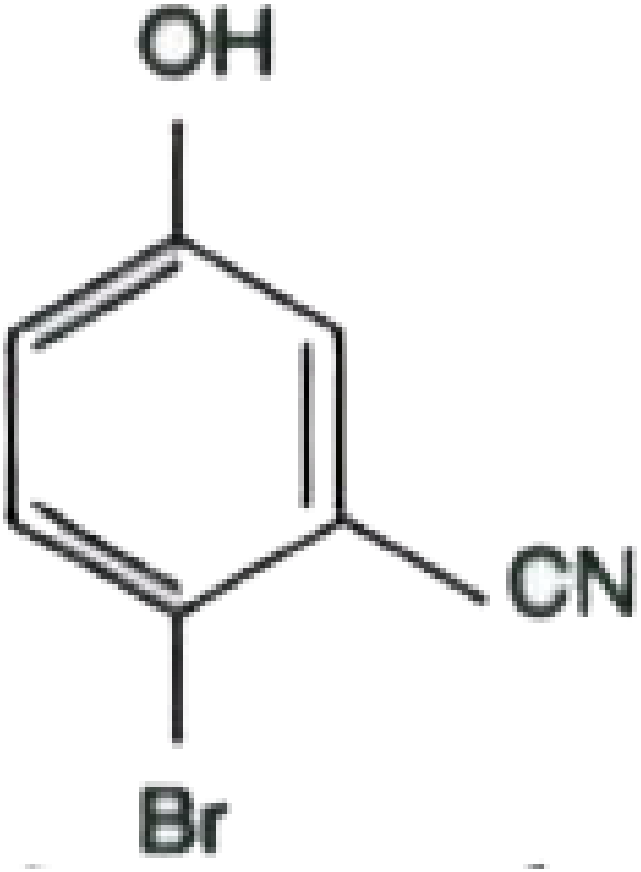
Level Iii

1. The IUPAC name of the following compound is :



A. 4-bromo-3-cyanophenol

B. 2-bromo-5-hydroxybenzonitrile

C. 2-cyano-4-hydroxybromobenzene

D. 6-bromo-3-hydroxybenzonitrile

Answer: B

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2. Out of the following the alkene that exhibits optical isomerism is :

A. 3-methyl-1-pentene

B. 2-methyl-2-pentene

C. 3-methyl-2-pentene

D. 4-methyl-1-pentene

Answer: A

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3. Ozonolysis of an organic compound gives formaldehyde as one of the products. This confirms the presence of :

A. an isopropyl group

B. an acetylenic triple bond

C. two ethylenic double bonds

D. a vinyl group

Answer: D

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4. Ozonolysis of an organic compound 'A' produces acetone and propionaldehyde in equimolar mixture. Identify 'A' from the following compounds :

A. 1-Pentene

B. 2-Pentene

C. 2-Methyl-2-pentene

D. 2-Methyl-1-pentene

Answer: C

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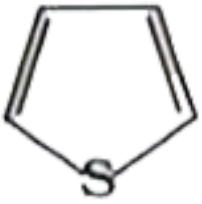
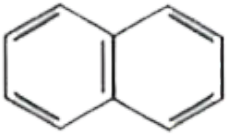
5. The non aromatic compound among the following is :

A. 

B. 

C.

D.

Answer: D

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6. Consider the following reaction : $C_2H_5OH + H_2SO_4 \rightarrow$ Product

Among the following, which one cannot be formed as a product under any conditions ?

A. Ethylene

B. Acetylene

C. Diethyl ether

D. Ethyl-hydrogen sulphate

Answer: B

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7. How many chiral compounds are possible on monochlorination of 2-methyl butane ?

A. 6

B. 8

C. 2

D. 4

Answer: D

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8. Which branched chain isomer of the hydrocarbon with molecular mass 72u gives only one isomer of mono substituted alkyl halide ?

A. Neohexane

B. Tertiary butyl chloride

C. Neopentane

D. Isohexane

Answer: C

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9. 2-Hexyne gives trans-2-hexene on treatment with :

A. $LiAlH_4$

B. Pt / H_2

C. Li / NH_3

D. $Pb/BaSO_4$

Answer: C

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10. A gaseous hydrocarbon gives upon combustion 0.72 g of water and 3.08 g of CO_2. The empirical formula of the hydrocarbon is :

A. C_2H_4

B. C_3H_4

C. C_6H_5

D. C_7H_8

Answer: D

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Recent Examination Questions

1. The electrophile involved in the sulphonation of benzene is :

A. SO_3^{2-}

B. H_3O^+

C. SO_3

D. SO_3^+

Answer: C

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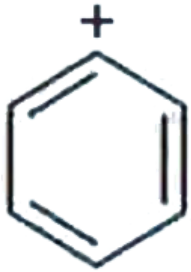
2. Which one of the following is intermediate in the reaction of benzene with CH_3Cl in the presence of Anhydrous $AlCl_3$?

A. Cl^+

B. CH_3^-

C. CH_3^+



D.

Answer: C

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3. Increasing order of carbon-carbon bond length for the following is

:

C_2H_4	C_2H_2	C_6H_6	C_2H_6
(A)	(B)	(C)	(D)

A. $B < C < A < D$

B. $C < B < A < D$

C. $B < A < C < D$

D. $D < C < A < B$

Answer: C

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4. Ethyl benzene can not be prepared by :

A. Wurtz reaction

B. Wurtz Fitting reaction

C. Friedel-Crafts reaction

D. Clemmensen reduction

Answer: A

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5. Which one of the following is not formed when a mixture of methyl bromide and bromobenzene is heated with sodium metal in the presence of dry ether ?

A. Ethane

B. Diphenyl

C. Propane

D. Toluene

Answer: C

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6. 100 mL of 0.1 M acetic acid is completely neutralized using a standard solution of NaOH . The volume of ethane obtained at STP after the complete electrolysis of the resulting solution is

A. 112 mL

B. 56 mL

C. 224 mL

D. 560 mL

Answer: A

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7. The C-H bond and C- C bond in ethane are formed by which of the following types of overlap ?

A. $sp^3 - s$ and $sp^3 - sp^3$

B. $sp^2 - s$ and $sp^2 - sp^2$

C. sp-s and sp-sp

D. p-s and p-p

Answer: A

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8. Number of possible alkynes with formula C_5H_8 is

A. 4

B. 2

C. 5

D. 3

Answer: D

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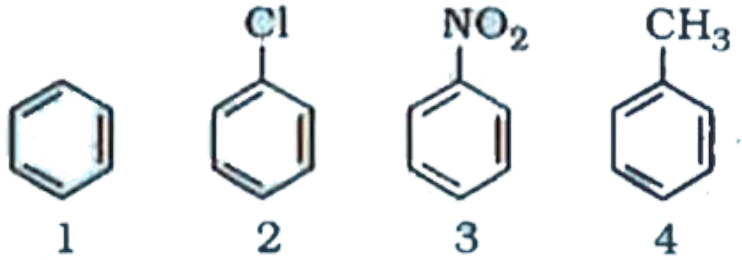
9. The decreasing order of reactivity towards electrophilic substitution of the following compound is :



A. $1 > 3 > 4 > 2$

B. $4 > 1 > 3 > 2$

C. $4 > 1 > 2 > 3$

D. $1 > 3 > 4 > 2$

Answer: C

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