# CHEMISTRY

## BOOKS - PATHFINDER CHEMISTRY (BENGALI ENGLISH)

## HYDROCARBONS

**Question Bank**

**1.** Which of the following alkanes can not 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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**2.** Sodium propionate on heating with sodalime yields

A. Methane

B. Ethane

C. Ethylene

D. Acetylene

**Answer: A**

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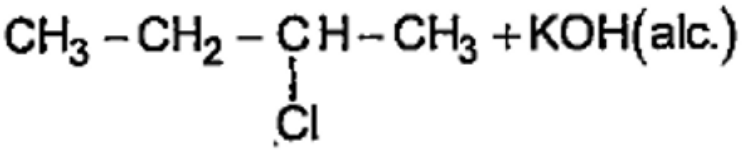
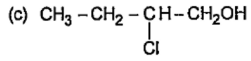
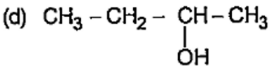
**3.** The main product in the reaction of



A. $CH_3 - CH = CH - CH_3$

B. $CH_2 = CH - CH_2 - CH_3$

C. 


D. 


**Answer: A**

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**4.** Which of the following is most acidic?

A. $CH_3 - C = CH$

B. $CH_3 - C = C - CH_3$

C. $CH_3 - CH_2 - C = CH$

D. CH = CH

**Answer: D**

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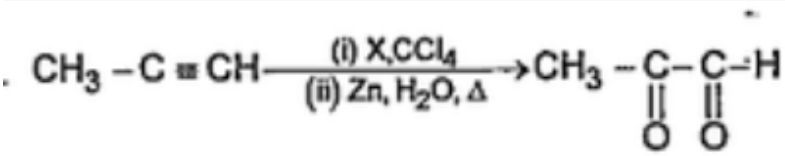
5. 

In the above reaction, X is :

A. $O_2$

B. $O_3$

C. $HNO_3$

D. $KMnO_4$

**Answer: B**

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**6.** In which reaction $\rangle C = 0$ can be reduced to $\rangle CH_2$?

A. Wolf - Kishner

B. Reimer - Tiemann reaction

C. Wurtz reaction

D. None of these

**Answer: A**

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**7.** A gas decolourises $KMnO_4$ but does not give any precipitate with ammoniacal $AgNO_3$. The gas is :

A. $CH_4$

B. $C_2H_6$

C. $C_2H_4$

D. $C_2H_2$

**Answer: C**

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**8.** Which of the following has the highest boiling point?

A. n-octane

B. neo-octane

C. iso-octane

D. 2, 2 - dimethyl pentane

**Answer: A**

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**9.** $Ph - C \equiv C - CH_3 \xrightarrow[60^\circ C - 80^\circ C]{H^+, Hg^{2+}} A,$ A is

A. $PhCOCH_2CH_3$

B. $CH_3COCH_2CH_3$

C. 

D. 

**Answer: A**

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**10.** Phenylmagnesium lodide reacts with methanol to give:

A. Benzene

B. Toluene

C. Phenol

D. Anisole

**Answer: A**

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**11.** Which of these will not react with acetylene?

A. $NaOH$

B. HCl

C. K

D. $AgN\frac{O_3}{N}H_4OH$

**Answer: B**

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**12.** Household gas or liquefied petroleum gas (LPG) mainly contains:

A. Methane and Ethane

B. Liquefied butane and isobutane

C. Ethylene and CO

D. $C_2H_4$ and $C_2H_2$

**Answer: B**

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**13.** Which of the following yield both alkane and alkene?

A. Kolbe's reaction

B. Williamson's synthesis

C. Wurtz reaction

D. Sandmayer reaction

**Answer: A**

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**14.** Lewisite a poisonous gas is obtained by the action of acetylene on one of the following:

A. CO

B. $AsCl_3$

C. $COCl_2$

D. $SOCl_2$

**Answer: B**

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**15.** Which of the following metal powder is used to convert trichloro methane into acetylene by heating the latter with it?

A. Ag

B. Na

C. Mg

D. Ca

**Answer: A**

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**16.** 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. isopropyl benzene

**Answer: D**

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**17.** Vinyl chloride can be converted into well known plastic PVC, the catalyst used for the purpose is :

A. Cuprous chloride

B. Peroxides

C. Anhydrous $AlCl_3$

D. Anhydrous $ZnCl_2$

**Answer: B**

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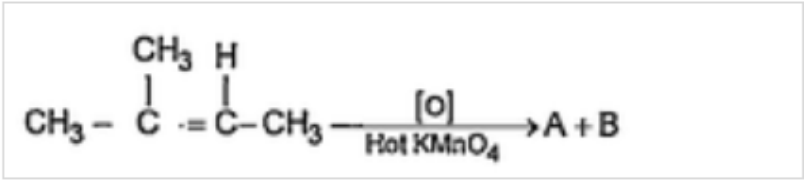
18. 

A and B are :

A. $CH_3COOH$ and $CH_3COCH_3$

B. $CH_3COOH$ and $CH_3COCH_3$

C. $CH_3COCH_3$ and $CH_3COOH$

D. $CH_3COCH_3$ and $CH_3CHO$

**Answer: C**

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**19.** Which of the following cannot be used in Friedel crafts reaction?

A. $FeCl_3$

B. $BF_3$

C. $AlCl_3$

D. $NaCl$

**Answer: D**

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**20.** From which of the following both ethylene and acetylene could be prepared in separate single step reaction is

A. $CH_3CH_2OH$

B. $CH_2(Br) - CH_2Br$

C. $CH_3CH_2Br$

D. $Br - CH_2 - CH_2 - OH$

**Answer: B**

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**21.** The function of anhydrous $AlCl_3$ in the Friedel Crafts alkylation reaction is to :

A. Absorb water

B. Absorb HCl

C. Produce a nucleophile

D. Produce an electrophile

**Answer: D**

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**22.** 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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**23.** Addition of HOCl to propyne gives :

A. Dichloro acetaldehyde

B. 1, 1 - dichloroacetone

C. 1, 2 - dichloropropane

D. Ethylidene chloride

**Answer: B**

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**24.** Catalyst used in dimerisation of acetylene to prepare chloroprene is :

A. $Cu_2Cl_2$

B. $HgSO_4 + H_2SO_4$

C. $Cu_2Cl_2 + NH_4Cl$

D. $Cu_2Cl_2 + NH_4OH$

**Answer: C**

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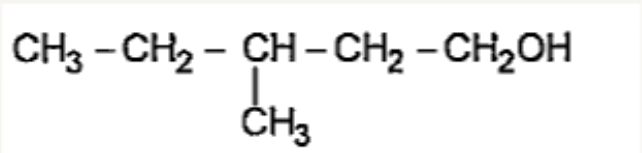
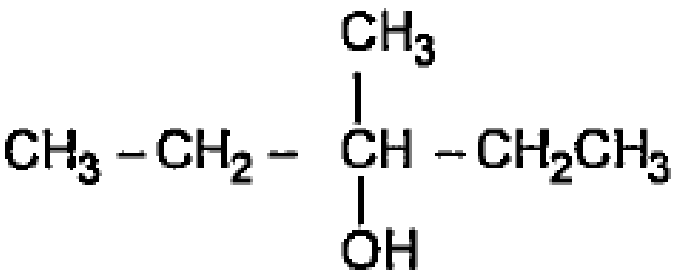
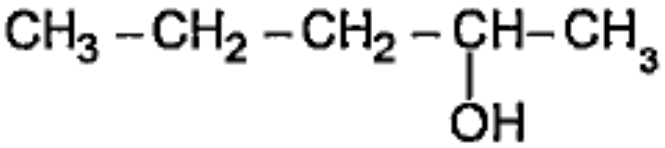
**25.** Among the following compounds, which one will be dehydrated very easily :

A. $CH_3CH_2CH_2CH_2CH_2OH$

B. 

C. 

D. 

**Answer: C**

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**26.** Acid catalysed hydration of alkene except ethene leads to the formation of :

A. Primary alcohol

B. Secondary or tertiary alcohol

C. Mixture of primary and secondary alcohol

D. None of these

**Answer: B**

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**27.** Presence of a nitro group in a benzene ring :

A. Renders the ring basic

B. Deactivated the ring towards nucleophilic substitution

C. Deactivated the ring towards electrophilic substitution.

D. Activates the ring towards electrophilic substitution.

**Answer: C**

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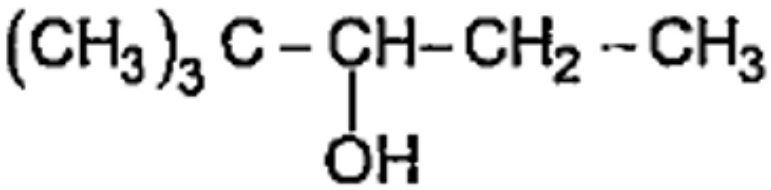
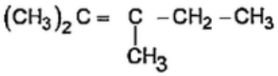
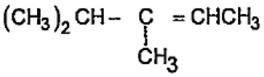
**28.** The main product in the dehydration of



in the presence of conc. $H_2SO_4$ at $170^\circ C$ is :

A. $(CH_3)_3CCH = CHCH_3$

B. 

C. 

D. $(CH_3)_3CCH_2CH = CH_2$

**Answer: B**

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**29.** In the reaction $A \xrightarrow{HBr} B \xrightarrow[\Delta]{AlcKOH} C \xrightarrow[Zn_1H_2O]{O_3\mathbb{C}l_4} HCHO + CH_3CHO$ the compound A is :

A. Ethylene

B. Acetic acid

C. Propene

D. Ethyl alcohol

**Answer: C**

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**30.** A conjugated diene has two double bonds in

A. Isolated positions

B. Adjacent positions

C. Alternate positions

D. None of these

**Answer: C**

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**31.** Mesitylene can be prepared by the polymerisation of :

A. Ch = CH

B. $CH_2 = CH_2$

C. $CH_3 - C = CH$

D. $CH_3 - CH_2 - C = CH$

**Answer: C**

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**32.** An optically active alkane has molar mass of 100. It can exist in _____ isomeric form.

A. 1

B. 2

C. 3

D. 4

**Answer: B**

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**33.** How many types of carbon atoms are present in 2, 2, 3 - trimethylpentane?

A. One

B. Two

C. Three

D. Four

**Answer: D**

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**34.** Which of the following does not undergo Friedel-Craft's reaction?

A. $C_6H_5OH$

B. $C_6H_5NO_2$

C. $C_6H_5CH_3$

D. None of these

**Answer: B**

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**35.** Both methane and ethane may be obtained by separate one step reaction from

A. $C_2H_5I$

B. $CH_3COONa$

C. $CH_2 = CH_2$

D. $CH_3MgBr$

**Answer: B**

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**36.** Which xylene gives only one monobromo derivative?

A. Ortho

B. Para

C. Meta

D. None of these

**Answer: B**

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**37.** In the nitration of benzene with a mixture of concentrated $HNO_3$ and concentrated $H_2SO_4$ the active species involved is :

A. $NO_3^-$

B. $NO_2$

C. $NO_2^-$

D. $NO_2^+$

**Answer: D**

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**38.** In the sulphonation of benzene, the active species involved is:

A. $HSO_4^-$

B. $SO_3$

C. $SO_2$

D. $SO_4^{2-}$

**Answer: D**

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**39.** Benzene reacts with acetyl chloride in presence of anhydrous $Alcl_3$ to form :

A. Biphenyl

B. Phenyl acetate

C. Chlorobenzene

D. Acetophenone

**Answer: D**

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**40.** Benzenediazonium chloride when reacted with Hypophosphorous acid, produces

A. Phenol

B. Phenyl Phosphate

C. Benzene

D. Phenyl phosphite

**Answer: C**

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**41.** $C_6H_6 + CO + HCl \xrightarrow[AlCl_3]{Anhydrous} . + HCl$ The compound . is

A. $C_6H_5CHO$

B. $C_6H_5COOH$

C. $C_6H_5CH_2CH_2Cl$

D. $C_6H_5CH_3$

**Answer: A**

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**42.** An organic compound "X" having molecular formula $c_6H_7O_7N$ has 6 carbon atoms in a ring system, two double bonds and also a nitro group as substituent, "X" is

A. Homocyclic but not aromatic

B. Aromatic but not homocyclic

C. Homocyclic and aromatic

D. Heterocyclic

**Answer: A**

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**43.** The number of sigma and Pi bonds in benzene molecule is :

A. 6 $\sigma$ and 6 $\pi$

B. 12 $\sigma$ and 3 $\pi$

C. 6 $\sigma$ and 9 $\pi$

D. 9 $\sigma$ and 3 $\pi$

**Answer: B**

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**44.** Which is not an aromatic compound?

A. Pyridine

B. Xylene

C. Naphthalene

D. Cyclohexane

**Answer: D**

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**45.** In Friedel-Craft reaction the electrophilic reagent is :

A. $Alcl_3$

B. $RCO^+$

C. $R\overset{+}{C}OCl$

D. None of these

**Answer: B**

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**46.** In the preparation of nitrobenzene from benzene by using a mixture of cone. $HNO_3$ and cone $H_2SO_4$, $HNO_3$ acts as a:

A. base

B. acid

C. Reducing agent

D. Catalyst

**Answer: A**

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**47.** Which of the following is hypophosphoric acid?

A. (A) $H_4P_2O_6$

B. (B) $H_3PO_4$

C. (C) $H_3PO_2$

D. (D) $H_4P_2O_7$

**Answer: C**

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**48.** What happens when Sulphur reacts with concentrated nitric acid?

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**49.** A deactivating group in electrophilic substitution reaction in benzene :

A. Deactivates only ortho and para position

B. Deactivates only meta position.

C. Deactivates meta position more than ortho and para position

D. Deactivates ortho and para more than meta position.

**Answer: D**

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**50.** Cyclopentadienyl anion is aromatic due to the presence of

A. $6\pi$ electrons

B. $10\pi$ electrons

C. $8\pi$ electrons

D. $12\pi$ electrons

**Answer: A**

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**51.** Anhydrous $Alcl_3$ is used in Friedel Crafts reaction because it is :

A. electron rich

B. Soluble in ether

C. Insoluble to nitrobenzene

D. Electron deficient

**Answer: D**

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**52.** The treatment of benzene with isobutylene in the presence of $H_2SO_4$ gives :

A. Iso butyl benzene

B. Tert-butylbenzene

C. n-butylbenzene

D. no reaction

**Answer: B**

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**53.** Both methane and ethane may be obtained by a suitable one step reaction from :

A. $CH_3Br$

B. $C_2H_4$

C. $CH_3OH$

D. $C_2H_5OH$

**Answer: A**

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**54.** When $C_2H_5$ Mg Br is reacted with $CH_3OH$ we get

A. methane

B. Ethane

C. Ethanol

D. methanol

**Answer: B**

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**55.** The number of chain isomers in alkane containing six carbon atoms is

:

A. 3

B. 4

C. 5

D. 6

**Answer: D**

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**56.** The compound containing only primary hydrogen is

A. Butane

B. iso-butene

C. Cyclohexane

D. 2,3-dimethylbutane

**Answer: B**

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**57.** The olefin which on ozonolysis gives $CH_3\ CH_2CHO$ and $CH_3CHO$ is

A. But-1-ene

B. But-2-ene

C. Pent-1-ene

D. Pent-2-ene

**Answer: D**

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**58.** Butyne on reaction with hot acidic $KMnO_4$ gives :

A. $CH_3CH_2CH_2COOH$

B. $CH_3CH_2COOH$

C. $CH_3CH_2COOH + CO_2$

D. $CH_3COOH + CH_3COOH$

**Answer: D**

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**59.** The intermediate during the addition of HBr to propene in presence of peroxide is :

A. `CH_3overset**CHCH_2Cl

B. $CH_3\overset{+}{C}HCH_3$

C. $CH_3CH_2\overset{*}{C}H_2$

D. $CH_3CH_2\overset{+}{C}H_2$

**Answer: A**

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**60.** In presence of peroxide, HCl and Hl do not give anti Markovnikov's addition to alkene because:

A. Both are highly ionic

B. One is oxidising and other is reducing

C. One of the steps in endothermic in both the cases

D. All the steps are exothermic in Both the cases

**Answer: C**

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**61.** Alkenes can be converted to carbonyl compound in one step by :

A. Wacker Process

B. Oxymercuration-demercuration

C. Hydroboration oxidation

D. Wittig reaction

**Answer: A**

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**62.** Which of the following will give only glyoxal on ozonolysis?

A. 

B. 

C. 

D. All of these

**Answer: A**

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**63.** Ortho-xylene on ozonolysis will give:

A. 

B. 

C. 

D. 

**Answer: D**

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**64.** Write down the structural formula of the following compound

Hex-1-en-4eyne.

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**65.** How would you convert :

$CH_2 = CH_2 \rightarrow CH \equiv CH$

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**66.** What is the product obtained when Hcl reacts with propene In presence of benzoyl peroxide

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**67.** Explain why 1-butyne produces white precipitate with ammoniacal $AgNO_3$ solution but 2 butyne does not respond to this reaction.

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**68.** Identify A :

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**69.** Identify B :

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**70.** By the ozonolysis of one molecule of an olefin, 1 molecule acetone, 1 molecule of glyoxal and one molecule of formaldehyde is obtained. Identify the olefin.

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**71.** $C_6H_6 + CO + Hcl \xrightarrow[Alcl_3]{Anhydrous} \cdot + HclThecompound \cdot is$

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**72.** Why polyalkylation occurs in the Friedel-Crafts alkylation reaction of benzene?

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**73.** Name the simplest unsaturated aliphatic hydrocarbon Compound which can only form monosodium salt.

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**74.** An alkene which on ozonolysis forms one molecule of glyoxal and 2 molecules of formaldehyde. Give its structure and name the compound.

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**75.** Name the following compound X and Y

(a) $CH_2 = CH - COOH \xrightarrow{HBr} X$

(b) $C_6H_5C = CH \dfrac{Hg^{2+}}{20\ \%\ H_2SO_4(80^\circ C)} Y$

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**76.** Why do alkynes not show geometrical isomerism?

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**77.** What is the difference between isomers and conformers?

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**78.** What happens when aluminium carbide is treated with water?

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**79.** Which of the following are meta directors?

$-OH,\ -NO_2,\ -SO_3H,\ -Cl$

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**80.** Which type of hydrocarbon are carcinogenic in nature?

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**81.** What is halogen carrier?

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**82.** Give one example in which benzene does not undergo common addition reaction.

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**83.** What is Huckel rule?

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**84.** What happens when water is dropped on calcium carbide?

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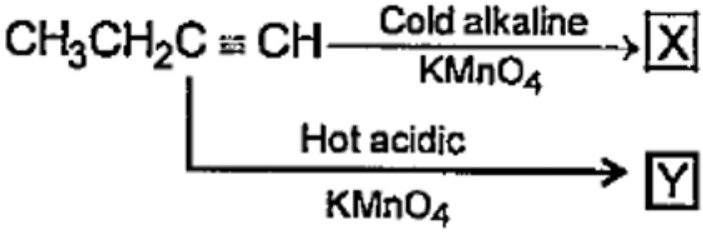
**85.** Complete the following reaction




Identify [X] and [Y]

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**86.** Why Wurtz reaction cannot be used to prepare pure alkanes with odd number carbon atoms?

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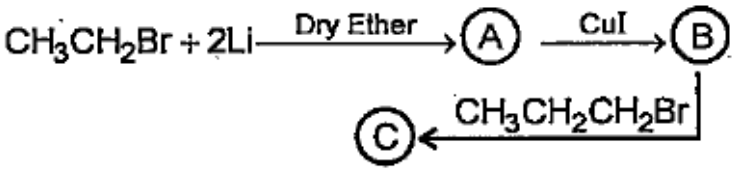


**87.**

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**88.** Name the two extreme type of conformations of ethane.

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**89.** Arrange the different type of conformations of butane in the decreasing order of stability.

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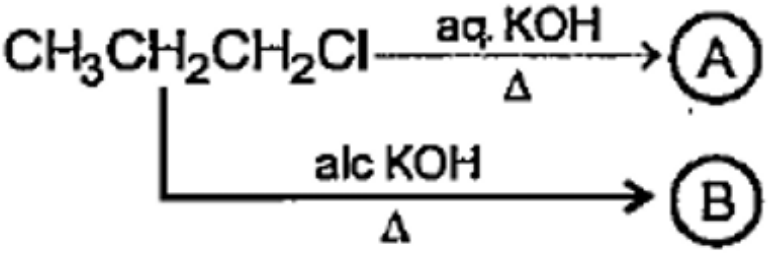
**90.** Complete the following reaction

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**91.** Write down the conditions for geometrical isomerism. Give one example.

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**92.**

Identify A and B. Which will be the major product of this reaction.

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**93.** How will you convert : Acetic acid to methane.

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**94.** How will you convert : Chloroform to Acetaldehyde

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**95.** How will you convert : Ethene to ethyne

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**96.** How will you convert : ethyne to methane

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**97.** How will you convert : Acetylene to But -2-yne

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**98.** How would you convert the following compounds into benzene?

Ethyne

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**99.** How would you convert the following compounds into benzene?

Ethene

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**100.** How would you convert the following compounds into benzene?

n-hexane

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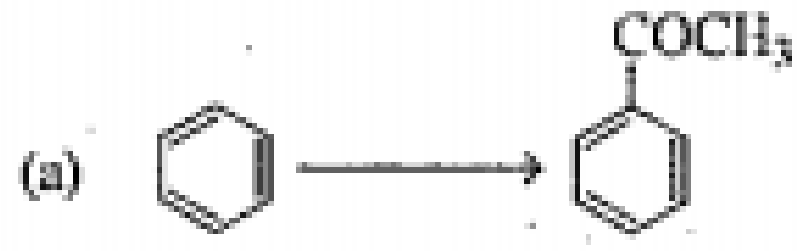
**101.** How would you convert?

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**102.** How will you convert benzene into Nitrobromobenzene.

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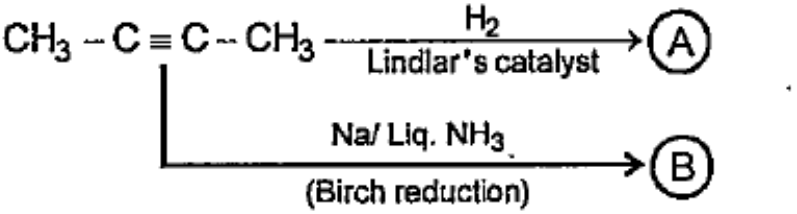
**103.**




Identify A and B.

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**104.** Identify A, B and C of the following reactions :

$A \xrightarrow{E \leq ctrolysis} CH_3 - CH_3$

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**105.** Identify, B and of the following reactions :

$B(aq.) \xrightarrow{E \leq ctrolysis} CH_2 = CH_2$

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**106.** Identify A, B and C of the following reactions :

$C(aq.) \xrightarrow{E \leq ctrolysis} CH \equiv CH$

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**107.** Write Markonikof's rule and give example.

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**108.** Why neo-pentane produces a single monochloro derivative?

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**109.** Transfer: Propene to propan -1 - ol

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**110.** Transfer: Propene to propan -2 ol

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**111.** An alkene on ozonolysis gives 2 - butanone and 2 - methylpropanal. What products will be obtained if is treated with hot, conc. $KMnO_4$?

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**112.** Distinguish between But -1 - ene and But -2 - ene.

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**113.** Why benzene shows extraordinary stability though it contains three double bonds?

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**114.** Draw the cis and trans structures of hex -2 - ene. Which isomer will have higher b.p. and why?

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**115.** A saturated hydrocarbon A having vapour density 36 forms only single monochloro substitution product. Suggest possible structure of A.

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**116.** Mention the catalyst and reaction condition for the conversion: $C_2H_6 \rightarrow C_2H_4 + H_2$

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**117.** A hydrocarbon containing two double bonds gave on reductive ozonolysis ethanal, glyoxal and propanone. Predict the structure of the hydrocarbon and give its IUPAC name.

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**118.** 

Identify A, B and C.

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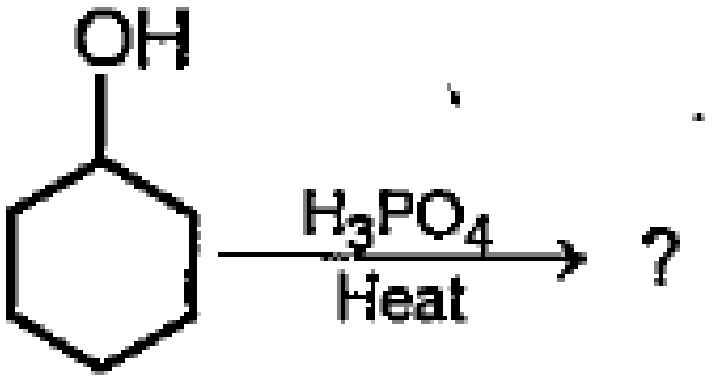
**119.** Complete the reaction :

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**120.** Give reason for the following :

In monoalkylation of benzene with an alkyl halide and $AlCl_3$, an excess of benzene is used.

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**121.** Give reason for the following:

Nitrobenzene, but not benzene, is used as a solvent for the Friedel - Craft

alkylation of bromobenzene.

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**122.** What is octane number? How octane number of fuels can be improved?

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**123.** Name the antidote of Lewisite.

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**124.** Draw the Newman projection of less stable and most stable staggered form of n - butane.

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**125.** Tert - Butylbenzene does not give benzoic acid on treatment with acidic $KMnO_4$ - Explain.

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**126.** Transfer Acetylene to chloroprene.

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**127.** A hydrocarbon (X) has the molecular formula $C_8H_{10}$. It does not decolourise bromine water and is oxidised to benzoic acid on heating with $K_2Cr_2\frac{O_7}{c}$. $H_2SO_4$. It can also have three other isomers A, B and C. Write the structures of X, A, B and C.

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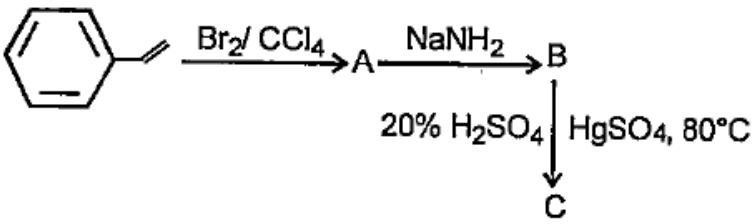
**128.** Identify A, B and C of the following reaction :

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**129.**

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**130.** How will you account for the formation of ethane during chlorination of methane?

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**131.** Write the IUPAC names of the following compounds :

$CH_3CH = C(CH_3)_2$

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**132.** Write the IUPAC names of the following compounds :

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

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**133.** In the alkane $CH_3 - CH_2 - C(CH_3)_2 - CH_2 - CH(CH_3)_2$ identify $1^\circ, 2^\circ, 3^\circ$ and $4^\circ$ carbon atoms.

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**134.** What is the effect of branching of alkane chain on its boiling point?

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**135.** Why Wurtz reaction cannot be used to prepare pure alkanes with odd number carbon atoms?

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**136.** 

find the product of acid catalysed dehydration

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**137.** 

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**138.** What happens when 1,3 butadiene reacts with maleic anhydride?

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**139.** Write the IUPAC names of the products obtained by thr ozonolysis of the following compounds:

pent-2-ene

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**140.** Write the IUPAC names of the products obtained by thr ozonolysis of the following compounds:

3,4-dimethylhept-3-ene

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**141.** Write the IUPAC names of the products obtained by the ozonolysis of the following compounds:

2-ethylbut-1-ene

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**142.** Write the IUPAC names of the products obtained by thr ozonolysis of the following compounds:

1-phenylbut-1-ene

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**143.** An alkene 'A' upon ozonolysis gives a mixture of ethanal and pentan-3-one write the structure and IUPAC name of 'A'

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**144.** An alkene 'A' contains three C-C eight C-H and one C-C$(\pi)$ bonds upon ozonolysis 'A' gives two moles of an aldehyde of molar mass 44 u.write the IUPAC name of 'A'.

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**145.** propanal and pentan-3-one are the ozonolysis products of an alkene what is the structural formula of alkene

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**146.** Draw the cis and trans structures of hex -2 - ene. Which isomer will have higher b.p. and why?

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**147.** Addition of HBr to propene yields 2-bromopropane while in the presence of benzoyl peroxide the same reactions gives 1-bromopropane explain and give mechanism.

Watch Video Solution

**148.** Write the structure of all the alkenes which upon hydrogenation give 2-methylbutane

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**149.** For the following compounds write the structural formulas and IUPAC names for names for all possible isomers having number of double bond or triple bond as indicated

$C_4H_8$(One double bond)

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**150.** For the following compounds write the structural formulas and IUPAC names for names for all possible isomers having number of double bond or triple bond as indicated

$C_5H_8$(one triple bond)

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**151.** Arrange the following in increasing order of their stability.

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**152.** Write the chemical equations for the combustion of the following hydrocarbons

A. butane

B. pentene

C. hexyne

D. toluene

**Answer:**

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**153.** Why is benzene extraordinary stable though it contains three double bonds?

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**154.** What are the necessary conditions for a system to be aromatic?

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**155.** How will you convert benzene into

p-chloronitrobenzene

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**156.** How will you convert benzene into

m-chloronitrobenzene

Watch Video Solution

**157.** How will you convert benzene into

p-nitrotoluene

Watch Video Solution

**158.** How will you convert benzene into

Acetophenone

Watch Video Solution

**159.** Write the products of ozonolysis of 1,2-dimethylbenzene (o-xylene)how does the result support kekule structure of benzene?

Watch Video Solution

**160.** Arrange benzene n hexane and ethyne in decreasing order of acidic strength also give reason for this behaviour.

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**161.** How will you convert following into benzene?

Ethyne

Watch Video Solution

**162.** How will you convert following into benzene?

Ethene

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**163.** How will you convert following into benzene?

hexane

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**164.** Arrange the following sets of compounds in order of their decreasing relative reactivity with an electrophile and assign reason

Chlorobenzene,2,4-dinitrochlorobenzene,p-nitrochlorobenzene

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**165.** Arrange the following sets of compounds in order of their decreasing relative reactivity with an electrophile and assign reason

toluene ,$PhNo_2$, $Po_2NC_6H_4NO_2$

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**166.** Which of the following reactions results in the formation of a pair of diastereomers?

A. 

B. 

C. 

D. 

**Answer: B**

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**167.** Which of the following is Aromatic?

A. Cycloheptatrienyl cation

B. Cycloheptatriene

C. Cyclopentadienyl cation

D. All of these

**Answer: D**

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**168.** In the following , the order of acidity is

A. 2,4 - dinitrophenol

B. 3,4-dinitrophenol

C. 2,4,6 - trinitrophenol

D. 3,4,5 -trinitrophenol

**Answer: A**

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**169.** Which of the compound will not undergo Friedel craft reaction?

A. xylene

B. cumene

C. Toluene

D. nitrobenzene

**Answer: C**

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**170.** Which of the following compounds yields only one product on monobromination?

A. neopentane

B. isopentane

C. toluene

D. aniline

**Answer: A**

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**171.** $(CH_3)_3CMgCl$ on reaction with $D_2O$ produces

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD)_3CD$

D. $(CD_3)_3COD$

**Answer: A**

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**172.** The highest boiling point is expected for

A. isobutane

B. n-octane

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

D. n-butane

**Answer: B**

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**173.** How many dichloro products (including stereoisomers )will be formed when R-2-chlorobutane reacts with $Cl_2$ in presence of UV radiation?

A. 5

B. 6

C. 7

D. 8

**Answer: D**

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**174.** Ozonolysis of 2,3-dimethylbut-1-ene followed by reduction with Zn and water gives

A. Methanoic acid and 3-methyl-2 butanone

B. Methanal and 3-methyl-2-butanone

C. Methanol and 2-methyl-3-butanone

D. Methanoic acid and 2-methyl-3-butanone

**Answer: B**

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**175.** The major product in dehydration of butan -2-ol with conc.$H_2SO_4$ is

A. but-1-ene

B. but-2-ene

C. propene

D. ethane

**Answer: B**

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**176.** Which one of the following compounds will give in the presence of organic peroxide a product different from that obtained in the absence of the peroxide?

A. 1-butane,HCl

B. 1-butene,HBr

C. 2-butene,HCl

D. 2-butene,HBr

**Answer: B**

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**177.** Write the structure of all the alkenes which upon hydrogenation give 2-methylbutane

A. 1

B. 2

C. 3

D. 4

**Answer: B**

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**178.** The product obtained via oxymercuration $(HgSO_4 + H_2SO_4)$ of 1-butyne would be

A. $CH_3 - CH_2 - CO - CH_3$

B. $CH_3\_CH_2 - CH_2 - CHO$

C.

D.

**Answer: A**

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**179.** Presence of olefinic double bonds in alkenes can be detected with the help of

A. $1\%$ alkaline $KMnO_4$

B. Ammoniacal CuCl solution

C. Acidified $KMnO_4$

D. ammoniacal $AgNO_3$ solution

**Answer: A**

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**180.** Ionic addition of bromine in methanol solution to ethene forms $BrCH_2CH_2OCH_3$instead of 1,2-dibromoethane because

A. methanol is an inert solvent

B. the reaction follows Markovnikov's addition

C. the intermediate carbocation may react with $Br^-$ or $CH_3OH$

D. the reaction takes place through free radical mechanism

**Answer: C**

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**181.** Hydrogenation of which of the following hydrocarbons in the presence of Pt gives n-hexane?When HBr is used instead of hydrogen then only one bromo compound is obtained

A. $CH_3 - CH_2 - CH = CH - CH_2CH_3$

B. $CH_3 - CH_2 - CH_2 - CH = CH - CH_3$

C. $CH_2 = CH - CH_2 - CH_2 - CH_2 - CH_3$

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

**Answer: A**

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**182.** In order to complete the reaction 1-pentyne overset x rarr 4-octyne overset y rarr cis 4-octene reagents X and Y will be

A. 

B. 

C. 

D. 

**Answer: C**

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**183.** Addition of HI across unsymmetrical double bond of propene yields isopropyl iodide not n-propyl iodide as the major product this is because the addition proceeds through

A. a more stable carbcation

B. a more stable carbanion

C. a more stable free radical

D. a more stable carbene

**Answer: A**

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**184.** Reaction of 1,3 butadiene to maleic acid gives what ?

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**185.** The major product formed on hydroboration-oxidation of 1-methyl cyclopentene is

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**186.** 1,2-dibromopropane on treatment with X mole of $NaNH_2$ followed by treatment with ethyl bromide gave a pentyne the value of X is:

A. one

B. two

C. three

D. four

**Answer: C**

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**187.** What is electrolysis ?

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**188.** The C-H bond is least acidic in

A. $C_2H_2$

B. $C_2H_4$

C. $C_2H_6$

D. $C_2H_2Br_2$

**Answer: C**

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**189.** Identify the reagent from the following list which can easily distinguish between 1-butyne and 2-butyne

A. Bromine$\mathbb{C}l_4$

B. $H_2$lindlar catalyst

C. dilute $H_2SO_4$, $HgSO_4$

D. Ammoniacal $Cu_Cl_2$solution

**Answer: D**

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**190.** Acidic hydrogen is present in

A. ethyne

B. ethene

C. benzene

D. ethane

**Answer: A**

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**191.** Addition of water to acetylene compounds is catalysed by_____

A. $Ba^+2$ salt and $HgSO_4$

B. $Hg^+2$salt and conc.$H_2SO_4$

C. $Hg^+2$salt and dilute$H_2SO_4$

D. $Hg^+$ salt and dilute NaOH

**Answer: C**

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**192.** A hydrocarbon of molecular formula $C_7H_{12}$ on catalytic hydrogenation over platinum gives $C_7H_{16}$ the parent hydrocarbon adds bromine and also reacts with $\left[Ag(NH_3)_2\right]OH$ to give a precipitate the parent hydrocarbon is

A. $CH_3 - CH = CH - CH = CH - CH_2 - CH_3$

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

C. $(CH_3)_3C - CH_2 - C \equiv CH$

D. $CH_3 - CH = CH - CH_2 - CH = CH - CH_3$

**Answer: C**

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**193.** The number of structural and configurational isomers of a bromo compound $C_5H_9Br$ formed on addition of HBr to 2-pentyne respectively are

A. 4 and 3

B. 2 and 4

C. 4 and 2

D. 2 and 7

**Answer: B**

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**194.** Aromatic hydrocarbons can be obtained from naphta by

A. catalyst cracking

B. catalytic reforming

C. refining

D. destructive distillation

**Answer: C**

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**195.** Which of the following is the best sequence to convert benzene into 3-chloroaniline?

A. nitration,chlorination,reduction

B. nitration,reduction,chlorination

C. nitration,chlorination,sulphonation

D. chlorination,nitration,reduction

**Answer: A**

Watch Video Solution

**196.** Identify the reagent from the following list which can easily distinguish between 1-butyne and 2-butyne

A. bromine in $\mathbb{C}l_4$

B. $H_2$lindlar catalyst

C. dilute $H_2SO_4$, $HgSO_4$

D. ammoniacal $Cu_2Cl_2$

**Answer: D**

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**197.** A sample of 2,3-dibromo 3-methylpentane is heated with zinc dust the resulting product formed is isolated and heated with HI in the presence of phosphorus identify which is the structure that presents the final organic product formed in the reaction?

A. 

B. 

C. 

D. 

**Answer: A**

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**198.** The C-C and C=C bond lengths in aliphatic hydrocarbons have been found to be $1.54\overset{0}{A}$ and $1.34\overset{0}{A}$ respectively but all the carbon-carbon bonds in benzene have been found identical and is equal to $1.39A^{\circ}$ this indicates that the carbon -carbon bond order in benzene would be

A. one

B. two

C. one and two alternatively

D. in between 1 and 2

**Answer: D**

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**199.** Oxidation of benzene with air (at775k )in the presence of $V_2O_5$ as catalyst gives

A. Maleic anhydride

B. malonic anhydride

C. maleic anhydride

D. both malic and maleic acids

**Answer: A**

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**200.** The organic compounds X and Y having the same % composition of C and H quantitative analysis gave % of$C = \frac{12}{13} \times 100\,\%$ of

$H = \frac{1}{13} \times 100$ Compound X decolourises bromine water but Y does not

X and Y would be

A. $C_2H_2$ and $C_2H_4$

B. $C_2H_6$ and $C_{12}H_{22}$

C. $C_2H_2$ and $C_6H_6$

D. $C_2H_4$ and $C_2H_6$

**Answer: C**

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**201.** Trans cyclohexane -1,2 diol can be obtained by the reaction of cyclohexene with

A. $KMnO_4$

B. $OsO_4$

C. peroxyformic acid

D. $SeO_2$

**Answer: C**

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**202.** Compound (A) on bromination gives (B) which gives © with alcoholic KOH © decolourises $1\%$ alkaline $KMnO_4$ solution and on ozonolysis it gives two molecules of the smallest carbonyl compound.compound (A) will be

A. $C_2H_6$

B. $C_2H_4$

C. $C_2H_2$

D. $C_2H_5Cl$

**Answer: C**

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**203.** Which of the following are true reactions?

A. $Mg_2C_3 + H_2O \rightarrow H_3C - C \equiv CH$

B. $Al_2C_3 + H_2O \rightarrow CH_4$

C. $CaC_2 + H_2O \rightarrow C_2H_2$

D. $Me_3C - H + KMnO_4 \rightarrow Me_3C - OH$

**Answer: A::B::C**

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**204.** $C_4H_6 \xrightarrow{H} \frac{2}{P}t \rightarrow C_4H_8 \xrightarrow{O} \frac{3}{H_2}O \rightarrow CH_3COOH$

A and B are respectively:

A. $H_3C - C \equiv C - CH_3, H_3C - CH = CH - CH_3$

B. $H_2C = CH - CH = CH_2, H_3C - CH = CH - CH_3$

C. 

D. none of these

**Answer: A**

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**205.** An alkene on ozonolysis yields only ethanal. There is an isomer of this which on ozonolysis yields:

A. propanone

B. ethanal

C. methanal

D. only propanal

**Answer: A::C**

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**206.** Aqueous solution of potassium propanoate is electrolysed possible organic products are

A. n-butane

B. $C_2H_5COOC_2H_5$

C. $H_3C - CH_3$

D. $H_2C = CH_2$

**Answer: A::B::C::D**

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**207.** Which of the following statement are true ?

A. instead of radical substitution cyclopropane undergoes electrophilic addition reactions in sun light

B. in general bromination is more selective than chlorination

C. the 2,4,6 tri-tert-butylphenoxy radical is resistant to dimerisation

D. the radical catalysed chlorination $ArCH_3 \rightarrow ArCH_2Cl$ occurs faster when Ar=phenyl than when Ar=p-nitrophenyl

**Answer: B::C**

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**208.** Which of the following elimination reactions will give but-1-ene as the major product?

A. $CH_3.CHCl.CH_2.CH_3 + KOH \overset{E}{I} OH \rightarrow$

B. 

C. 

D. 

**Answer: B::C**

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**209.** Match column I with column II

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210. 

View Text Solution

211. 

View Text Solution

212. 

how many isomeric monochloro product can be obtained?

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213. 

how many isomeric product can be obtained?

View Text Solution

**214.** 

how many compounds are planar?

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**215.** 

how many monobromo products are possible?

View Text Solution

**216.** 

how many products can be resolved?

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**217.** Give a chemical test and the reagents used to distinguish between cyclohexane and cyclohexene

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**218.** Give the structures A,B and C (explanation are not required):

$A(C_4H_8)$which adds on HBr in the presence and in the absence of peroxide to give same product $C_4H_9Br$

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**219.** Give the structures A,B and C (explanation are not required):

$B(C_4H_8)$ which when treated with $\frac{H_2O}{H_2SO_4}$ gives $C_4H_{10}O$ which can not be resolved into optical isomers

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**220.** An organic compound $E(C_5H_8)$ on hydrogenation gives compound $F(C_5H_{12})$ compound E on ozonolysis gives formaldehyde and 2-keto propanal deduce the structure of compound E

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**221.** 

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**222.** 

View Text Solution

**223.** 

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**224.** Give the chemical test to distinguish between 2-butyne and 1-butyne

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**225.** How would you convert acetylene to acetone?

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**226.** A mixture of ethyl iodide and n-propyl iodide is subjected to Wurtz reaction. The hydrocarbon which will not be formed is

A. Butane

B. Propane

C. Pentane

D. Hexane

**Answer:**

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**227.** The reagent used for the conversion

$CH_3CH_2COOH \rightarrow CH_3CH_2CH_3$ is

A. $LiAlH_4$

B. Soda Lime

C. Red P and concentrated HI

D. Amalgamated zinc and concentrated HCl

**Answer:**

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**228.** Pure methane can be produced by

A. Wurtz reaction

B. Kolbe's electrolytic method

C. Soda Lime decarboxylation

D. Reduction with $H_2$

**Answer:**

Watch Video Solution

**229.** Which of the following will not produce ethane?

A. Reduction of $CH_3COOH$ with HI and redP

B. Reduction of $CH_3COOH_3$ with HI and redP

C. Hydrogenation of Ethene in the presence of Ni

D. Soda Lime decarboxylation of sodium propionate

**Answer: A::C::D**

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**230.** The compound which produces propane on heating with HI in presence of red phosphorus is

A. $CH_3CH_2CH_2I$

B. $CH_3CH_2CHO$

C. $CH_3CH_2CH_2OH$

D. All of these

**Answer:**

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**231.** Which of the following yield both alkane and alkene?

A. Kolbe's reaction

B. Williamson's reaction

C. Wurtz reaction

D. Sandmayer's reaction

**Answer:**

Watch Video Solution

**232.** $(CH_3)_3CMgCl$ on reaction with $D_2O$ produces

A. $(CH_3)_3CD$

B. $(CH_3)_3COD$

C. $(CD_3)_3CD$

D. $(CD_3)_3COD$

**Answer:**

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**233.** Which of the following reactions has zero activation energy ?

A. $CH_4 + Cl \rightarrow CH_3 + HCl$

B. $Cl - Cl \rightarrow \xrightarrow{h\nu} 2Cl$

C. $CH_3 + CH_3 \rightarrow CH_3 - CH_3$

D. $CH_3 + Cl - Cl \rightarrow CH_3 - Cl + Cl$

**Answer:**

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**234.** Electrolysis of cold concentrated aqueous solution of potassium succinate yields

A. Ethane

B. Ethyne

C. Ethene

D. ethane-1,2-diol

**Answer:**

Watch Video Solution

**235.** HBr antimarcowni koff deoes not observed in:

A. Propene

B. 1-butene

C. but-2-ene

D. pent-2-ene

**Answer:**

Watch Video Solution

**236.** Reaction of HBr with propene in the presence of peroxide gives

A. Isospropyl bromide

B. 3-bromopropane

C. Allyl bromide

D. n-propyl bromide

**Answer:**

Watch Video Solution

**237.** Mono sodium acetylide reacts with an alkyl halide to form

A. An alkane

B. An alkene

C. An unsymmetric higher alkyne

D. A symmetric higher alkyne

**Answer:**

Watch Video Solution

**238.** Which of the following used for the conversion of 2-hexyne into trans-2-hexene?

A. $H_2/\ Pd\ /\ BaSO_4$

B. $H_2,\ PtO_2$

C. $NaBH_4$

D. $Li\ /\ NH_3/C_2H_5OH$

**Answer:**

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**239.** 1-butyne on oxidation with hot alkaline $KMnO_4$ would yield

A. $CH_3CH_2CH_2COOH$

B. $CH_3CH_2COOH$

C. $CH_3CH_2COOH + CO_2 + H_2O$

D. $CH_3CH_2COOH + HCOOH$

**Answer:**

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**240.** When an alkyne, $RC \equiv CH$, is treated with cuprous ion in an ammoniacal medium, one one of the product is

A. $RC \equiv CCu$

B. $CuC \equiv CH$

C. $Cuc \equiv CCu$

D. $RC \equiv CR$

**Answer:**

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**241.** $Ph - C \equiv CH \xrightarrow[MeOH]{MeO^-}$ Major product of the reaction is

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**242.** Which of the following is Aromatic?

A. 

B. 

C. 

D. 

**Answer:**

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**243.** when a compound is called aromatic ?

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**244.** when a compound is called antiaromatic ?

Watch Video Solution

**245.** when a compound is called non arromatic ?

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**246.** Which of the following ions is mostly unlikely to exist?

A. $Li^-$

B. $Be^{2+}$

C. $B^-$

D. $F^-$

**Answer:**

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**247.** Ratio of bond pair-lone pair electrons in the central atom of $XeOF_2$ is:

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**248.** The ortho/para directing group among the following is

A. -COOH

B. -CN

C. $-COCH_3$

D. $-NHCOCH_3$

**Answer:**

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**249.** Benzene does not undergo addition reactions easily because

A. It has cyclic structure

B. Double bonds in it very strong

C. Resonance stabilized system is to be preserved

D. It has six hydrogen atoms

**Answer:**

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**250.** Which of the following molecules of alkane will give only one monohalogenated product on reaction with halogen in presence of sunlight ?

A. $H_3C - CH_3$

B. $H_3C - CH_2 - CH_3$

C. $(H_3C)_4 - C$

D. $H_3C - CH_2 - CH_2 - CH_3$

**Answer:**

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**251.** What will happen if we mix Methylmagnesium bromide in acetone ? and in acidic medium (second Step) ?

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**252.** The major product of the following sequence of reaction is:

https://d1hj4to4g9ba46.cloudfront.net/questions/230338_a940b508b5a74e1fa

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**253.** $Bu - C \equiv CH \xrightarrow{NaNH_2} A \xrightarrow[H_2O]{Ph-CHO} B \xrightarrow{H+} C$

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**254.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Terminal alkyne upon hydroboration and oxidation gives

aldehyde while non-terminal alkyne gives ketone

Statement-II The hydroboration and oxidation results into addition of $H_2O$ as per anti markownikoff's rule.

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**255.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I (10) Annulene is not aromatic though it contains Huckel number of $\pi$ electrons.

statement-II Steric interaction between internal makes in non-polar.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**256.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I But-2-yne on reduction with Na/liq $.NH_3$ gives trans-2-butene.

statement-II To minimize the interelectronic repulsions the addition of electrons occurs on the opposite faces of triple bond.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**257.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Treatment of 1,3-dichloropropane on treatment with Zn dust gives cyclopropane.

statement-II The reaction of alkyl halide with Zn dust to produce alkane is called frankland reaction.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**258.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Rate of electrophilic aromatic nitration of $C_6H_6$, $C_6D_6$ and $C_6T_6$ follows the order $C_6H_6 > C_6D_6 > C_6T_6$

statement-II The cleavage of C-H , C-D and CT is not involved in rate limiting step.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**259.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Hydration of alkane using $\frac{Hg(OAc)_2}{H_2O}$ followed by $NaHB_4$ is regioselective.

statement-II It involves carbocation formation.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**260.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Cyclopropane discharges the reddish brown colour of $Br_2$ water.

statement-II Due to large extent of angles strain molecule gave tendency to undergo addition

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**261.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I When 3, 3 dimethyl 1-butene when treated with HBr , 2-bromo -2 , 3-dimethyl butane is formed because

statement-II Anti Markonikov's addition takes place.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

Watch Video Solution

**262.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I When 2 bromo , 3-methylbutane is treated potassium tertiary butoxide.the major product formed id the least substituted alkene 3-methyl 1-butene because

statement-II Potassium tertiary butoxide being bulky takes up the proton

from least hindered carbon leading to least substituted alkene as the major product.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

Watch Video Solution

**263.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Eclipsed and staggered form of n-butane can be easily

isolated at room temperature.

statement-II Energy difference between these two forms are not very high and at normal temperature pressure energy required for conversion staggered to eclipsed form is available from the atmosphere.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

Watch Video Solution

**264.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two

statement

Statement-I Rate of halogenation of alkene is independent of nature of halogen.

statement-II Halogenation of alkane follows free radical mechanism.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**265.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two

statement

Statement-I At very high temperature , the chlorination of alkanes become more selective.

statement-II Chlorination of alkanes is often controlled by probability factor.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

Watch Video Solution

**266.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I By Wurtz reaction all types of alkanes can be prepared.

statement-II Only symmetric alkanes can be prepared by Wurtz reaction.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**267.** This question has statement I and statement II . of the four choices given after the statements choose the one that best describes the two statement

Statement-I Alkyne can be used to prepare gemdihalide and vicinal position on treating it with halogen molecules.

statement-II Addition of halogen molecules to carbon-carbon multiple bond follows anti addition mechanism.

A. Statement-I is true Statement-II is true Statement-II is a correct explanation of statement-I

B. Statement-I is true Statement-II is true Statement-II is not a correct explanation of statement-I

C. Statement-I is true Statement -II is false

D. Statement-I is false Statement -II is true

**Answer:**

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**268.** Give the structure of the major organic products from 3-methyl 2-pentene under each of the following reaction conditions

HBr in the presence of peroxide.

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**269.** Give the structure of the major organic products from 3-methyl 2-pentene under each of the following reaction conditions

$(Br_2)/(H_2O)$

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**270.** Give the structure of the major organic products from 3-methyl 2-pentene under each of the following reaction conditions

$\left(Hg(OAc)_2\right)/(H_2O)\,, NaBH_4$

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**271.** An alkyl halide X of formula of $C_6H_{13}Cl$ on treatment with potassium tertiary butoxide gives two isomeric alkenes Y and Z $(C_6H_{12})$ Both alkenes on hydrogenation gives 2, 3-dimethyl butane. Predict structure of X, Y and Z.

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**272.** The hydrocarbon A, adds one mole of hydrogen in the presence of a platinum catalyst to form n-hexane . When A is oxidised vigorouslty with $KMnO_4$ , a single carboxylic acid, containing three carbon atoms , is isolated. Give the structure of A and explain.

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**273.** Give reason : "The central carbon-carbon bond in 1,3-butadine is shorter than that of n-butane".

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**274.** Give reason for the following : $CH_2 = CH^-$ is more basic than $HC \equiv C^-$ .

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**275.** Monomer A of a natural polymer on complete ozonolysis yields two moles of $CH_3COCHO$. Deduce the structure of A.

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**276.** Monomer A of a natural polymer on complete ozonolysis yields two moles of $CH_3COCHO$. Draw "all cis"- structure of the natural polymer A.

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**277.** An organic compound $E(C_5H_8)$ on hydrogenation gives compound $F(C_5H_{12})$ compound E on ozonolysis gives formaldehyde and 2-keto

propanal deduce the structure of compound E

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**278.** In the following sequence of reactions:

Toluene $\xrightarrow{KMnO_4} A \xrightarrow{SOCl_2} B \xrightarrow[BaSO_4]{\frac{H_2}{Pd}} C$

the product C is

A. $C_6H_5CH_3$

B. $C_6H_5CH_2OH$

C. $C_6H_5CHO$

D. $C_6H_5COOH$

**Answer: C**

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**279.** Which compound would give 5-keto-2-methyl hexanal upon ozonolysis?

A. 

B. 

C. 

D. 

**Answer: A**

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**280.** 1,4 dimethylbenzene on heating with anhydrous $AlCl_3$ and HCl produces

A. 1,2 di-methylbezene

B. 1,3-dimethylbenzene

C. 1,2,3 trimethylbenzene

D. Ethylbenzene

**Answer: B**

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**281.** Best reagent for nuclear iodination of aromatic compound is

A. $(KI)_{/}$ CH_3COCH_3`

B. $\frac{I_2}{C}H_3CN$

C. $\frac{KI}{C}H_3COOH$

D. $\frac{I_2}{H}NO_3$

**Answer: B**

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**282.** In the reaction with HCl an alkene reacts in accordance with the Markovnikov's rule to give a product 1-chloro -1-methylcyclohexane . The possible alkene is

A. 

B. (1) and (2)

C. 

D. 

**Answer: C**

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**283.** 2,3 -Dimethyl -2- butene can be prepared by heating which of the following compounds with a strong acid?

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**284.** Identify Z in the sequence of reactions ,

$$CH_3CH_2CH = CH_2 \overset{HBr}{/} (H\_2\ O\_2) \rightarrow Y \xrightarrow{C_2H_5ONa} Z$$

A. $CH_3 - (CH_2)_3 - O - CH_2CH_3$

B. $(CH_3)_2CH_2 - O - CH_2CH_3$

C. $CH_3(CH_2)_4 - O - CH_3$

D. $CH_3CH_2 - CH(CH_3) - O - CH_2CH_3$

**Answer: A**

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**285.** The 4th homologue of ethane is

A. butane

B. pentane

C. hexane

D. heptane

**Answer: C**

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**286.** What is the Ozonolysis product of 1-Propene ?

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**287.** The correct statement is

A. Cyclohexadiene and cyclohexane can not be isolated with ease during controlled hydrogenation of benzene

B. One mole each of benzene and hydrogen when reacted gives 1/3 mole of cyclohexane and 2/3 mole unreacted hydrogen

C. Hydrogenation of benzene of cyclohexane is an endothermic process

D. It is easier to hydrogenate benzene when compared to cyclohexane

**Answer: A**

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**288.** Among the following select the alkane that is expected to have lowest boiling point

A. hexane

B. 2-methylpentane

C. 3-methylpentane

D. 2,2 -dimethyl butane

**Answer: D**

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**289.** The compound that yields only ketonic compounds on ozonolysis is

A. but-2-ene

B. pent-2-ene

C. 2,3 dimethylbut-2-ene

D. 2-methylbut-2-ene

**Answer: C**

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**290.** what is optically active compound ?

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**291.** Benzene can be conveniently converted into n-propylbenzene by

A. Friedel craft alkylation with n-propyl chloride

B. Friedel-Craft acylation with propionyl chloride followed by Wolff-Kishner reduction.

C. Friedel craft acylation with propionyl chloride followed by catalytic hydrogenation

D. Friedel -craft acylation with propionyl chloride followed by reduction with $LiAlH_4$

**Answer: B**

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**292.** The electrophile in the nitration of benzene is

A. $NO_2^+$

B. $NO_2$

C. $NO^+$

D. $NO_2^-$

**Answer: A**

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**293.** To get DDT chlorobenzene has to react with the following compound in the presence of concentrated sulphuric acid

A. trichloroethane

B. dichloroacetone

C. dichloro acetaldehyde

D. trichloroacetaldehyde

**Answer: D**

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**294.** In the oxidation of $C_6H_5 - CH_2 - CH_3$ by $KMnO_4$ the product formed is

A. $C_6H_5 - CH_2 - CHO$

B. $C_6H_5 - CH_2 - COOH$

C. $C_6H_5 - COOH$

D. $C_6H_5 - CH_2 - OH$

**Answer: C**

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**295.** $CH_3 - CH_2 - C \equiv CHO \xrightarrow[H_2SO_4]{HgSO_4}$ A the compound A is

A. 

B. $CH_3 - CH_2 - CH_2CHO$

C. $CH_3 - CH_2 - CH_2 - COOH$

D. None of the above

**Answer: A**

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**296.** Cycloalkane has the formula

A. $C_nH_{2n+2}$

B. $C_nH_{2n-2}$

C. $C_nH_2n$

D. $C_{2n}H_2$

**Answer: C**

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**297.** Three fused benzene rings are found in

A. naphthalene

B. anthracene

C. phenanthroline

D. None of the above

**Answer: B**

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**298.** Which of the following cycloalkane gives open chain compound. When reacts with bromine.

A. Cyclopropane

B. Cyclopentane

C. Cyclohexane

D. Cyclooctane

**Answer: A**

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**299.** Wurtz reaction involves the reduction of alkyl halide with

A. Zn/HCl

B. HI

C. Zn/Cu couple

D. Na in ether

**Answer: D**

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**300.** Decarboxylation of sodium propionate leads to the formation of

A. methane

B. ethene

C. propanone

D. ethane

**Answer: D**

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**301.** The treatment of benzene with isobutylene in the presence of $H_2SO_4$ gives :

A. iso-butyl benzene

B. tert-butylbenzene

C. n-butyl benzene

D. no reaction

**Answer: B**

Watch Video Solution

**302.** With ammoniacal cuprous solution a reddish brown precipitate is obtained on treating with

A. $CH_4$

B. $C_2H_4$

C. $C_2H_2$

D. $C_3H_6$

**Answer: C**

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**303.** Assertion: $CH_4$ does not react with $Cl_2$ in dark

Reason: Chlorination of $CH_4$ takes place in sunlight.

A. If both Assertion and reason are true and reason is correct explanation of Assertion

B. If both Assertion and reason are true and reason is correct explanation of Assertion

C. If Assertion is true but Reason is false

D. If both Assertion and Reason is false

**Answer: B**

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**304.** Which of the following compounds will not undergo Friedel-crafts reaction easily?

A. Cumene

B. Xylene

C. Nitrobenzene

D. Toluene

**Answer: C**

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**305.** Some meta-directing substituents in aromatic substitution are given which one is the most deactivating?

A. $-C \equiv N$

B. $-SO_3H$

C. $-COOH$

D. $-NO_2$

**Answer: D**

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**306.** Wurtz reaction involves the interaction of alkyl halides in dry ether with

A. sodium

B. zinc

C. copper

D. platinum

**Answer: A**

Watch Video Solution

**307.** To get DDT chlorobenzene has to react with the following compound in the presence of concentrated sulphuric acid

A. trichloro ethane

B. dichloro acetone

C. dichloro acetaldehyde

D. trichloro acetaldehyde

**Answer: D**

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**308.** Which of the following is not used in Fridel-crafts reactions?

A. Phenyl acetaniide

B. Bromobenzene

C. Benzene

D. Chlorobenzene

**Answer: A**

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**309.** A compound that undergoes bromination easily is:

A. Toluene

B. Benzoic acid

C. Phenol

D. Benzene

**Answer: C**

Watch Video Solution

**310.** $CH \equiv CH + H_2O \xrightarrow{H_2SO_4 + HgSO_4} X$

A. Ketone

B. ethanol

C. acetaldehyde

D. propionaldehyde

**Answer: C**

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**311.** Propanone is the product obtained by dehydrogenation of

A. 2-propanol

B. 1-propanol

C. propanol

D. n-propyl alcohol

**Answer: A**

Watch Video Solution

**312.** $\underset{\text{acid chloride}}{RCOCl} + H_2 \xrightarrow[H_2SO_4]{Pd} RCHO + HCl$

This reaction is known as

A. Rosemund's reduction

B. Stephen's reaction

C. Meerwein-ponndorf verley reaction

D. Clemmensen's reduction

**Answer: A**

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**313.** Friedel-craft reaction using MeCl and anhydrous $AlCl_3$ will take place most efficiency with

A. benzene

B. nitrobenzene

C. acetophenone

D. Toluene

**Answer: D**

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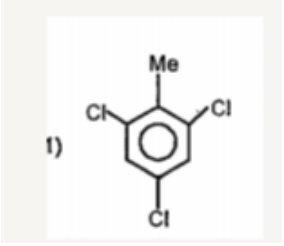
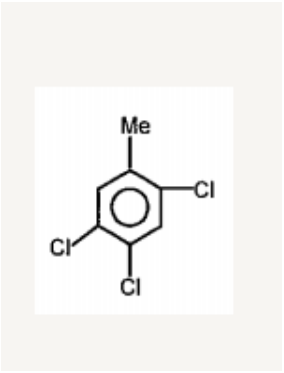
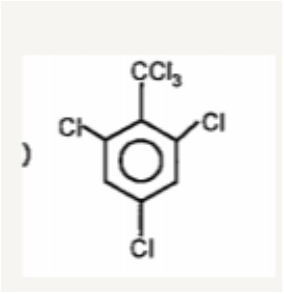
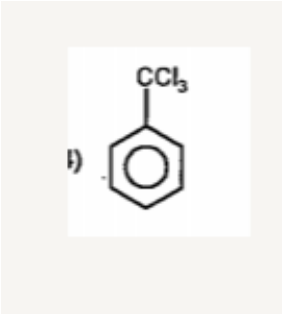
**314.** By passing excess $Cl_2(g)$ in boiling toluene which one of the following compounds is exclusively formed?

A. 


B. 


C. 


D. 


**Answer: D**

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

A. Tertiary -butyl chloride

B. Neo-pentane

C. Iso-hexane

D. Neo-hexane

**Answer: B**

Watch Video Solution

**316.** 2-hexyne gives trans-2-hexene on treatment with

A. $Pt/H_2$

B. $Li/NH_3$

C. $Pd / BaSO_4$

D. $LiAlH_4$

**Answer: B**

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**317.** The following is a conjugated diene

A. $CH_3CH = C = CHCH_3$

B. $CH_2 = CHCH_2CH = CH_2$

C. $CH_2 = CHCH_2CH_2CH = CH_2$

D. $CH2 = C(CH3) - CH = CH2$

**Answer: D**

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**318.** Propene on ozonolysis gives

A. $CH_3COOH + HCOOH$

B. $CH_3COOH + HCHO$

C. $CH_3CHO + HCHO$

D. $CH_3CHO + HCOOH$

**Answer: A**

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**319.** In presence of light, action of $Br_2$ on cyclopentane gives

A. cyclopentyl bromide

B. 1, 2 dibromo cyclopentane

C. cyclopentyl dibromide

D. no reaction

**Answer: B**

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**320.** Which of the following molecules /species are aromatic in nature?

A. cyclopropenyl cation

B. cyclooctatetraene

C. cyclopentadiene

D. None of the Above

**Answer: C**

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**321.** Lindane can be obtained by the reaction of benzene with

A. $(CH_3Cl)\,/\,anhydrous(AlCl_3)$

B. $(C_2H_5I)/anhydrous(AlCl_3)$

C. $(CH_3COCl)/anhydrous(AlCl_3)$

D. $(Cl_2)$ in sunlight

**Answer: D**

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**322.** Give the chemical test to distinguish between 2-butyne and 1-butyne

A. $NaNH_2$

B. HCl

C. $O_2$

D. $Br_2$

**Answer: A**

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**323.** Which one of the following has the minimum boiling point?

A. n-butane

B. 1-butyne

C. 1-butene

D. iso-butene

**Answer: D**

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**324.** Benzene reacts with chlorine in sunlight to give a final product

A. $CCl_4$

B. $C_6H_6Cl_6$

C. $C_6Cl_6$

D. $C_6H_5Cl$

**Answer: B**

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**325.** $CaC_2 + H_2O \rightarrow A \overset{H_2SO_4}{/} (HgSO_4) \rightarrow B$

identify A and B in the given reaction

A. $C_2H_2$ and $CH_3CHO$

B. $CH_4$ and $HCOOH$

C. $C_2H_4$ and $CH_3COOH$

D. $C_2H_2$ and $CH_3COOH$

**Answer: A**

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**326.** By passing excess $Cl_2(g)$ in boiling toluene which one of the following compounds is exclusively formed?

A. 

B. 

C. 

D. 

**Answer: D**

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**327.** Power alcohol is a mixture of

A. $80\%$ petrol+$20\%$ ethanol +small quantity of benzene

B. $80\%$ ethanol+$20\%$ benzene+small quantity of petrol

C. $50\%$ petrol +$50\%$ ethanol +small quantity of benzene

D. $80\%$ petrol +$20\%$ benzene +small quantity of ethanol

**Answer: A**

Watch Video Solution

**328.** Propene on ozonolysis gives

A. $CH_3COOH + HCOOH$

B. $CH_3COOH + HCHO$

C. $CH_3CHO + HCHO$

D. $CH_3CHO + HCOOH$

**Answer: B**

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**329.** The ozonolysis of an olefine gives only propanone. The olefin is

A. but-1-ene

B. but-2-ene

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

D. propene

**Answer: C**

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**330.** Acylation of benzene to produce aliphatic aromatic ketones is known as

A. benzoin condensation

B. hydroformylation

C. clemmensen reduction

D. fridel craft reaction

**Answer: D**

Watch Video Solution

**331.** Reaction of propene with diborane followed by alkaline hydrolysis in the presence of hydrogen peroxide gives

A. 1- propanol

B. 2-propanol

C. 1,2-dihydroxypropane

D. n-propane

**Answer: A**

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**332.** Ozonolysis of an organic compounds gives formaldehydes as one of the products . This confirms the presence of

A. Two ethylenic double bonds

B. a vinyl group

C. an isopropyl group

D. methyl group

**Answer: B**

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**333.** Ozonolysis of an organic compound A produces acetone and propionaldehyde in equimolar mixture . Identify A form the following compounds.

A. 2-methyl-1-pentene

B. 1-pentene

C. 2-pentene

D. 2-methyl-2-pentene

**Answer: D**

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**334.** The non-aromatic compound among the following is

A. 

B. 

C. 

D. 

**Answer: A**

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**335.** Ethyl benzene can not be prepared by

A. Wurtz reaction

B. Wurtz-fittig reaction

C. Friedel craft reaction

D. Clemmensen reduction

**Answer: A**

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**336.** The number of primary secondary , tertiary and quaternary carbons in neopentane are respectively.

A. 4,3,2 and 1

B. 5,0,0 and 1

C. 4,0,0 and 1

D. 4,1,0 and 0

**Answer: C**

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**337.** Which one of the following has the lowest boiling point?

A. 2-methylbutane

B. 2-methylpropane

C. 2,2-dimethylpropane

D. n-pentane

**Answer: B**

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**338.** 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-1-butene

C. n-pentane

D. n-butane

**Answer:**

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