# **EXERCISE-I**

6.

### ALKANE

- The petrol having octane number 80 has

   (A) 20% normal heptane + 80% iso-octane
   (B) 80% normal heptane + 20% iso-octane
   (C) 20% normal heptane + 80% normal octane
   (D) 80% normal heptane + 20% normal octane

   Which of the following reactions will not
- 2. Which of the following reactions will not give propane

(A) 
$$CH_{3}CH_{2}CH_{2}CI \xrightarrow{Mg/ether}{H_{2}O}$$
  
(B)  $CH_{3}COCI \xrightarrow{CH_{3}MgX}{H_{2}O}$   
(C)  $CH_{3}CH = CH_{2} \xrightarrow{B_{2}H_{6}}{CH_{3}COOH}$   
(D)  $CH_{3}CH - CH_{3} \xrightarrow{P/HI} \rightarrow OH$ 

- **3.** The shape of methane molecule is
  - (A) Linear (B) Trigonal planar
  - (C) Square planar (D) Tetrahedral
- 4. Which of the following shows only one brominated compound
  - (A) Butene-2
  - (B) 2, 2-dimethylpropane
  - (C) Butyne-1
  - (D) Butanol-3
- 5. Kerosene is used as fuel because it is
  - (A) Less volatile
  - (B) More volatile
  - (C) Cheap
  - (D) Abundantly available

- $CH_{3} CH_{2} CH_{2} CH_{3} \xrightarrow[HBr]{AlCl_{3}} Product$ Product in above reaction is  $(A) CH_{3} CH CH_{2} CH_{3}$ Br
  - (B)  $CH_3 CH CH_3$  $CH_3$

(C) 
$$CH_2 - CH_2 - CH_2$$
  
Br  $CH_3$ 

- (D) All of these
- 7. Which of the following statements is not true for ethane
  - (A) It can be chlorinated with chlorine
  - (B) It can be catalytically hydrogenated
  - (C) When oxidised produces  $CO_2$  and  $H_2O$
  - (D) It is a homologue of iso-butane
- **8.** Petroleum refining is

(A) Distillation of petroleum to get different fractions

(B) Obtaining aromatic compounds from aliphatic compounds present in petroleum

(C) Cracking of petroleum to get gaseous hydrocarbons

- (D) Purification of petroleum
- **9.** The chemical added to leaded petrol to prevent the deposition of lead in the combustion chamber is
  - (A) Iso-octane
  - (B) Ethylene dibromide
  - (C) Tetraethyl lead
  - (D) Mercaptan

10.	In the commercial gasolines, the type of	18.	Cyclohexane, a h	ydrocarbon floats on
	hydrocarbons which are more desirable is		water because	-
	(A) Branched hydrocarbon		(A) It is immiscible	with water
	(B) Straight-chain hydrocarbon		(B) Its density is low	v as compared to water
	(C) Linear unsaturated hydrocarbon		(C) It is non-polar su	ubstance
	(D) Toluene		(D) It is immiscible	and lighter than water
11.	Propionic acid is subjected to reduction	19.	Natural gas contains	mainly
	with hydroiodic acid in the presence of a		(A) Methane	
	little <i>P</i> , the product formed is		(B) <i>n</i> -butane	
	(A) Ethane (B) Propane		(C) <i>n</i> -octane	
	(C) Butane (D) None of these		(D) Mixture of octar	ne
12.	When ethyl iodide and propyl iodide react	20.	Which compound is	not inflammable
	with <i>Na</i> in the presence of ether, they form		(A) $CCl_4$	(B) C <sub>2</sub> H <sub>5</sub> OH
	(A) One alkane (B) Two alkanes (C) Four alkanes (D) Three alkanes		(C) CH <sub>4</sub>	(D) $C_6 H_6$
13.	The alkane that yields two isomeric	21.	Anhydrous sodium	acetate on heating with
	monobromo derivatives is		sodalime gives	
	(A) Neopentane (B) Ethane		(A) Acetic acid	(B) Methane
	(C) Methane (D) Propane		(C) Calcium acetate	(D) Ethane
14.	Kerosene is a mixture of	22.	Water gas is	
	(A) Alkanes		(A) $CO + CO_2$	(B) $CO + N_2$
	(B) Aromatic compounds		(C) $CO + H_2$	(D) $CO + N_2 + H_2$
	(C) Alcohols	23.	A sample of gasoline	contains 81% iso-octane
	(D) Aliphatic acids		and 19% <i>n</i> -heptane.	Its octane number will
15.	When petroleum is heated the vapours		be	
	contain mainly		(A) 19	(B) 81
	(A) Kerosene		(C) 100	(D) 62
	(B) Petroleum ether	24.	The natural petroleu	m contains
	(C) Diesei (D) Machina ail		(A) Saturated hydro	carbons
16	(D) Machine on Iso actance is mixed to the netrol		(B) Cyclic saturated	hydrocarbons
10.	(A) To precipitate inorganic substances		(C) Compounds of s	sulphur
	(R) To prevent freezing of petrol		(D) All of these	
	(C) To increase boiling point of petrol	25.	The preparation of e	ethane by electrolysis of
	(D) As an antiknock		aqueous solution o	f potassium acetate is
17.	Tetraethyl lead is used as		called as	
	(A) Fire extinguisher		(A) Wurtz reaction	
	(B) Pain reliever		(B) Sabatier-Sender	en's reaction
	(C) Petroleum additive		(C) Kolbe's synthesi	S
	(D) Mosquito repellent		(D) Grignard reaction	on

26	Action of hydrogen chloride on	30	Gasoline is the name of
20.	CH - C - CH and on $CH = CH$ will	50.	(A) Crude oil
	$CH_3 = CH_2$ and on $CH = CH$ with		(B) The gaseous constituents of petroleum
	CH <sub>3</sub>		(C) The mixture of uncondensed gases
	predominantly give the compounds,		produced in the distillation of crude oil
			(D) The mixture of the residue and gas oil
	(A) $CH_3 - CH = CH_2Cl and$		obtained in the distillation of crude oil
	CH <sub>3</sub>	31.	Which one of the following compounds
	$CH_2CI-CH_2CI$		cannot be prepared by Wurtz reaction
	(B) $CH_3 - CCl = CH_3$ and $CH_3 - CHCl_2$		(A) $CH_4$ (B) $C_2H_6$
	CH <sub>3</sub>		(C) $C_3 H_8$ (D) $C_4 H_{10}$
	(C) $CH_3 - CH = CH_2Cl$ and $CH_3 - CHCl_2$	32.	A fuel contains 25 % <i>n</i> -heptane and 75 %
	$\overset{ }{\mathrm{CH}}_{3}$		iso-octane. Its octane number is
	(D) $CH - CH = CH$ and $CH CI - CH CI$		(A) 50 (B) 75
	$(D) \operatorname{CH}_{3} \operatorname{CH}_{2} \operatorname{CH}_{3} \operatorname{CH}_{2} $	22	(C) 100  (D) 25
~-		33.	(A) Dehydration
27.	As the number of carbon atoms in a chain		(A) Dehydration (B) Dehydrogenation
	(A) Increases		(C) Dehydrogenation
	(A) Increases (B) Decreases		(D) Dehalogenation
	(C) Remains same	34.	Which of the following has highest
	(D) May increase or decrease		percentage of hydrogen
28.	In the fractional distillation of crude		(A) $CH_4$ (B) $C_2H_4$
	petroleum		(C) $C_6 H_6$ (D) $C_2 H_2$
	(A) Petrol condenses at the bottom of the	35.	What is the molecular formula of the
	column		alkane, the 5.6 <i>litre</i> of which weight 11 g at
	(B) The gases condense at the top of the		STP
	Column		(A) $C_6 H_{14}$ (B) $C_4 H_{10}$
	the bottom of the column		(C) $C_3H_8$ (D) $C_2H_6$
	(D) High boiling constituents condense at	36.	The reference compound `iso-octane'
	the top of the column		which is used in determining the octane
29.	Which of the following is not an		number of gasoline has the structure
	endothermic reaction		$(A) CH_3 - CH(CH_3) - CH(CH_3) - CH(CH_3) - CH_3$
	(A) Dehydrogenation		(B) $CH_3 - C(CH_3)_2 - CH_2 - CH(CH_3) - CH_3$
	(B) Ethane to ethene		$(C)CH_3 - C(CH_3)_2 - CH(CH_3) - CH_2 - CH_3$
	(C) Combustion of propane		(D) $CH_{2} - C(CH_{2})_{2} - C(CH_{2})_{2} - CH_{2}$
	(D) Change of chlorine molecule into		(2)  (2)
	CHIOTHIE AUTHS.		

**37.** Sample of 2, 3-dibromo-3-methylpentane is heated with zinc dust. The resulting product is isolated and heated with *HI* in the presence of phosphorus. Indicate which is the structure that represent the final organic product formed in the reaction

(A) 
$$CH_{3} - CH_{2} - CH - CH_{2} - CH_{3}$$
  
 $CH_{3}$   
(B)  $CH_{2} = CH - CH - CH_{2} - CH_{3}$   
(C)  $CH_{3} - CHI - CH - CH_{2} - CH_{3}$   
 $CH_{3}$   
(D)  $CH_{2} = CH - C(I) - CH_{2} - CH_{3}$   
 $CH_{3}$ 

- **38.** The order of appearance of the following with rising temperature during the refining of crude oil is
  - (A) Kerosene oil, gasoline, diesel
  - (B) Diesel, gasoline, kerosene oil
  - (C) Gasoline, diesel, kerosene oil
  - (D) Gasoline, kerosene oil, diesel
- **39.** When sodium propionate is heated with soda lime, the main product is
  - (A) Ethane (B) Methane
  - (C) Propane (D) Butane
- **40.** Gasoline is a mixture of alkanes with the number of carbon atoms
  - (A)  $C_3 C_5$  (B)  $C_5 C_6$

(C) 
$$C_6 - C_8$$
 (D)  $C_7 - C_9$ 

- **41.** Which of the following has highest octane number
  - (A) *n*-hexane
  - (B) *n*-heptane
  - (C) Iso-octane
  - (D) *n*-heptane and iso-octane mixed in ratio
  - 50:50

- 42. A mixture of ethyl iodide and *n*-propyl iodide is subjected to Wurtz reaction. The hydrocarbon that will not be formed is (A) *n*-butane (B) *n*-propane
  - (C) *n*-pentane (D) *n*-hexane
- **43.** Most of the hydrocarbons from petroleum are obtained by
  - (A) Fractional distillation
  - (B) Fractional crystallization
  - (C) Vaporization
  - (D) Polymerization
- **44.** Which is the best antiknock compound or Which one of the following substances is used as an antiknock compound
  - (A) Lead tetrachloride
  - (B) Lead acetate
  - (C) Zinc ethyl
  - (D) Tetraethyl lead (TEL)
- **45.** In the dichlorination reaction of propane, mixture of products are obtained. How many isomers, the mixture contains
  - (A) 2 (B) 3 (C) 4 (D) 5
- **46.** Which of the following cycloalkane gives open chain compound, when reacts with bromine

(A) Cyclopropane (B) Cyclopentane

- (C) Cyclohexane (D) Cyclo-octane
- **47.** Grignard reagent is not prepared in aqueous medium but prepared; in ether medium because the reagent
  - (A) Reacts with water
  - (B) Is insoluble in water
  - (C) Is highly reactive in ether
  - (D) Becomes inactive in water
- **48.** A sample of petrol is a mixture of 30% *n*-heptane and 70% *iso*-octane. The sample has octane number
  - (A) 30 (B) 70
  - (C) 15 (D) 35

- 49. For the reduction of ketones to hydrocarbon, the appropriate agent is (B) Zn - Hg / HCl(A) HI (C) Red phosphorous (D)  $H_2SO_4$
- 50. Heating of alkanes with fuming sulphuric acid or oleum at high temperature, which forms sulphonic acid, is called

(A) Nitration (B) Halogenation

- (C) Sulphonation (D) Oxidation
- 51. Propane-1-ol can be prepared from propene by its reaction with
  - (A) CH<sub>3</sub>COOH
  - (B) H<sub>3</sub>BO<sub>3</sub>
  - (C)  $B_2H_6$  / NaOH,  $H_2O_2$
  - (D)  $H_2SO_4/H_2O$
- 52. The process in which higher hydrocarbons are broken down into lower hydrocarbons by controlled pyrolysis, is called
  - (A) Hydrolysis (B) Cracking (C) Oxidation (D) Reduction
- 53. Successive alkanes differ by (A) > CH, (B) > CH
  - $(C) CH_2$ (D)  $C_2H_4$
- General formula of alkane is 54.
  - (A)  $C_{n}H_{2n+2}$ (B)  $C_n H_{2n-1}$
  - (C)  $C_{n}H_{2n}$ (D)  $C_n H_{2n+1}$
- 55. Methane and ethane both can be prepared in one step by which of the following compound

(A)  $C_2H_4$  $(B) CH_2O$ (C) CH<sub>2</sub>Br (D) CH<sub>3</sub>CH<sub>2</sub>OH

- Which one of the following has the 56. minimum boiling point
  - (A) 1-Butene (B) 1-Butyne (C) n-Butane (D) Isobutane
  - Octane number can be changed by
- 57. (A) Isomerisation (B) Alkylation

(C) Cyclisation (D) All of these

- **58**. Gasoline has composition (B)  $C_2 - C_5$ (A)  $C_8 - C_{12}$ (C)  $C_6 - C_{11}$ (D) None of these 59. The complete combustion of  $CH_4$  gives
  - (A)  $CO + H_2$ (B)  $CO + N_{2}$ 
    - (C)  $CO_{2} + H_{2}O$ (D)  $CO + N_2O$
- Which of the following has highest **60**. knocking
  - (A) Olefins
  - (B) Branched chain olefins
  - (C) Straight chain olefins
  - (D) Aromatic hydrocarbons

#### **ALKENE**

 $CH_2 = CH_2 \xrightarrow{KMnO_4} X$ . Product 'X' in 61. above reaction is (A) Ethylene glycol (B) Glucose (D) All of these (C) Ethanol 62. Which of the following compounds represents acrylonitrile (A) Vinyl cyanide (B) Cyanoethene (C) Prop-2-ene nitrile (D) All of them When acetylene reacts with 63. arsenic trichloride in the presence of anhydrous aluminium chloride, it produces (A) Lewisite (B)  $\beta$ -chlorovinyl dichloroarisine (C) Nitrobenzene (D) Both (A) and (B) Ozonolysis of which one of the following **64**. will give two molecules of acetaldehyde (A) 1-butene (B) 2-butene (C) 1-pentene (D) 2-pentene In which of the following, addition of HBr **65**. does not take place against Markownikoff's rule or Anti-Markownikoff addition of HBr is not observed for (A) Propene (B) But-1-ene (C) But-2-ene (D) Pent-2-ene

66.	Which one of the following characteristics	72.	Which of the follow	ving is the most stable
	(A) Explode when mixed with chloring		alkene	
	(A) Explode when mixed with chlorine (B) Decolourise Baever's reagent giving		(A) $R_2 C = C R_2$	(B) RCH = CHR
	brown precipitate		(C) $\operatorname{RCH}_2 = \operatorname{CH}_2 \operatorname{R}$	(D) $CH_2 = CH_2$
	(C) Rapidly absorbed by cold conc. $H_2SO_4$	73.	Ethene gives with ac	idic KMnO <sub>4</sub> solution
	(D) Form white precipitate with silver		(A) Ethylene glycol	(B) Ethylene oxide
	nitrate solution		(C) Formaldehyde	(D) Acetaldehyde
67.	Which of the following has highest	74.	In paraffins, with th	e increasing molecular
	knocking property		weight, it is found th	at
	(A) Aromatic hydrocarbons		(A) Freezing point d	ecreases
	(B) Olefins		(B) Boiling point dec	creases
	(C) Branched chain paraffins		(C) Boiling point inc	deerees
	(D) Straight chain paraffins	75	(D) vapour pressure	volution of ethylene
68.	Dilute aqueous $KMnO_4$ , at room temperature	13.	dibromide is heated	with granulated zinc
	reacts with $R - CH = CH - R$ to give		the compound forme	d is
	(A) $R - CHO$		(A) Ethylene	(B) Ethyne
	(B) $R - COOH$		(C) Cyclobutane	(D) Butane
	(C) RCHOH - CHOHR	76.	A gas formed by t	he action of alcoholic
	(D) $CO_2 + H_2O$		KOH on ethyl iodid	le, decolorises alkaline
69.	Aqueous sulphuric acid reacts with		$KMnO_4$ solution. The second	ne gas is
	2-methyl-1-butene to give predominantly		(A) CH.	$(\mathbf{B}) \mathbf{C}_{\mathbf{e}} \mathbf{H}_{\mathbf{e}}$
	(A) Isobutyl hydrogen sulphate		(1) C H	(D) $C H$
	(B) 2-methyl 1 bytanal		$(C) C_2 \Pi_4$	$(D) C_2 \Pi_2$
	(D) Secondary butyl hydrogen sulphate	77.	Markownikoff's rule	e provides guidance of
70.	How can ethene be produced from ethanol		(A) $CH_2 = CH_2$	
	(A) By dehydrohalogenation		(B) $CH_2 - CH_2 - CH_3$	Ŧ.
	(B) By dehydrogenation		(C) CH CH = CHCI	-3
	(C) By dehydration with conc. $H_2SO_4$ at		(D) $CH = CHBr$	-3
	$170^{\circ}$ C	79	(D) $\operatorname{CH}_2$ = CHD Ethyl bromida gives	athulana whan ragatad
71	(D) By reduction with hydrogen loadde Cyclopentene, on treatment with alkaline	70.	with	entylene when reacted
/ 1.	KMnO, gives		(A) Ethyl alcohol	(B) Dilute $H_2SO_4$
	(A) Cyclopentanol		(C) Aqueous <i>KOH</i>	(D) Alcoholic <i>KOH</i>
	(B) <i>trans</i> 1, 2-cyclopentanediol	79.	Ethylene is prepared	by the dehydration of
	(C) <i>cis</i> 1, 2-cyclopentanediol	-	(A) Ethyl alcohol	(B) Methyl alcohol
	(D) $1 : 1$ mixture of <i>cis</i> and <i>trans</i> 1, 2-		(C) Acetic acid	(D) Oxalic acid
	cyclopentanediol			

80.	Which reactions are most common in	86.	Addition of bromine to 1, 3-butadiene
	alkenes		gives
	(A) Electrophilic substitution reactions		(A) 1, 4-addition product only
	(B) Nucleophilic substitution reactions		(B) 1, 2-addition product only
	(C) Electrophilic addition reactions		(C) Both 1, 2-and 1, 4 addition product
	(D) Nucleophilic addition reactions		(D) None of these
81.	The name of the product obtained by the	87.	In the presence of peroxide, hydrogen
	addition of HI to propene in presence of		chloride and hydrogen iodide do not give
	peroxide catalyst is		anti-Markovnikoff's addition to alkenes
	(A) Isopropyl iodide		because
	(B) 2-lodopropene		(A) Both are highly ionic
	(C) 2-lodopropane		(B) One is oxidising and the other is
	(D) I-lodopropane		(C) One of the store is an letherwise in hoth
82.	In the reaction $C_2H_5CH = CH_2 + H - X \rightarrow$		(C) One of the steps is endothermic in both
	Product. What is the product		(D) All the steps are exothermic in both the
	(A) $C_2H_5 - CH_3$		(D) An me steps are exomernine in bour me
	$(B) C_2H_5CH_2 - CH_2X$	88.	The compound most likely to decolourize a
	(C) $C_2H_5 - CHX - CH_3$	00.	solution of potassium permanganate is
	(D) $CH_3 - CH_2X - CH = CH_2$		(A) CH <sub>3</sub> CH <sub>3</sub>
83.	Alkene can be prepared from alkyl halide		
	$\mathbf{P} = \mathbf{V} + \mathbf{N}\mathbf{u}^{-} + \mathbf{A}\mathbf{l}\mathbf{k}\mathbf{c}\mathbf{n}\mathbf{c} + \mathbf{N}\mathbf{u}\mathbf{H}$		$(D) \Leftrightarrow \bigtriangledown$
	$K - A + Nu \rightarrow Aikelle + Nuri$ (A) Alc $KOH + heat$		$(C)CH_3CH = CHCH_2CH_3$
	(B) $Aa KOH + cold water$		
	(C) NaOH		(D) $CH_3 - C - CH_3$
	(D) LiOH		ĊH <sub>3</sub>
84.	2-chlorobutane is heated with alcoholic	89.	Ethylene is converted to X on passing
	NaOH, the product formed in larger		through a mixture of an acidified aqueous
	amount is		solution of palladium chloride and cupric
	(A) 1-Butene (B) 1-Butyne		chloride. Which of the following reagents
	(C) 2-Butene (D) All of these		readily take part in addition reaction with <i>X</i>
85.	Ethylene has high b.p. and high vapour		(A) $Br_2$ (B) $HBr$
	pressure at $100^{\circ}$ C and does not dissolve in		(C) HCl  (D) HCN
	water. Hence ethylene is separated by this	90.	Addition of HCl does not obey
	method		antimarkownikoff's rule because
	(A) Simple distillation		(A) It is a strong acid
	(B) Vacuum distillation		(B) It is a gas
	(C) Vapour distillation		(C) Its bond energy is high
	(D) Alkalı treatment		(D) Its bond energy is less
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91.	Which one is an unsa	aturated compound	98.	The compound <i>B</i> formed in the following
	(A) $C_6H_{14}$	(B) $C_4 H_8$		sequences of reactions is
	(C) $C_3H_7OH$	(D) CH <sub>3</sub> OH		$CH_3CH_2CH_2OH \longrightarrow A \longrightarrow B$
92.	Ethyl alcohol on hea	ting with conc. H <sub>2</sub> SO		(A) Propyne (B) Propene
	gives		99	(C) Propanol (D) Propane <i>n</i> -propyl bromide on treatment with
	(A) CH COOC H	(B) C H	<i>))</i> .	ethanolic potassium hydroxide produces
	$(\Pi) C \Pi_{3} C C C C_{2} \Pi_{5}$	(D) $C_2 H_6$		(A) Propane (B) Propene
	$(C) C_2 \Pi_4$	$(D) C_2 \Pi_2$		(C) Propyne (D) Propanol
93.	Monohalides on re	eacting with alcoholic	100.	The dehydrohalogenation of neopentyl
	KOH give			(A) 2-methyl-1-butene
	(A) Alkanes			(B) 2-methyl-2-butene
	(D) Alkynes			(C) 2, 2-dimethyl-1-butene
	(D) Aromatic hydrod	carbons		(D) 2-butene
94.	Ethylene is a membe	er of series	101.	Decolourization of alkaline $KMnO_4$ is
	(A) Alkyne	(B) Olefin		used as a test for
	(C) Paraffin	(D) Amine		(A) Aromatic hydrocarbons (B) Olefinic hydrocarbons
95.	In a double bond	between two carbon		(C) Acetylenic hydrocarbons
	atoms of ethene, then	re are		(D) Cycloalkanes
	(A) Two sigma be	onds perpendicular to	102.	The reaction
	each other			$CH_2 = CH_2 + H_2 \xrightarrow[250-300^\circ C]{Ni} CH_3 - CH_3$
	(B) One sigma and o	one pi bond		is called
	(C) Two pi bonds	perpendicular to each		(A) Wurtz's reaction
	other			(B) Kolbe's reaction
	(D) Two pi bonds at	an angle of 60°		(C) Sabatier and Senderen's reaction (D) Carbylamine reaction
96.	The formation of all	kene from alkyl halide	103.	The alkene which on ozonolysis vields
	is an example of $(A)$ A difference	$(\mathbf{D})$ $\mathbf{E}^{1}$		acetone is
	(A) Addition	(B) Elimination $(D)$ (A) and $(C)$	(A) $CH_2 = CH_2$	(A) $CH_2 = CH_2$
97	In the following read	(D)(A) and $(C)$		(B) $CH_3 - CH = CH_2$
11.		$H_2SO_4$		(C) $(CH_3)_2 C = C(CH_3)_2$
	$CH_3 - CH_2 - $	$C\Pi_3 \xrightarrow{475K}$		(D) $CH_3 - CH = CH - CH_3$
	(A) $CH_3CH = CHC$	H <sub>3</sub> predominates	104.	$CH_3CH = CHCHO$ is oxidized to
	(B) $CH_2 = CHCH_2C$	CH <sub>3</sub> predominates		$CH_{3}CH = CHCOOH$ using
	(C) Both are formed	in equal amounts		(A) Alkaline potassium permanganate
	(D) The amount of	production depends on		(B) Acidified potassium permanganate
	the nature of catalyst	t		(C) Selenium dioxide
				(D) Osmium tetroxide

### Hydrocarbon

- 115. Which of the following represents the given mode of hybridisation  $sp^{2}-sp^{2}-sp-sp$  from left to right
  - (A)  $H_2C = CH C \equiv CH$
  - (B)  $HC \equiv C C \equiv CH$
  - (C)  $H_2C = C = C = CH_2$
  - (D) CH<sub>2</sub> CH<sub>2</sub>
- **116.** "The negative part of addenda adds on to the carbon atom linked with least number of hydrogen atoms". This statement is called
  - (A) Thiele's principle
  - (B) Bayer's strain theory
  - (C) Markownikoff's rule
  - (D) Peroxide effect
- 117. The product obtained, heating ethanol with conc.  $H_2SO_4$  at  $165^\circ 170^\circ$ , is
  - (A)  $(C_2H_5)_2SO_4$  (B)  $CH_2 = CH_2$
  - (C)  $CH_3COOH$  (D)  $C_2H_5HSO_4$
- 118. Which of the following is the most stable(A) 1-butene(B) 2-butene
  - (C) 1-pentene (D) 2-pentene
- **119.** Which doesn't follow Markownikoff's rule
  - (A)  $CH_3 CH = CH_2$
  - (B)  $CH_3CH = CHCH_3$
  - (C)  $CH_3 CH CH = CH_2$  $CH_3$
  - (D)  $CH_3 CH_2 CH = CH_2$
- **120.** The product of acid catalyzed hydration of 2-phenyl propene is
  - (A) 3-phenyl-2-propanol
  - (B) 1-phenyl-2-propanol
  - (C) 2-phenyl-2-propanol
  - (D) 2-phenyl-1-propanol

### ALKYNE

- **121.** Poisonous gas 'Lewissite' is obtained by the reaction of
  - (A)  $CH \equiv CH$  and  $AsCl_3$
  - (B)  $CH_2 = CH_2$  and  $AsCl_3$
  - (C) CH = CH and  $S_2Cl_2$
  - (D)  $CH_2 = CH_2$  and NOCl
- **122.** Products of the following reaction  $CH_3C \equiv C CH_2 CH_3 \xrightarrow{(1) O_3} \dots$  are
  - (A)  $CH_3CHO + CH_3CH_2CHO$
  - (B)  $CH_{3}COOH + CH_{3}CH_{2}CHO$
  - (C)  $CH_3COOH + HOOCCH_2CH_3$
  - (D)  $CH_3COOH + CO_2$
- **123.** By coaltar distillation, which is not obtained
  - (A) Light oil (B) Middle oil
  - (C) Heavy oil (D) Mobil oil
- **124.** Hydrocarbon containing following bond is most reactive
  - (A)  $C \equiv C$  (B) C = C
  - (C) C C (D) All of these
- **125.** The shapes of methane, ethene and ethyne molecules are, respectively
  - (A) Tetrahedral, planar and linear
  - (B) Tetrahedral, linear and planar
  - (C) Pyramidal, planar and linear
  - (D) Tetrahedral, pyramidal and planar
- 126. To synthesize the unsymmetrical alkyne  $CH_3 - C \equiv C - CH_2 - CH_3$  the reagents needed would be

(A) Ethene, iodoethane, iodomethane and potassium hydroxide

(B) Acetaldehyde, 1-bromopropane and conc.  $H_2SO_4$ 

(C) 1, 2-dichloroethane, 1-propanol and alcoholic potassium hydroxide

(D) Ethyne, iodomethane, iodoethane and sodamide

127.	When propyne is treated with dilute	133.	The homologue of et	hyne is
	$H_2SO_4$ and $HgSO_4$ , the major product is		(A) $C_2H_4$	(B) $C_2 H_6$
	(A) Propanal		(C) $C_{3}H_{8}$	(D) $C_{3}H_{4}$
	(B) Propanol (C) Propul hydrogon sulphate	134.	When acetylene rea	acts with HCl in the
	(D) Propanone		presence of HgCl <sub>2</sub> ,	the product is
128.	Which of the following will be the final		(A) Methyl chloride	
	product when $C_2H_2$ reacts with <i>HCl</i>		(B) Dichloroethane	
	CH CH <sub>3</sub>		(C) Vinyl chloride	
	$(A) \parallel (B) \mid $		(D) Ethylidine chlori	ide
	CHCI CHCI <sub>2</sub>	135.	When propyne react	s with aqueous $H_2SO_4$
	(C)    (D) None of these		in the presence of C	$_{2}\mathrm{H}_{4}$ , the major product
	CHCl		is	
129.	What is the end product of the following		(A) Propanal	
	sequences of operations $C_{-}C_{-}$ $\stackrel{H_2O}{\longrightarrow} A_{-}$ $\stackrel{dil H_2SO_4}{\longrightarrow} D_{-}$ $\stackrel{Ni}{\longrightarrow} C_{-}$		(B) Propyl hydrogen	sulphate
	$\operatorname{CaC}_2 \xrightarrow{\hspace{1cm}} A \xrightarrow{\hspace{1cm}} B \xrightarrow{\hspace{1cm}} H_2 \xrightarrow{\hspace{1cm}} C$		(C) Acetone	
	(A) Methyl alcohol (B) Acetaldehyde	12(	(D) Propanol	
	(C) $C_2H_5OH$ (D) $C_2H_4$	130.	(A) Magitulana	(B) Bonzono
130.	$R - CH_2 - CCl_2 - R \xrightarrow{Reagent} R - C \equiv C - R$		(A) Wesitylene	(D) Pronvl benzene
		137.	When treated with	ammoniacal cuprous
	The reagent is		chloride, which one	among the following
	(A) Na (B) UCL and U. O		forms copper derivat	ive
	(B) HCl and $H_2O$		(A) $C_2H_6$	(B) $C_2H_4$
	(C) KOH in $C_2H_5OH$		$(C) C_2 H_2$	(D) $C_6 H_6$
101	(D) Zn	138.	Which of the follow	ving catalyst is used in
131.	A gas decolourises bromine in $CCI_4$ and		the polymerisation o	$f CH = CH to C_6 H_6$
	nitrate. The gas is		(A) AlCl.	(B) HøSO.
	(A) $C_2H_2$ (B) $C_2H_4$		(C) NbCl	(D) HCl
	$(C) C_2 H_2 \qquad (D) C H_2$	120	KMrQ anill anidia	
132	Among the following compounds which	139.	$KMnO_4$ will oxidise	e acetylene to
1021	have more than one type of hybridisation		(A) Ethylene glycol	(B) Ethyl alcohol
	for carbon atom	140	(C) Oxalic acid	(D) Acetic acid
	(i) $CH_3CH_2CH_2CH_3$ (ii) $CH_3 - CH = CH - CH_3$			with dif. $\Pi_2 SO_4$ and
			Hg(II) gives	
	(iii) $CH_2 = CH - C \equiv CH$		(A) Ethanol	
	(iv) $H - C \equiv C - H$		(D) Ethanal (C) Methovymethon	<u>م</u>
	(A) (ii) and (iii) (B) (ii)		(D) Ethyl hydrogen o	- sulnhate
	(C) (iii) and (iv) (D) (iv)			July 11010

#### Hydrocarbon

 $\mathop{\rm CH}_{\rm CH}$  reacts with acetic acid in presence of  $\mathop{\rm CH}_{\rm CH}$ 147. Carbon-carbon bond length is minimum in 141. (A) Ethane (B) Ethene  $Hg^{2+}$  to give (C) Ethyne (D) Benzene  $\begin{array}{c} CH_{3} \\ \downarrow \\ CH(CH_{3}COO)_{2} \end{array} (B) \begin{array}{c} CH(CH_{3}COO)_{2} \\ \downarrow \\ CH(CH_{3}COO)_{2} \end{array}$ CH<sub>3</sub> 148. Triple bond of ethyne is made of or (A) Cylindrical shape of an alkyne is due to CH<sub>3</sub> (A) Three  $\sigma$  – bonds (C) (D) None of these <sup>L</sup>H<sub>2</sub>(CH<sub>3</sub>COO) (B) Three  $\pi$  – bonds 142. Acetylene is prepared industrially by (C) Two  $\sigma$  and one  $\pi$  – bond passing electric discharge through graphite (D) Two  $\pi$  and one  $\sigma$  – bond electrodes in the atmosphere of 149. An organic compound has a triple bond and (A) Air (B) N<sub>2</sub> not double bond. It can be tested by (C) H<sub>2</sub> (D) CO, (A) Bromine water When acetylene is passed into dilute 143. (B) Bayer's reagent sulphuric acid containing Hg<sup>2+</sup> ions, the (C) Fehling solution product formed is (B) Acetic acid (D) Ammonical silver nitrate (A) Acetone (C) Acetaldehyde (D) Formaldehyde 150. Which of these will not react with 144. Which of the following has acidic acetylene hydrogen (A) NaOH(A) Ethyne (B) Ethene (B) Ammonical AgNO<sub>3</sub> (C) Ethane (D) Benzene 145. Xylenes on oxidation with acidic (C) NaKMnO<sub>4</sub> gives (D) HCl (A) Terphthalic acid (B) Phthalic acid Distinction in pentene-1 and pentyne-1 is 151. (C) Isophthalic acid (D) All of these done by 146. The structure of the product(Z) in the (A)  $[Ag(NH_3)_2]^+$ reactions given below  $HC \equiv CH \xrightarrow{\text{NaNH}_2, CH_3 COCH_3} X \xrightarrow{\text{Hg}^{2^+}, H_3O^+} Z$ (B) Conc.  $H_2SO_4$ is (C) HCl 0 (D)  $Br_2$ (A)  $CH_3 - CH_2 - CH_2 - \overset{\parallel}{C} - CH_2OH$ 152. A mixture of ethane, ethene and ethyne is CH, passed through ammoniacal (B)  $CH_3 - C_{\parallel} - CH_2OH_{\parallel}$ O solution. The gases which remain unreacted are CH<sub>3</sub> (A) Ethane and ethane (C)  $CH_3 - C - C - CH_3$ O OH(B) Ethane and ethyne (C) Ethene and ethyne (D) Ethane only CH, (D)  $CH_3 - CHOH - CH - CHO$ 

AgNO<sub>2</sub>

153.	In its reaction with s	silver nitrate acetylene		AROMATIC HYDROCARBON
	shows			
	(A) Oxidising proper	ty	161.	Chemical name of the ins
	(B) Reducing property	ty		gammexene is
	(C) Basic property			(A) DDT
	(D) Acidic property			(B) Benzene hexachloride
154.	Simplest alkyne is re	presented by		(C) Chloral
	(A) CH	(B) CH <sub>2</sub>		(D) Hexachloroethane
	(C) $C_2H_2$	(D) $C_2 H_4$	162.	Gammexane is obtained from
155.	Which of the follo	owing bonds is most		when it reacts with
	acidic	-		(A) $Br_2$ in bright sunlight (in the
	$(\mathbf{A}) = C - H$			of a catalyst)
	(B) - C - H			(B) $Cl_2$ in bright sunlight (in the
	$(\mathbf{C}) \equiv \mathbf{C} - \mathbf{H}$			of a catalyst)
	(D) All are equally a	cidic		(C) CH <sub>3</sub> Cl in the presence of an
156.	The hybridisation in	methane, ethene and		AlCl <sub>3</sub>
	Ethyne respectively i	S		(D) COCl in the presence of an
	(A) $sp^3$ , $sp^2$ and $sp$	(B) $sp^{3}$ , $sp$ , $sp^{2}$		
	(C) $sp^2$ , $sp^3$ and $sp$	(D) $sp^3$ , $sp^2$ , $sp$		AICI <sub>3</sub>
157.	Number of acidic	hydrogen atoms in	163.	Point out the wrong statement in re.
	butyne-1 are			the structure of benzene
	(A) 2	(B) 3		(A) It forms only one monosub
1 = 0	(C) I	(D) 4		(P) The $C = C$ hand distance in be
158.	Which of the foll structure	lowing shows linear		(B) The C - C bond distance in be uniformly 1.397 $Å$
	(A) Ethane	(B) Ethene		(C) It is a resonance hybrid of a nu
	(C) Acetylene	(D) $CCl_4$		canonical forms
159.	Calcium carbide on	reacting with water		(D) It has three delocalised $\pi$ - m
	gives			orbitals
	(A) Methane	(B) Ethane	164.	Which equation represents an exa
	(C) Ethene	(D) Acetylene		Friedel-Craft's reaction
160.	Addition of HCN to	ethyne in presence of		$(A)C_{6}H_{6} + C_{2}H_{5}Cl \xrightarrow{AlCl_{3}} \rightarrow$
	$Ba(CN)_2$ as catalyst	gives		$C_6H_5C_2H$
	(A) 1, 1-dicyano etha	ine		(B) $C_2H_5OH + HCl \xrightarrow{ZnCl_2} C_2H_5Cl$
	(B) Ethyl cyanide			(C) C H Cl+CH COCl $\underline{AlCl_3}$
	(C) Vinyl cyanide			
	(D) Divinyl cyanide			C <sub>6</sub> H <sub>5</sub> COCH

## mical of the insecticide name mexene is DDT Benzene hexachloride Chloral Hexachloroethane nmexane is obtained from benzene n it reacts with $Br_2$ in bright sunlight (in the absence catalyst) Cl<sub>2</sub> in bright sunlight (in the absence catalyst) CH<sub>3</sub>Cl in the presence of anhydrous 'l, COCl<sub>2</sub> in the presence of anhydrous 21, t out the wrong statement in relation to structure of benzene It forms only one monosubstitution luct The C - C bond distance in benzene is formly 1.397 ÅIt is a resonance hybrid of a number of onical forms It has three delocalised $\pi$ - molecular tals ch equation represents an example of del-Craft's reaction $C_6H_6 + C_2H_5Cl \xrightarrow{AlCl_3} \rightarrow$ $C_6H_5C_2H_5 + HCl$ $C_2H_5OH + HCl \xrightarrow{ZnCl_2} C_2H_5Cl + H_2O$

 $C_6H_5Cl + CH_3COCl \xrightarrow{AlCl_3} \rightarrow$ COCII

$$C_6H_5COCH_3 + Cl_2$$

(D)  $C_2H_5Br + Mg \xrightarrow{Ether} C_2H_5Mgr$ 

<ul> <li>(A) C<sub>6</sub>H<sub>5</sub> CHC<sub>6</sub>H<sub>5</sub> (B) C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub></li> <li>(A) C<sub>6</sub>H<sub>5</sub> CHC<sub>6</sub>H<sub>5</sub> (B) C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub></li> <li>(A) Glyoxal (B) Oxalic acid (C) Maleic anhydride (D) Fumaric acid (C) Maleic anhydride (D) Fundrote reactive fue worthon and its deriva are (C) Funcional fue following is the strong of these (C) Funcional fue following is the strong of these (C) Funcional fue following (F) Functional fue fo</li></ul>	165.	The most stable carbonium ion among the following is	171.	Benzene vapour mixed with air when passed over $V_2O_5$ catalyst at 775K gives
<ul> <li>(C) CH<sub>3</sub>CH<sub>2</sub> (D) C<sub>6</sub>H<sub>2</sub>CH<sub>2</sub> CH<sub>2</sub></li> <li>166. The reaction of toluene with chlorine in presence of ferric chloride gives predominantly <ul> <li>(A) Benzoyl chloride</li> <li>(B) <i>m</i>-chlorotoluene</li> <li>(C) Benzyl chloride</li> <li>(D) <i>o</i>- and <i>p</i>-chlorotoluenes</li> <li>(C) Benzyl chloride</li> <li>(D) <i>o</i>- and <i>p</i>-chlorotoluenes</li> <li>(C) Benzyl chloride</li> <li>(D) <i>o</i>- and <i>p</i>-chlorotoluenes</li> <li>(A) Benzotrichloride (B) Gammexene</li> <li>(C) Chlorobenzene (D) None of these</li> </ul> </li> <li>168. Attacking or reactive or electrophilic species in nitration of benzene with concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> the attack on ring is made by</li> <li>(A) NO<sub>2</sub> (B) NO<sub>2</sub></li> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzena at 350K <ul> <li>(A) Sulphonation (B) Nitration</li> <li>(C) Hydrogenation (D) Dehydration</li> </ul> </li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is <ul> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> </ul> </li> </ul>		(A) $C_6H_5 \overset{+}{C}HC_6H_5$ (B) $C_6H_5 \overset{+}{C}H_2$		<ul><li>(A) Glyoxal</li><li>(B) Oxalic acid</li><li>(C) Maleic anhydride</li><li>(D) Fumaric acid</li></ul>
<ul> <li>(A) Benzoyl chloride</li> <li>(B) <i>m</i>-chlorotoluene</li> <li>(C) Benzyl chloride</li> <li>(D) <i>o</i>- and <i>p</i>-chlorotoluenes</li> <li>167. The product formed when toluene is heated in light with <i>Cl<sub>2</sub></i> and in absence of halogen carrier is</li> <li>(A) Benzotrichloride (B) Gammexene</li> <li>(C) Chlorobenzene (D) None of these</li> <li>168. Attacking or reactive or electrophilic species in nitration of benzene with concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> the attack on ring is made by</li> <li>(A) NO<sup>-</sup><sub>2</sub> (B) NO<sup>+</sup><sub>2</sub></li> <li>(C) NO<sup>-</sup><sub>3</sub> (D) NO<sub>2</sub></li> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzene at 350K</li> <li>(A) Sulphonation (B) Nitration (C) Hydrogenation (D) Dehydration</li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is</li> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic substitution</li> <li>(C) Hydrogenation (D) Dehydration</li> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> </ul>	166.	(C) $CH_3CH_2$ (D) $C_6H_5CH_2CH_2$ The reaction of toluene with chlorine in presence of ferric chloride gives predominantly	172.	Most common reactions of benzene (aromatic hydrocarbon) and its derivatives are (A) Electrophilic addition reactions
<ul> <li>107. The product romed when bouch is heard in light with Cl<sub>2</sub> and in absence of halogen carrier is <ul> <li>(A) Benzotrichloride (B) Gammexene</li> <li>(C) Chlorobenzene (D) None of these</li> </ul> </li> <li>168. Attacking or reactive or electrophilic species in nitration of benzene is or In the nitration of benzene with concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> the attack on ring is made by <ul> <li>(A) NO<sup>-</sup><sub>2</sub></li> <li>(B) NO<sup>+</sup><sub>2</sub></li> <li>(C) NO<sup>-</sup><sub>3</sub></li> <li>(D) NO<sub>2</sub></li> </ul> </li> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzene at 350K <ul> <li>(A) Sulphonation</li> <li>(B) Nitration</li> <li>(C) Hydrogenation (D) Dehydration</li> </ul> </li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is <ul> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> </ul> </li> </ul>	167	<ul> <li>(A) Benzoyl chloride</li> <li>(B) <i>m</i>-chlorotoluene</li> <li>(C) Benzyl chloride</li> <li>(D) <i>o</i>- and <i>p</i>-chlorotoluenes</li> <li>The product formed when toluene is heated</li> </ul>	173.	<ul> <li>(B) Electrophilic substitution reactions</li> <li>(C) Nucleophilic addition reactions</li> <li>(D) Nucleophilic substitution reactions</li> <li>Which is most readily nitrated</li> <li>(A) Benzene (B) Phenol</li> </ul>
<ul> <li>168. Attacking or reactive or electrophilic species in nitration of benzene is or In the nitration of benzene with concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> the attack on ring is made by <ul> <li>(A) NO<sub>2</sub><sup>-</sup></li> <li>(B) NO<sub>2</sub><sup>+</sup></li> <li>(C) NO<sub>3</sub><sup>-</sup></li> <li>(D) NO<sub>2</sub></li> </ul> </li> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzene at 350K <ul> <li>(A) Sulphonation</li> <li>(B) Nitration</li> <li>(C) Hydrogenation</li> <li>(D) None of these</li> </ul> </li> <li>175. Which among the following is the stron o, p-directing group <ul> <li>(A) OH</li> <li>(B) Cl</li> <li>(C) C<sub>6</sub>H<sub>5</sub></li> <li>(D) Br</li> </ul> </li> <li>176. The compound that is most reat towards electrophilic nitration is <ul> <li>(A) Toluene</li> <li>(B) Benzene</li> <li>(C) Hydrogenation</li> <li>(D) None of these</li> </ul> </li> <li>176. The compound that is most reat towards electrophilic nitration is <ul> <li>(A) Toluene</li> <li>(B) Benzene</li> <li>(C) Toluene</li> <li>(D) None of these</li> </ul> </li> <li>176. The compound that is most reat towards electrophilic nitration is <ul> <li>(A) Toluene</li> <li>(B) Benzene</li> <li>(C) Benzoic acid</li> <li>(D) Nitrobenzer</li> </ul> </li> <li>177. Mitration of benzene by nitric acid and sulphuric acid is <ul> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> </ul> </li> <li>179. Amongst the following, the compound is nitrated with difficulty is</li> </ul>	107.	in light with $Cl_2$ and in absence of halogen carrier is (A) Benzotrichloride (B) Gammexene (C) Chlorobenzene (D) None of these	174.	<ul> <li>(C) Aniline (D) Nitrobenzene</li> <li><i>o</i>, <i>p</i>-directing groups are mostly</li> <li>(A) Activating groups</li> <li>(B) Deactivating groups</li> <li>(C) Neutral groups</li> </ul>
<ul> <li>(A) NO<sub>2</sub><sup>-</sup></li> <li>(B) NO<sub>2</sub><sup>+</sup></li> <li>(C) NO<sub>3</sub><sup>-</sup></li> <li>(D) NO<sub>2</sub></li> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzene at 350K</li> <li>(A) Sulphonation (B) Nitration (C) Hydrogenation (D) Dehydration</li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is (A) Electrophilic substitution (B) Electrophilic substitution (B) Electrophilic addition</li> <li>170. Amongst the following would be reactive towards bromine (A) Nitrobenzene (B) Phenol (C) Anisole (D) Chlorobenzene (B) Phenol (C) Anisole (D)</li></ul>	168.	Attacking or reactive or electrophilic species in nitration of benzene is <b>or</b> In the nitration of benzene with concentrated $HNO_3$ and $H_2SO_4$ the attack on ring is made by	175.	(D) None of these Which among the following is the strongest o, p-directing group (A) $OH$ (B) $Cl$ (C) $C_6H_5$ (D) $Br$
<ul> <li>169. Which of the following reactions takes place when a mixture of concentrated HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> reacts on benzene at 350K</li> <li>(A) Sulphonation (B) Nitration (C) Hydrogenation (D) Dehydration</li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is (A) Electrophilic substitution (B) Electrophilic addition</li> <li>(A) Electrophilic addition</li> <li>(B) Electrophilic addition</li> <li>(A) Sulphonation (B) Nitration (C) Hydrogenation (D) Dehydration (D) Dehydration (D) Dehydration (D) Dehydration (D) Dehydration (D) Dehydration (C) Hydrogenation (D) Dehydration (D) D</li></ul>		(A) $NO_2^-$ (B) $NO_2^+$ (C) $NO_3^-$ (D) $NO_2$	176.	The compound that is most reactive towards electrophilic nitration is (A) Toluene (B) Benzene
<ul> <li>(A) Sulphonation (B) Nitration</li> <li>(C) Hydrogenation (D) Dehydration</li> <li>170. Nitration of benzene by nitric acid and sulphuric acid is</li> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> <li>(C) Toluene (D) Chlorobenze</li> <li>178. Which of the following would be reactive towards bromine</li> <li>(A) Nitrobenzene (B) Phenol</li> <li>(C) Anisole (D) Chlorobenze</li> <li>(B) Electrophilic addition</li> <li>(C) Toluene (D) Chlorobenze</li> <li>(C) Anisole (D) Chlorobenze</li> <li>(C) Anisole (D) Chlorobenze</li> <li>(C) Anisole (D) Chlorobenze</li> <li>(C) Anisole (D) Chlorobenze</li> </ul>	169.	Which of the following reactions takes place when a mixture of concentrated $HNO_3$ and $H_2SO_4$ reacts on benzene at 350K	177.	<ul> <li>(A) Fordene (B) Benzene</li> <li>(C) Benzoic acid (D) Nitrobenzene</li> <li>Amongst the following, the compound that can be most readily sulphonated is</li> <li>(A) Benzene (B) Nitrobenzene</li> </ul>
sulphuric acid is(A) Nıtrobenzene(B) Phenol(A) Electrophilic substitution(C) Anisole(D) Chlorobenzene(B) Electrophilic addition179.Amongst the following, the compound is nitrated with difficulty is	170.	<ul><li>(A) Sulphonation</li><li>(B) Nitration</li><li>(C) Hydrogenation</li><li>(D) Dehydration</li><li>Nitration of benzene by nitric acid and</li></ul>	178.	(C) Toluene (D) Chlorobenzene Which of the following would be least reactive towards bromine
(C) Nucleophilic substitutionIs inflated with difficulty is(D) Free radical substitution(A) Benzene(B) Nitrobenzen(C) Toluene(D) Phenol		<ul> <li>sulphuric acid is</li> <li>(A) Electrophilic substitution</li> <li>(B) Electrophilic addition</li> <li>(C) Nucleophilic substitution</li> <li>(D) Free radical substitution</li> </ul>	179.	<ul> <li>(A) Nitrobenzene</li> <li>(B) Phenol</li> <li>(C) Anisole</li> <li>(D) Chlorobenzene</li> <li>Amongst the following, the compound that is nitrated with difficulty is</li> <li>(A) Benzene</li> <li>(B) Nitrobenzene</li> <li>(C) Toluene</li> <li>(D) Phenol</li> </ul>

## Hydrocarbon

180.	Select the true statement about benzene	186.	In which of the following, the bond length
	from amongst the following		between carbon and carbon atom is equal
	(A) Because of unsaturation benzene easily		(A) 2-butene (B) Benzene
	undergoes addition reactions		(C) 1-butene (D) 1-propyne
	(B) There are two types of $C - C$ bonds in	187.	Benzene is prepared in laboratory from
	benzene molecule		which one of the following compounds
	(C) There is a cyclic delocalisation of $\pi$		(A) $C_6 N_5 N_2 Cl$ (B) $C_6 H_5 OH$
	electrons in benzene		(C) $C_6H_5COONa$ (D) $C_6H_5SO_3H$
	(D) Monosubstitution of benzene group	188.	Which of the following is not used in
101	gives three isomeric substances		Friedel-crafts reaction
181.	After ozonolysis of benzene (not		(A) Phenyl acetanilide
	nyarolysis), the product is		(B) Bromobenzene
	(A) Benzene triozonide		(C) Benzene
	(B) Giyoxal		(D) Chlorobenzene
	(D) All of them	189.	In chlorination of benzene, the reactive
182	Which acid will not form hydrocarbon		species is
102.	(A) Cinnamic acid (B) Isothallic acid		(A) $Cl^+$ (B) $Cl^-$
	(C) Salicylic acid (D) Picric acid		(C) $\operatorname{Cl}_2$ (D) $\operatorname{Cl}_2^-$
183.	Catalytic dehydrogenation of <i>n</i> -haptane in	190.	Which of following having delocalised
	presence of $Cr_2O_2$ / $Al_2O_2$ at 750 K gives		electron
	$(\Delta)$ iso-hentane		(A) Benzene (B) Cyclohexane
	(B) 1-hentene		(C) $CH_4$ (D) $C_2H_6$
	(C) toluene	191.	The 'middle oil' fraction of coaltar
	(D) 2. 3-dimethylpentene-1		distillation contains
184	$C H \xrightarrow{HNO_3} X \xrightarrow{Cl_2} Y$ In the above		(A) Benzene (B) Anthracene
1011	$H_2SO_4$ FeCl <sub>3</sub> FeCl <sub>3</sub>		(C) Naphthalene (D) Xylene
	sequence Y is	192.	Lindane can be obtained by reaction of
	(A) 1-nitrochloro benzene		benzene with
	(B) 3-nitrochlorobenzene		(A) $CH_3Cl/anhy. AlCl_3$
	(C) 4-nitrochlorobenzene		(B) Cl <sub>2</sub> /sunlight
105	(D) 1,2-nitrochlorobenzene		(C) $C_2H_5I/anhy. AlCl_3$
185.	knocking property		(D) $CH_COCI / AICI.$
	(A) Olefins	103	Which of the following oil is obtained from
	(R) Straight chain paraffins	195.	benzene after fractional distillation of coal
	(C) Aromatic hydrocarbons		tar
	(D) Branched chain paraffins		(A) Light oil (B) Heavy oil
	(_ ,		(C) Middle oil (D) Anthracene oil
			( , , , , , , , , , , , , , , , , , , ,

194.	Hydrocarbon C <sub>6</sub> H <sub>6</sub>	decolourise Br <sub>2</sub> water	197.	Order of reactivity of $C_2H_6, C_2H_4$ and
	and gives ppt. with	n ammonical AgNO <sub>3</sub>		$C_2H_2$ is
	Hydrocarbon can be			(A) $C_2H_6 > C_2H_4 > C_2H_2$
	(A) 1, 3, 5 Cyclohexa	atriene		(B) $C_2H_2 > C_2H_6 > C_2H_4$
	(B) 1, 5 Hexadiyne			(C) $C_2H_2 > C_2H_4 > C_2H_6$
	(C) 2, 4 Hexadiyne (D) None			(D) All are equally reactive
195.	Decreasing order of (	C-C bond length is	198.	Which of the following yield both alkane
	(I) $C_2H_4$	(II) $C_2H_2$		and alkene
	(III) $C_6H_6$	(IV) $C_2H_6$		(A) Kolbe's reaction (P) Williamson's synthesis
	(A) IV > III > I > II	(B) I > II > IV > III		(C) Wurtz reaction
	(C) $II > I > IV > III$	(D) $IV > I > III > II$		(D) Sandmeyer reaction
196.	Benzene can be obta	ined by heating either	199.	Aromatisation of <i>n</i> -heptane by passing over
	benzoic acid with X or phenol with Y. X			$(Al_2O_3 + Cr_2O_3)$ catalyst at 773 K gives
	(A) Zinc dust and so	y la lime		(A) Benzene (B) Toluene
	(B) Soda lime and zin	(B) Soda lime and zinc dust		(C) Mixture of both (D) Heptylene
	(C) Zinc dust and sodium hydroxide		200.	Amongst the following the most basic
	$(\mathbf{D}) (\mathbf{C} + 1)^{*} = 1$			compound is

(A) Benzylamine

(C) Acetanilide

(B) Aniline

(D) *p*-nitroaniline

(D) Soda lime and copper

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