

Chemistry

VOLUME - 4

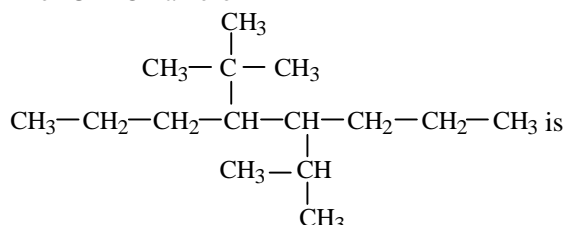
Organic Chemistry

Quantum Success Mantra: SCQ-NCERT Based

Choose the appropriate answer:

1. Which of the following classes of compounds has the general formula C_nH_{2n-2} ?
 (1) Alkynes (2) Alkadienes
 (3) Cycloalkenes (4) All of these

2. The IUPAC name of



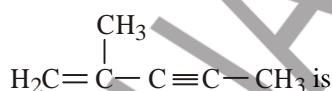
- (1) 4-(methylethyl)-5-(1, 1-dimethylethyl) Octane
 (2) 4-ter.butyl-5-isopropyloctane
 (3) 2-methyl-3-propyl-4-ter.butylheptane
 (4) None of these

3. $\text{CH}_2 = \text{CH} - \text{CH} - \text{C} = \text{CH}_2$
 $\quad \quad \quad | \quad \quad \quad |$
 $\quad \quad \quad \text{CH}_2\text{CH}_3 \quad \text{Cl}$

The IUPAC name of this compound is

- (1) 3-Ethyl-4-chloro-1,4-pentadiene
 (2) 2-Chloro-3-ethyl-1,4-pentadiene
 (3) 4-Chloroethyl-1-pentenene
 (4) 3-Ethenyl-4-chloro-4-pentene

4. The IUPAC name of the compound



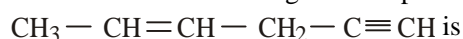
- (1) 2-Methylpent-1-en-3-yne
 (2) 4-Methylpent-4-en-2-yne
 (3) 2-Methylpent-2-en-3-yne
 (4) 2-Methylpent-3-yne-2-ene

5. The IUPAC name of



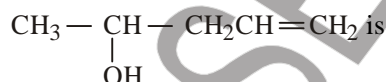
- (1) Pent-4-en-1-yne (2) Pent-4-yn-1-ene
 (3) Pent-1-en-4-yne (4) None of these

6. The IUPAC name of the given compound



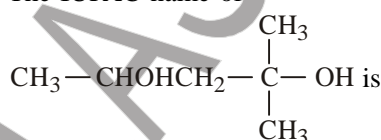
- (1) Hex-4-en-1-yne (2) Hex-5-yn-2-ene
 (3) Hex-2-en-4-yne (4) None of these

7. The IUPAC name of



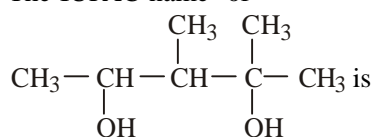
- (1) 4-Hydroxypentene (2) Ethenylisopropanol
 (3) 4-Penten-2-ol (4) 2-Hydroxy-4-pentene

8. The IUPAC name of



- (1) 2-Methyl-2,4-pentanediol
 (2) 1,1-Dimethyl-1,3-butanediol
 (3) 4-Methyl-2,4-pentanediol
 (4) None of these

9. The IUPAC name of

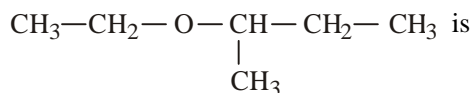


- (1) 1,1,2-Trimethyl-1,3-butanediol
 (2) 1,2-Dimethyl-2,4-pentadiol
 (3) 2,3-Dimethyl-2,4-pentadiol
 (4) 1,2,3,4-Tetramethyl-1,3-propanediol

10. Which of the following is correctly named according to the IUPAC nomenclature ?

- (1) 4-Methoxy-2-butene
 (2) 2-Oxo-1-butanol
 (3) 1-Bromo-3-chloropropane
 (4) 4-Hexanone

11. The IUPAC name of



- (1) 1-Ethoxy-1-methylpropane (2) 2-Ethoxybutane
 (3) 3-Propoxybutane (4) None of these

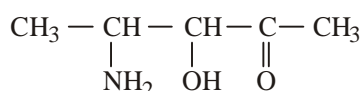
12. The IUPAC name of $\text{CH}_3 - \text{CH} - \text{CHO}$ is

- $$\begin{array}{c} | \\ \text{CH}_2\text{CH}_3 \end{array}$$
- (1) 2-Methylbutanal (2) 2-Ethylpropanal
 (3) Butane-2-aldehyde (4) None of these

13. The IUPAC name of $\begin{array}{c} \text{CH}_2 - \text{CH} - \text{CH}_2 \\ | \quad | \quad | \\ \text{CHO} \quad \text{CHO} \quad \text{CHO} \end{array}$ is

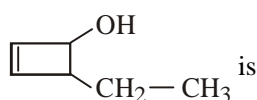
- (1) Propane-1,2,3-tricarbaldehyde
- (2) Propane-1,2,3-trialdehyde
- (3) 3-Oxomethylethane-1,2-dial
- (4) None of these

14. The IUPAC name of



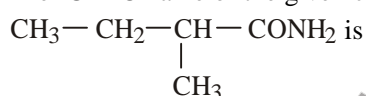
- (1) 2-Amino-3-hydroxypentan-4-one
- (2) 4-Amino-3-hydroxypentan-2-one
- (3) 3-Hydroxy-2-aminopentan-2-one
- (4) None of these

15. The IUPAC name of the given compound



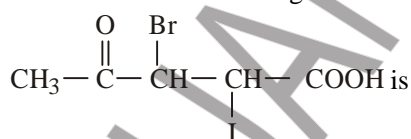
- (1) 3-Ethyl-1-cyclobuten-2-ol
- (2) 4-Ethyl-2-cyclobuten-1-ol
- (3) 2-Ethyl-3-cyclobuten-1-ol
- (4) 4-Ethyl-1-cyclobuten-3-ol

16. The IUPAC name of the given compound



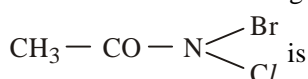
- (1) 2-Ethylbutanamide
- (2) 1-Amino-3-methylpropane
- (3) 2-Methylbutanamide
- (4) 3-Methylbutanamide

17. The IUPAC name of the given structure



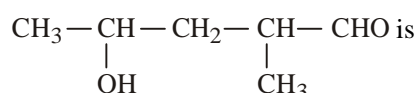
- (1) 4-Keto-3-bromo-2-iodopentanoic acid
- (2) 2-Iodo-3-bromo-4-keto-pentanoic acid
- (3) 3-Bromo-2-iodo-4-ketopentanoic acid
- (4) 4-Carboxy-3-bromo-4-iodopentanoic acid

18. The IUPAC name of the given structure



- (1) N-Bromo-N-chloroacetamide
- (2) N-Bromo-N-chloroethanamide
- (3) N-Chloro-N-bromoethanamide
- (4) N-Chloro-N-bromoacetamide

19. The IUPAC name of the compound

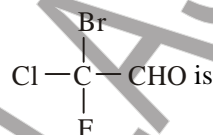


- (1) 3-Hydroxy-methylpentanal
- (2) 4-Hydroxy-2-methylpentanal
- (3) 2-Methyl-4-hydroxypentanal
- (4) 3-Methyl-3-hydroxypentanal

20. Which of the following is not aromatic in nature

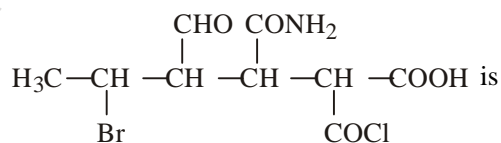


21. The IUPAC name of the given compound

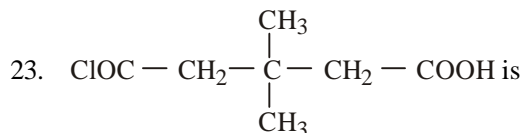


- (1) 2-Bromo-2-chloro-2-fluoroethanal
- (2) 1-Bromo-1-chloro-2-fluoroethanal
- (3) 2-Fluoro-2-chloro-2-bromoethanal
- (4) 1-Fluoro-1-chloro-1-bromoethanal

22. The IUPAC name of the given compound

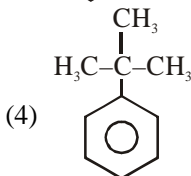
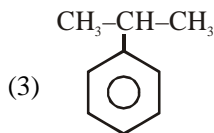
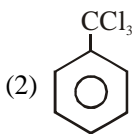
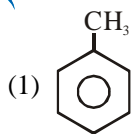


- (1) 2-Bromo-4-carbamoyl-5-chloroformyl-3-formylhexanoic acid
- (2) 5-Bromo-3-carbamoyl-2-chloroformyl-4-formylhexanoic acid
- (3) 4-Formyl-2-chloroformyl-3-carbamoyl-5-bromohexanoic acid
- (4) 2-Chloroformyl-3-carbamoyl-4-formyl-5-bromohexanoic acid

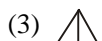


- (1) 3,3-Dimethyl-5-carboxypentanoyl chloride
- (2) 5-Carboxy-3,3-dimethylpentanoyl chloride
- (3) 5-Chloroformyl-3,3-dimethylpentanoic acid
- (4) 4-Chloroformyl-3,3-dimethylbutanoic acid

24. The group which is most activating towards Friedel-Craft alkylation is



25. The structure of bicyclo [1, 1, 0] butane is:



26. The structure of spiro [3, 3] heptane is:



27. The IUPAC name of is

(1) 2-oxocyclohexanecarboxylic acid

(2) 2-oxocyclohexanoic acid

(3) 2-carboxycyclohexanone

(4) 1-carboxy-2-cyclohexanone

28. Which among the given compounds is most stable?

(1) 1-butene

(2) 2,3-dimethyl-2-butene

(3) cis-2-butene

(4) trans-2-butene

29. Of these compounds, which compound has minimum heat of hydrogenation?

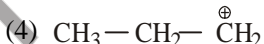
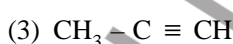
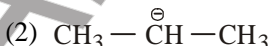
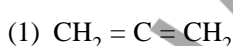
(1) Cis-2-butene

(2) Trans-2-butene

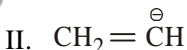
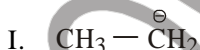
(3) 2,3-dimethyl-2-butene

(4) Benzene

30. Which organic species has only one type of hybridised carbon?



31. Consider the following carbanions:



Correct order of stability of these carbanions in decreasing order is

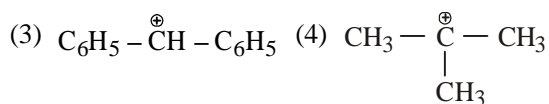
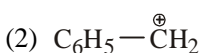
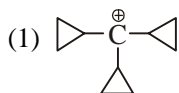
(1) I > II > III

(2) II > I > III

(3) III > II > I

(4) III > I > II

32. Which among the following carbocations is most stable :



33. Which statement is correct about $\text{CH}_3 - \overset{\bullet}{\text{C}}\text{H}_2$?

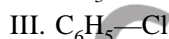
(1) It is paramagnetic in character

(2) It is a neutral electrophile

(3) Formation takes place by homolytic bond fission

(4) All are correct

34. Consider the following three halides:



Arrange C—Cl bond length of these compounds in decreasing order:

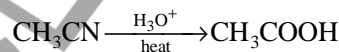
(1) I > II > III

(2) I > III > II

(3) III > II > I

(4) II > III > I

35. In the reaction



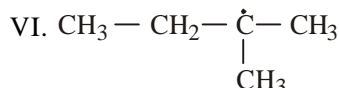
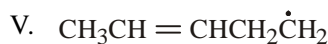
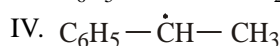
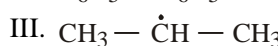
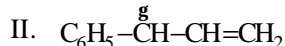
(1) sp^3 to sp^2

(2) sp^2 to sp^3

(3) sp to sp^2

(4) sp^2 to sp

36. Rank the following free radicals in order of decreasing stability :



(1) I > II > III > IV > V > VI

(2) VI > V > IV > III > II > I

(3) I > II > IV > VI > III > V

(4) I > IV > VI > V > II > III

37. The heat of hydrogenation of benzene is -51.0 Kcal/mole. If heat of hydrogenation of cyclohexadiene and cyclohexene is 58 Kcal/mol and -29 Kcal/mole respectively, what is the resonance energy of benzene :

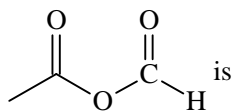
(1) 29 Kcal/mole

(2) 36 Kcal/mole

(3) 58 Kcal/mol

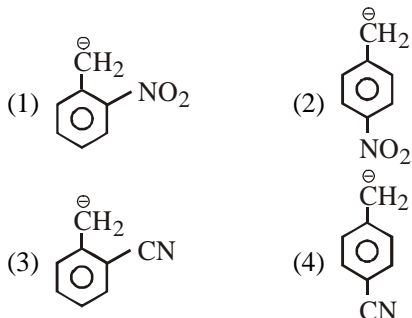
(4) 7 Kcal/mole

38. The correct IUPAC name of



- (1) Butane-2, 4-dione (2) Formyl ethanoate
(3) Acetic anhydride
(4) Ethanoicmethanoic anhydride

39. Which one of the carbanions is most stable ?



40. Which of these species are electrophiles :

- (1) CO_2 (2) Cl^{\oplus}
(3) AlCl_3 (4) All of these

41. Which of these species are electrophiles :

- (1) $:\text{CCl}_2$ (2) BF_3
(3) NO_2^{\oplus} (4) All of these

42. Which one of the following species is a nucleophile:

- (1) NF_3 (2) PCl_3
(3) NH_2OH (4) OF_2

43. Tautomerism is shown by :

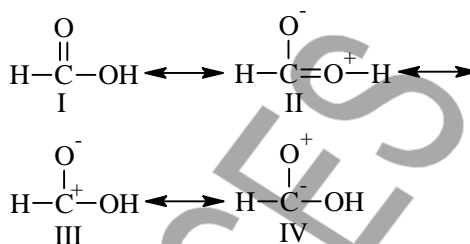
- (1) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$
(2) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{COOC}_2\text{H}_5$
(3) $\text{CH}_3-\text{CH}_2-\text{N}=\overset{\text{O}}{\parallel}{\text{O}}$
(4) All of these

44. Which one of the following compounds has maximum enol content in solution :

- (1) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{COOC}_2\text{H}_5$
(2) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{CN}$
(3) $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$
(4)

45. Examine the following resonating structures of

formic acid for their individual stability and then answer the question given below :



Which of the following arrangements gives the correct order of decreasing stability of the above-mentioned resonance contributors ?

- (1) $\text{II} > \text{I} > \text{III} > \text{IV}$ (2) $\text{I} > \text{II} > \text{III} > \text{IV}$
(3) $\text{III} > \text{II} > \text{IV} > \text{I}$ (4) $\text{IV} > \text{III} > \text{I} > \text{II}$

46. Which one of the following has the highest nucleophilicity ?

- (1) F^- (2) OH^-
(3) CH_3^- (4) NH_2^-

47. Among the following compounds, the strongest base

- (1) $\text{NH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$ (2) $\text{NH}_2-\overset{\text{NH}}{\parallel}{\text{C}}-\text{NH}_2$
(3) $\text{C}_6\text{H}_5-\text{NH}_2$ (4) $\text{CH}_3-\text{NH}-\text{CH}_3$

48. Arrange basicity of the given compounds in decreasing order :

- I. $\text{CH}_3-\text{CH}_2-\text{NH}_2$ II. $\text{CH}_2=\text{CH}-\text{NH}_2$
III. $\text{CH}\equiv\text{C}-\text{NH}_2$
(1) $\text{I} > \text{II} > \text{III}$ (2) $\text{I} > \text{III} > \text{II}$
(3) $\text{III} > \text{II} > \text{I}$ (4) $\text{II} > \text{III} > \text{I}$

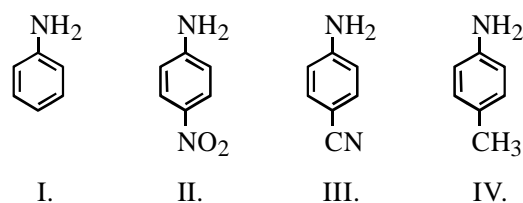
49. Consider the following compounds :

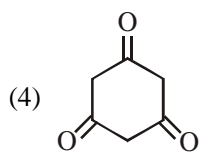
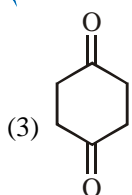
- (a) $\text{C}_6\text{H}_5-\text{NH}_2$ (b) $\text{C}_6\text{H}_5-\text{NH}-\text{C}_6\text{H}_5$
(c) $\text{C}_6\text{H}_5-\underset{\text{C}_6\text{H}_5}{\text{N}}-\text{C}_6\text{H}_5$ (d) $\text{CH}_3-\text{CH}_2-\text{NH}_2$

Arrange in decreasing order of their basicity.

- (1) $a > b > c > d$ (2) $d > a > b > c$
(3) $c > b > a > d$ (4) $d > b > c > a$

50. Consider the following compounds :

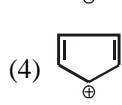
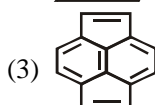
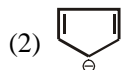




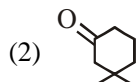
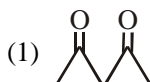
67. The number of possible acyclic and cyclic isomers having molecular formula C_3H_6O are:

- (1) 8 (2) 4
(3) 7 (4) 10

68. Which of the followings is not aromatic

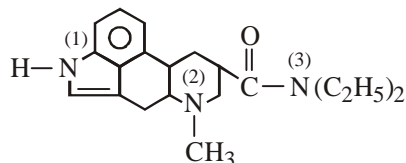


69. Most acidic hydrogen is present in :



- (3) $(CH_3CO)_3CH$ (4) $(CH_3)_3COH$

70. Which nitrogen in LSD is most basic :



- (1) 1 (2) 2
(3) 3 (4) All are equally basic

71. Which of the following compounds has isopropyl group:

- (1) 2,2,3,3-tetramethylpentane
(2) 2,2-dimethylpentane
(3) 2,2,3-trimethylpentane
(4) 2-methylpentane

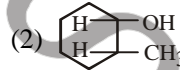
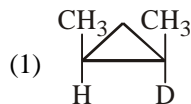
72. Consider the following statements :

- I. Chain and position isomerism is not possible together between two isomers
II. Tautomerism is a chemical phenomenon which is catalysed by acid as well as base
III. Tautomers are always metamers
IV. Tautomers are always functional isomers
(1) Only III is correct (2) III and IV are correct
(3) I, II & IV are correct (4) I, II & III are correct

73. The volume of methane (NTP) is formed from 16.4g of sodium acetate by fusion with soda lime.

- (1) 44.8 L (2) 4.48 L
(3) 22.4 L (4) 2.24 L

74. Which among the following will show geometrical isomerism :



- (3) $C_6H_5 - CH = N - OH$ (4) All of these

75. Major constituent of natural gas is

- (1) Methane (2) Propane
(3) Ethane (4) Butane

76. Methane is present in the atmosphere of

- (1) Moon (2) Sun
(3) Jupiter (4) Mars

77. Major constituent of LPG is

- (1) Butane (2) Propane
(3) Ethane (4) Methane

78. Which among of the following compounds has maximum octane number ?

- (1) *n*-Hexane (2) *n*-Heptane
(3) 2,2-Dimethyl pentane
(4) 2,2,4-Trimethylpentane

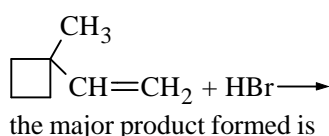
79. The intermediate during the addition of HCl to propene in presence of peroxide is

- (1) $CH_3\overset{\ominus}{C}H - CH_2Cl$ (2) $CH_3\overset{\oplus}{C}H - CH_3$
(3) $CH_3CH_2 - \overset{\ominus}{C}H_2$ (4) $CH_3CH_2\overset{\oplus}{C}H_2$

80. Which among the following reagents converts alkyl halide into alkane :

- (1) Bu_3SnH (2) Na/dry ether
(3) R_2CuLi (4) All of these

81. In the reaction



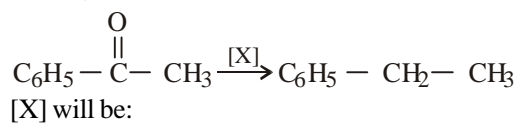
- (1)
(2)

- (3)
(4)

82. By which of the following reagent butanoic acid can be converted into butane?

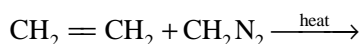
- (1) HI/P/Δ (2) NaOH/CaO
(3) CH₃MgBr (4) All of these

83. In the given reaction

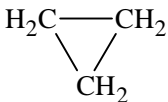
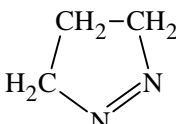


- (1) LiAlH₄ (2) NaBH₄
(3) Pd/BaSO₄SnH (4) NH₂ - NH₂/OH[⊖]

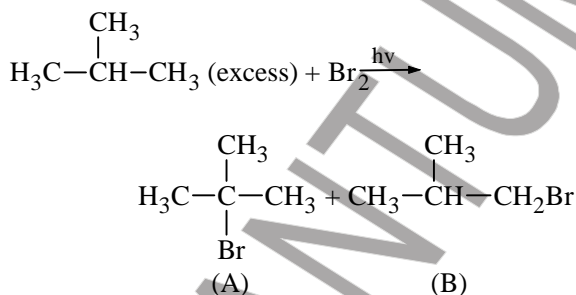
84. Consider the following reaction.



The major product of the reaction is

- (1) CH₃CH₂CH₃ (2) 
(3) CH₃CH = CH₂ (4) 

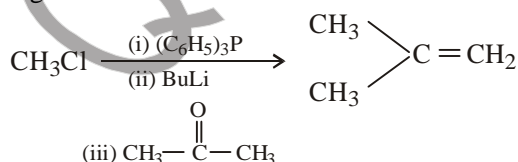
85. The relative reactivity of 1° H, 2° H and 3° H in bromination reaction has been found to be 1 : 82 : 1600 respectively. In the reaction



the percentage yields of the products (A) and (B) are expected to be

- (1) 99.4%, 0.6% (2) 50%, 50%
(3) 0.6%, 99.4% (4) 80%, 20%

86. The given reaction



is known as:

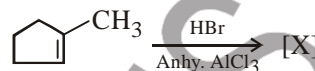
- (1) Wittig reaction (2) Kolbe reaction
(3) Simons reaction
(4) Houben-House reaction

87. Which among the following converts 2-butyne into

cis-2-butene ?

- (1) H₂/Pd-BaSO₄-CaCO₃ (2) BH₃ and CH₃COOH
(3) H₂/Wilkinson catalyst (4) All of these

88. In the reaction sequence



[X] will be

- (1) 1-Bromo-2-methylcyclopentane
(2) 1-Bromo-1-methylcyclopentane
(3) 1-Bromo-5-methylcyclopentane
(4) 5-Bromo-1-methylcyclopentane

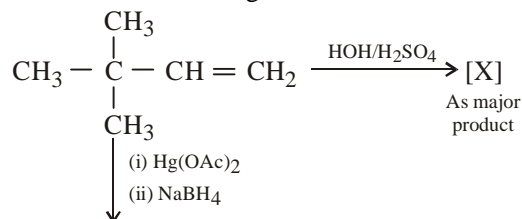
89. An organic compound contains carbon, hydrogen and oxygen, 1.8g of substance on combustion gave 2.64 g of CO₂ and 1.08g of H₂O. Calculate the empirical formula of the compound

- (1) CH₂O (2) C₂H₄O₂
(3) C₃H₄O (4) C₂H₂O₂

90. Intermediate of hydration of alkene is:

- (1) Free radical (2) Carbene
(3) Carbocation (4) Carbanion

91. Consider the following reactions:



[Y] as major product

[X] and [Y] respectively be

- (1) 2, 3-Dimethyl-2-butanol and 3, 3-Dimethyl-2-butanol
(2) 2,3-Dimethyl-2-butanol and 2, 3-Dimethyl-2-butanol
(3) 3, 3-Dimethyl-2-butanol and 3, 3-Dimethyl-2-butanol
(4) 3, 3-Dimethyl-2-butanol and 3, 3-Dimethyl-2-butanol


92. Mustard gas is prepared by the reaction of

- (1) ethylene and sulphur monochloride
(2) acetylene and arsenic chloride
(3) chloroform and nitric acid
(4) 1° amine and chloroform

93. The olefin which on ozonolysis give CH₃CH₂CHO and CH₃CHO is

- (1) 1-butene (2) 2-butene

- (3) 1-pentene (4) 2-pentene
94. In the given reaction
- $$\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{C} = \text{C} \\ \diagdown \\ \text{H} \end{array} \begin{array}{c} \text{H} \\ \diagdown \\ \text{C} \\ \diagup \\ \text{CH}_3 \end{array} \xrightarrow{\text{Br}_2/\text{CCl}_4} [\text{X}]$$
- [X] will be :
- (1) Meso-2, 3-dibromobutane
 - (2) Racemic mixture of 2, 3-dibromobutane
 - (3) Meso as well as racemic mixture
 - (4) 1-Bromo-2-butene
95. Consider the following reaction
- $$\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow{\text{Br}_2/\text{NaCl(aq)}}$$
- Product of the reaction will be :
- (1) Only 1, 2-dibromopropane
 - (2) Only 1-bromo-2-chloropropane
 - (3) Only 2-bromo-1-chloropropane
 - (4) Mixture of 1, 2-dibromopropane and 1-bromo-2-chloropropane
96. Which among the following alkenes will be most reactive for hydrogenation reaction :
- (1) $\text{CH}_2 = \text{CH}_2$
 - (2) $\text{CH}_3 - \text{CH} = \text{CH}_2$
 - (3) $\text{CH}_3 - \underset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} = \text{C} - \text{CH}_3$
 - (4) $\begin{array}{c} \text{CH}_3 \\ \diagup \\ \text{C} = \text{CH}_2 \\ \diagdown \\ \text{CH}_3 \end{array}$
97. I. $\text{CH}_2 = \text{C} = \text{CH}_2 \xrightarrow{\text{H}_3\text{O}^+}$
 II. $\text{CH}_3\text{C} \equiv \text{CH} \xrightarrow{\text{H}_2\text{SO}_4/\text{HgSO}_4}$
 III. $\text{CH}_3\text{C} \equiv \text{CH} \xrightarrow[\text{H}_2\text{O}_2/\text{OH}^-]{\text{BH}_3 \cdot \text{THF}}$
- Acetone is the major product in:
- (1) I, II
 - (2) I, III
 - (3) II, III
 - (4) I, II, III
98. Which among the following reagents converts cyclohexene into trans diol:
- (1) Baeyer reagent
 - (2) OsO_4
 - (3) $\text{RCOOH}/\text{H}^+ - \text{H}_2\text{O}$
 - (4) None of these
99. 2-Butene is allowed to react with N-bromosuccinimide in CCl_4 . The product formed is
- (1) $\text{CH}_3\text{CHBrCHBrCH}_3$
 - (2) $\text{CH}_3\text{C}(\text{Br}) = \text{C}(\text{Br})\text{CH}_3$
 - (3) $\text{CH}_3\text{CH} = \text{CHCH}_2\text{Br}$
 - (4) $\text{CH}_3\text{CH} = \text{C}(\text{Br})\text{CH}_3$
100. Unknown compound (1) on oxidation with hot basic KMnO_4 gives only one compound whose structure is given below
- $$\text{HOOC} - (\text{CH}_2)_4 - \text{COOH}$$
- compound (1) will be :
- (1) $\text{CH}_3 - \text{C} \equiv \text{C} - (\text{CH}_2)_4 - \text{C} \equiv \text{CH}_3$

- (2) $\text{CH}_3 - \text{CH} = \text{CH} - (\text{CH}_2)_4 - \text{CH} = \text{CH}_2$
 - (3) $\text{CH}_3 - \text{CH} = \text{CH} - (\text{CH}_2)_4 - \text{CH} = \text{CH} - \text{CH}_3$
 - (4) 
101. A hydrocarbon (X), C_6H_{12} , on catalytic hydrogenation gives n-hexane. (X) on addition with HBr forms only a single bromocompound. (X) is
- (1) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH} = \text{CH}_2$
 - (2) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH} = \text{CHCH}_3$
 - (3) $(\text{CH}_3)_2\text{C} = \text{C}(\text{CH}_3)_2$
 - (4) $\text{CH}_3\text{CH}_2\text{CH} = \text{CHCH}_2\text{CH}_3$
102. o-xylene on ozonolysis will give :
- (1) $\text{OHC} - \text{CHO}$ and $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{CHO}$
 - (2) $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$ and $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{CHO}$
 - (3) $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$ and $\text{OHC} - \text{CHO}$
 - (4) $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_3$, $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{CHO}$ and $\text{OHC} - \text{CHO}$
103. Potassium salt of 2, 3-dimethylmaleic acid on electrolysis gives :
- (1) Acetylene
 - (2) Propyne
 - (3) 2-butyne
 - (4) 1-butyne
104. Which one of the following compounds will give white precipitate with Tollen's reagent :
- (1) $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_3$
 - (2) $\text{CH}_3 - \text{CH} = \text{CH}_2$
 - (3) $\text{CH}_3 - \text{C} \equiv \text{CH}$
 - (4) $\text{CH}_3 - \text{C} = \text{C} - \text{CH}_3$
105. By which of the following sets of reagents can benzene be formylated to benzaldehyde in the presence of anhydrous AlCl_3 ?
- (1) HCHO and HCl
 - (2) HCOOCH_3 and HCl
 - (3) CO and HCl
 - (4) HCONH_2 and HCl
106. $\text{CH}_3 - \text{CH}_3$, $\text{CH}_2 = \text{CH}_2$ and $\text{CH} \equiv \text{CH}$ can be distinguished in the laboratory by the use of:
- (1) Only Br_2 water
 - (2) Only Baeyers reagent
 - (3) Only $\text{Cu}_2\text{Cl}_2/\text{NH}_4\text{OH}$
 - (4) Br_2 water and $\text{Cu}_2\text{Cl}_2/\text{NH}_4\text{OH}$

107. Nitration of toluene takes place considerably at
 (1) ortho position
 (2) meta position
 (3) para position
 (4) both ortho and para positions
108. Propyne reacts with Br_2/HOH to produce :
 (1) 1, 1, 2, 2-Tetrabromopropane
 (2) Acetone
 (3) Acetaldehyde (4) α -Bromoacetone
109. Which of the following compounds gives acetaldehyde with $\text{HOH}/\text{H}_2\text{SO}_4/\text{HgSO}_4$?
 (1) $\text{CH}\equiv\text{CH}$ (2) $\text{CH}_3-\text{C}\equiv\text{CH}$
 (3) $\text{CH}_2=\text{CH}_2$ (4) $\text{CH}_3-\text{CH}=\text{CH}_2$
110. When benzene is heated with air at 500°C in the presence of V_2O_5 as catalyst, the major product formed is
 (1) oxalic acid (2) glyoxal
 (3) maleic anhydride (4) fumaric acid
111. Which among the following alkyne will give aldehyde on hydroboration oxidation reaction?
 (1) $\text{CH}_3-\text{C}\equiv\text{C}-\text{H}$
 (2) $\text{CH}_3-\text{CH}_2-\text{C}\equiv\text{C}-\text{H}$
 (3) $\text{CH}\equiv\text{CH}$ (4) All of these
112. Which of the following alkynes gives oxalic acid on oxidation with Baeyer's reagent ?
 (1) $\text{CH}_3-\text{C}\equiv\text{CH}$
 (2) $\text{CH}\equiv\text{CH}$
 (3) $\text{CH}_3-\text{CH}_2-\text{C}\equiv\text{CH}$ (4) All of these
113. Cyclopentadiene is much more acidic than cyclopentane. The reason is that
 (1) cyclopentadiene has conjugated double bonds
 (2) cyclopentadiene has both sp^2 and sp^3 hybridized carbon atoms
 (3) cyclopentadiene is a strain-free cyclic system
 (4) cyclopentadienide ion, the conjugate base of cyclopentadiene, is an aromatic species and hence has good stability
114. Benzene reacts with CHCl_3 in the presence of anhydrous AlCl_3 to form
 (1) $\text{C}_6\text{H}_5\text{CHCl}_2$ (2) $\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$
 (3) $(\text{C}_6\text{H}_5)_2\text{CHCl}$ (4) $(\text{C}_6\text{H}_5)_3\text{CH}$
115. Acetylene on heating with NH_3 gives :
 (1) $\text{CH}_2=\text{CH}-\text{NH}_2$
 (2) $\text{NH}_2-\text{CH}=\text{CH}-\text{NH}_2$
 (3) $\text{CH}\equiv\text{C}-\text{NH}_2$ (4) Pyrrole
116. Acetylene on heating in the presence of $\text{Ni}(\text{CN})_2$ gives :
 (1) Benzene (2) Cyclooctatetraene
 (3) Naphthalene (4) Anthracene
117. Consider the following reaction

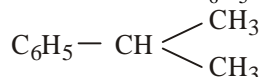
$$\text{CH}_3\text{CH}_2-\text{CH}-\text{CH}_2 \xrightarrow{\text{heat}}$$

$$\begin{array}{c} | \\ (\text{CH}_3)_3\text{N}^+\text{OH}^- \end{array}$$
 Which of the following will be formed in major amount ?
 (1) *cis*-2-Butene (2) *trans*-2-Butene
 (3) 1-Butene (4) All in equal amounts
118. Acetylene reacts with AsCl_3 to form poisonous gas Lewisite whose structure is :
 (1) $\text{CHCl}=\text{CH}-\text{AsCl}_2$ (2) $\text{CCl}_2=\text{CH}-\text{AsClH}$
 (3) $\text{CH}\equiv\text{C}-\text{AsCl}_2$ (4) $\text{Cl}-\text{C}\equiv\text{C}-\text{AsCl}_2$
119. Antidote of lewisite is :
 (1) 3, 3-Dimercapto-1-propanol
 (2) 2, 2-Dimercapto-1-propanol
 (3) 1, 1-Dimercapto-1-propanol
 (4) 2, 3-Dimercapto-1-propanol
120. Reductive ozonolysis of allene, $\text{CH}_3-\text{CH}=\text{C}=\text{CH}_2$, will give :
 (1) Only CH_3-CHO
 (2) Only CH_2O (3) Only CO_2
 (4) Mixture of CH_3CHO , HCHO and CO_2
121. In the reaction sequence

$$\text{C}_6\text{H}_6 \xrightarrow[\text{(ii) C}_2\text{H}_5\text{OH}]{\text{(i) Na/NH}_3(l)} \text{A} \xrightarrow[\text{(ii) H}_2\text{O/Zn}]{\text{(i) O}_3} \text{Product.}$$
 (1) $\text{OHC}-\text{CHO}$
 (2) $\text{OHC}-\text{CH}_2-\text{CHO}$
 (3) $\text{CH}_3-\text{CO}-\text{CO}-\text{CH}_3$
 (4) $\text{OHC}-\text{CHO}$ & $\text{OHC}-\text{CH}_2-\text{CHO}$
122. The products of the reaction

$$\text{C}_6\text{H}_6 + \text{CH}_3-\text{CH}_2-\text{CH}_2-\text{Br} \xrightarrow{\text{Anhy. AlBr}_3/\Delta}$$
 will be
 (1) $\text{C}_6\text{H}_5-\text{CH}_2-\text{CH}_2-\text{CH}_3$
 (2) $\text{C}_6\text{H}_5-\text{CH} \begin{array}{l} \swarrow \text{CH}_3 \\ \searrow \text{CH}_3 \end{array}$
 (3) $\text{C}_6\text{H}_5-\text{CH} \begin{array}{l} \swarrow \text{CH}_3 \\ \searrow \text{CH}_3 \end{array}$ as major product and
 $\text{C}_6\text{H}_5-\text{CH}_2-\text{CH}_2-\text{CH}_3$ as minor product

(4) 1 : 1 mixture of $C_6H_5 - CH_2 - CH_2 - CH_3$ and



123. Which of the following conformation of n-butane has a centre of symmetry ?

- (1) Anti (2) Gauche
(3) Partially eclipsed (4) fully eclipsed

124. $(CH_3)_3CMgCl$ on reaction with D_2O produces:

- (1) $(CH_3)_3CD$ (2) $(CH_3)_3COD$
(3) $(CD_3)_3CD$ (4) $(CD_3)_3OD$

125. Which of the following is used as an antiknocking material in gasoline ?

- (1) TEL (2) C_2H_5OH
(3) Glyoxal (4) Freon

126. In the reaction of $C_6H_5 - G$, the major product (> 60%) is m-isomer, so the group G is :

- (1) $-COOH$ (2) $-Cl$
(3) $-OH$ (4) $-NH_2$

127. Syn anti nomenclature is used in:

- (1) Structure isomerism
(2) Optical isomerism
(3) Geometrical isomerism
(4) Conformal isomerism

128. Which compound will show optical isomerism?

- (1) 2-Butanol (2) 2-Amino butane
(3) Lactic acid (4) All of these

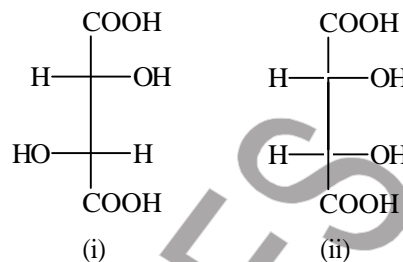
129. Which among the following compound will have meso form ?

- (1) $HOH_2C - CHOH - CHOH - CHO$
(2) $HOH_2C - CHOH - CHOH - COOH$
(3) $HOH_2C - (CHOH)_2 - CH_2OH$
(4) $C_6H_5 - CHCl - CHO - CH_3$

130. Which of the following pairs of compounds are not functional isomers ?

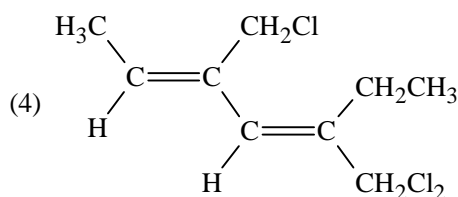
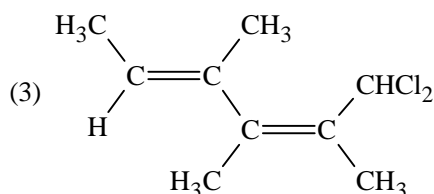
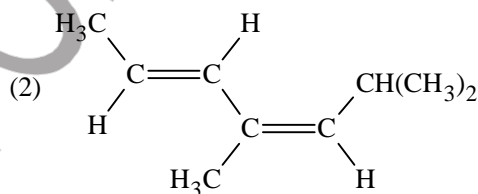
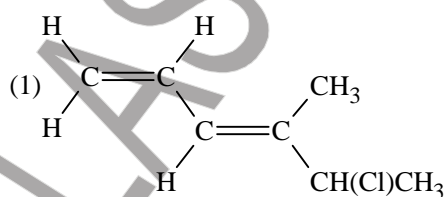
- (1) Glucose and fructose
(2) Nitromethane and methyl nitrite
(3) Ethylene dichloride and ethylidene dichloride
(4) Methyl cyanide and methyl isocyanide

131. The two isomers given below are

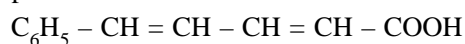


- (1) Enantiomers (2) Diastereomers
(3) Mesomers (4) Position isomers

132. One among the following will show optical activity



133. How many geometrical isomers are possible for given compound :



- (1) 3 (2) 4
(3) 2 (4) 1

134. Which statement is correct for enantiomers :

- (1) Both are non-superimposable mirror images

- (2) Both are superimposable mirror images
(3) Physical properties are different
(4) Reaction velocity with optically active compound is the same

135. Which alkene will form (*dl*) mixture with Br₂ :

- (1) $\begin{array}{c} \text{CH}_3 \quad \text{CH}_3 \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$
(2) $\begin{array}{c} \text{CH}_3 \quad \text{H} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{CH}_3 \end{array}$
(3) $\begin{array}{c} \text{C}_6\text{H}_5 \quad \text{COOH} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{H} \end{array}$
(4) $\begin{array}{c} \text{C}_6\text{H}_5 \quad \text{H} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{H} \quad \text{COOH} \end{array}$

136. Which configuration is erythro ?

- (1) $\begin{array}{c} \text{CHO} \\ | \\ \text{H} - \text{C} - \text{Br} \\ | \\ \text{H} - \text{C} - \text{Br} \\ | \\ \text{C}_6\text{H}_5 \end{array}$ (2) $\begin{array}{c} \text{CHO} \\ | \\ \text{H} - \text{C} - \text{H} \\ | \\ \text{H} - \text{C} - \text{D} \\ | \\ \text{C}_6\text{H}_5 \end{array}$
(3) $\begin{array}{c} \text{CHO} \\ | \\ \text{H} - \text{C} - \text{Br} \\ | \\ \text{Br} - \text{C} - \text{H} \\ | \\ \text{C}_6\text{H}_5 \end{array}$ (4) $\begin{array}{c} \text{CHO} \\ | \\ \text{H} - \text{C} - \text{OH} \\ | \\ \text{HO} - \text{C} - \text{H} \\ | \\ \text{CH}_3 \end{array}$

137. Consider the following pair of compounds :

- I. $\begin{array}{c} \text{CHO} \\ | \\ \text{H} - \text{C} - \text{OH} \\ | \\ \text{HO} - \text{C} - \text{H} \\ | \\ \text{C}_6\text{H}_5 \end{array}$ II. $\begin{array}{c} \text{CHO} \\ | \\ \text{HO} - \text{C} - \text{H} \\ | \\ \text{H} - \text{C} - \text{OH} \\ | \\ \text{C}_6\text{H}_5 \end{array}$

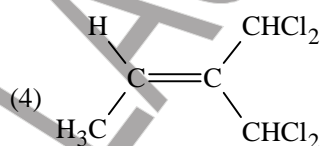
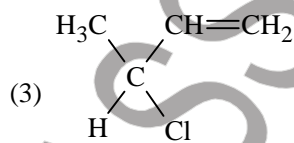
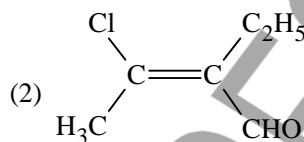
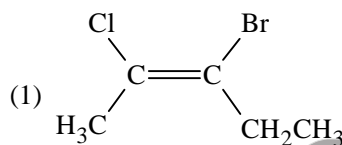
Which among the following statements is correct ?

- I. Both are enantiomers
II. Both are in *threo* form
III. Both are diastereomers
IV. Both are in *erythro* form
(1) I and II (2) I, II and III
(3) II and III (4) III and IV

138. Conformational isomers are due to :

- (1) Free rotation about C, C single bond
(2) Frozen rotation about C, C single bond
(3) Frozen rotation about C, C double bond
(4) Restricted rotation about C, C single bond

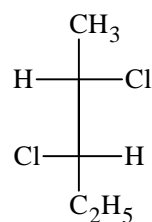
139. The E-isomer from amongst the following is



140. Which among the following compounds will give SN² reaction with NaOH ?

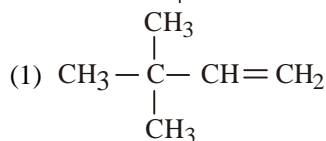
- (1) CH₃ - I (2) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{Br} \\ | \\ \text{CH}_3 \\ | \\ \text{C}_6\text{H}_5 \end{array}$
(3) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{Cl} \\ | \\ \text{C}_6\text{H}_5 \end{array}$ (4) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3 - \text{C} - \text{Br} \\ | \\ \text{C}_6\text{H}_5 \end{array}$

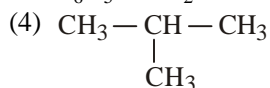
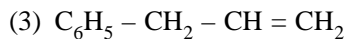
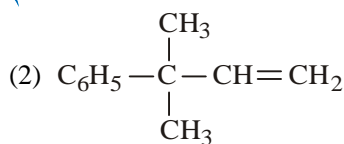
141. The absolute configuration of the following compound is



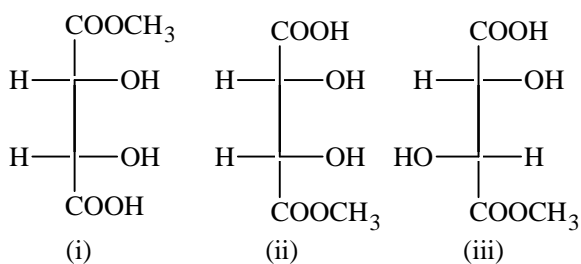
- (1) 2S, 3R (2) 2S, 3S
(3) 2R, 3S (4) 2R, 3R

142. Which one of the following compounds will react with NBS/CCl₄/hν ?





143. The correct statement about the compounds I, II, III



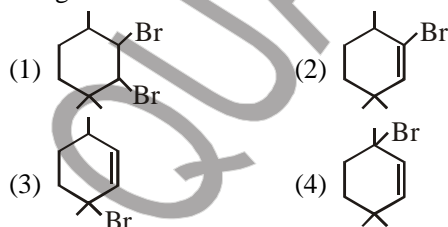
- (1) I and II are identical
- (2) I and II are diastereomers
- (3) I and III are enantiomers
- (4) I and II are enantiomers

144. Following is the list of some aromatic compounds. Select correct sequence of decreasing order of reactivity for electrophilic aromatic substitution reaction using the answer codes given below:



- (1) I, IV, II, III
- (2) III, IV, II, I
- (3) I, II, IV, III
- (4) I, II, III, IV

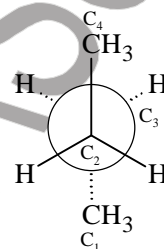
145. The reaction of  will give



146. The optically active tartaric acid is named as D-(+)-tartaric acid because it has a positive

- (1) optical rotation and is derived from D-glucose
- (2) pH in an organic solvent
- (3) optical rotation and is derived from D-(+)-glyceraldehyde
- (4) optical rotation only when substituted by deuterium.

147. In the given conformation C_2 is rotated about $\text{C}_2 - \text{C}_3$ bond anticlockwise by an angle of 120° then the formation obtained is

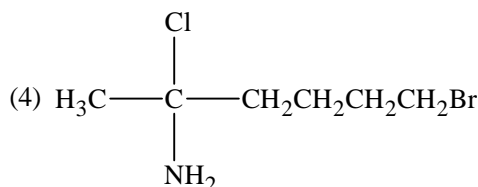
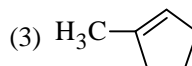
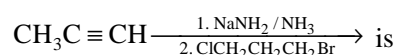


- (1) Fully eclipsed conformation
- (2) Partially eclipsed conformation
- (3) Gauche conformation
- (4) Staggered conformation

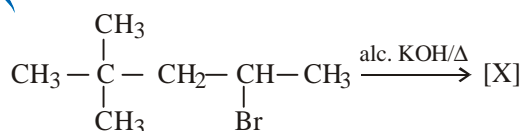
148. A mixture of ethyl iodide and n-propyl iodide is subjected to Wurtz reaction. The hydrocarbon that will not formed is

- (1) n-butane
- (2) n-propane
- (3) n-pentane
- (4) n-hexane

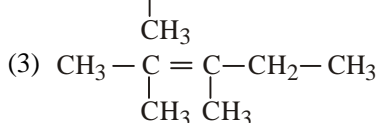
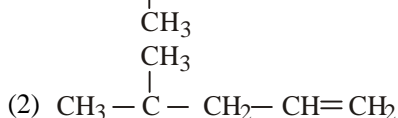
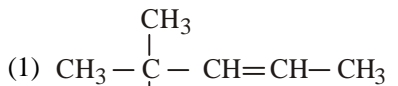
149. The major product formed in the reactions



150. In the given reaction

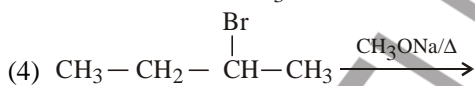
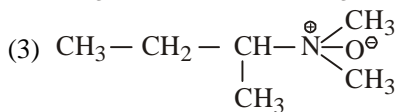
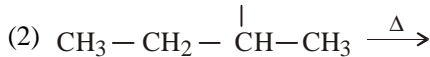
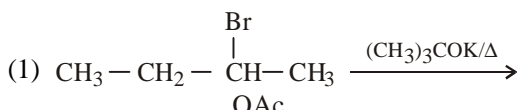


[X] will be

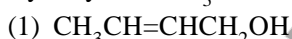


(4) Both (1) and (2)

151. In which reaction product formation takes place by Hofmann rule ?



152. Hydrolysis of $\text{CH}_3\text{CH}=\text{CHCH}_2\text{Cl}$ will give



(3) Both (1) & (2) (4) None of these

153. Acetylenic hydrogens are acidic because

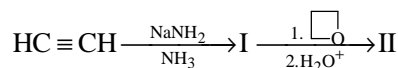
(1) sigma electron density of C — H bond in acetylene is nearer to carbon which has 50% s character in its sp orbital

(2) acetylene has only one hydrogen on each carbon

(3) acetylene contains the least number of hydrogens among the possible hydrocarbons having two carbons

(4) acetylene resembles acetic acid

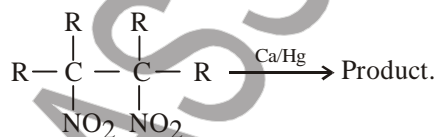
154. Consider the following reaction sequence



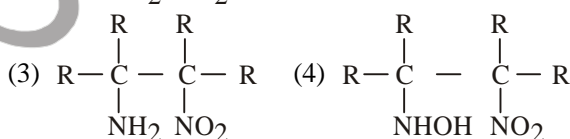
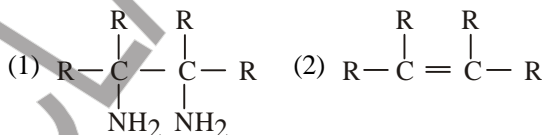
The final product(II) formed is :



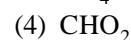
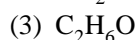
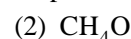
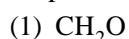
155. In the given reaction



Product will be



156. An organic compound has carbon and hydrogen percentages in the ratio 6 : 1 by weight and carbon and oxygen percentages in the ratio 3 : 4 by weight. Empirical formula of the compound is



157. A gaseous mixture of ethane, ethene and ethyne is passed into an ammoniacal silver nitrate solution. The gas that escapes from the solution is expected to contain

(1) ethane

(2) ethane and ethyne

(3) ethene and ethyne

(4) ethane and ethene

158. Which alkene will give optically active product with Br_2/CCl_4 ?

(1) 1-butene

(2) Propene

(3) *cis*-2-butene

(4) *trans*-2-butene

159. Which compound will form optical inactive meso form with OsO_4 followed by reaction with $\text{NaHSO}_3/\text{HOH}/\text{C}_2\text{H}_5\text{OH}$

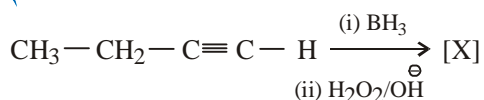
(1) 1-pentene

(2) 1-butene

(3) *trans*-2-butene

(4) *cis*-2-butene

160. In the given reaction



[X] will be

- (1) Butanal (2) Butanone
(3) 2-butanol (4) 1-butanol

161. In the given reaction



[X] will be

- (1) 1-butene (2) *trans*-2-butene
(3) *cis*-2-butene (4) 1-butyne

162. In the given reaction



[X] will be

- (1) 1-phenylpropane (2) 1-phenylpropene
(3) *trans*-1-phenylpropene (4) *cis*-1-phenylpropene

163. In the given reaction



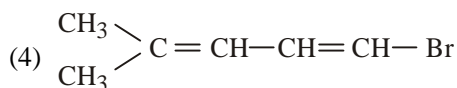
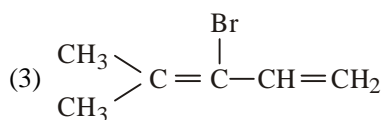
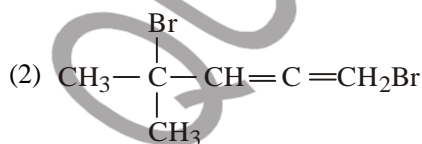
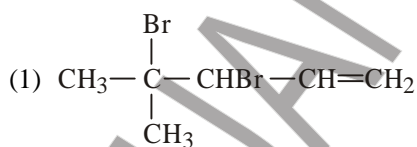
[X] will be

- (1) 2-pentanone
(2) 3-pentanone
(3) Pentanol
(4) Mixture of 2-pentanone and 3-pentanone

164. In the given reaction



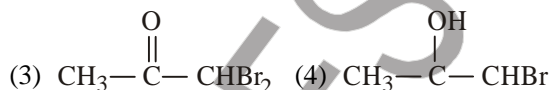
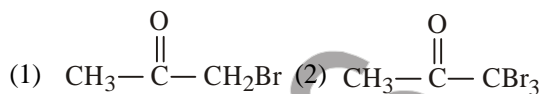
[X] will be



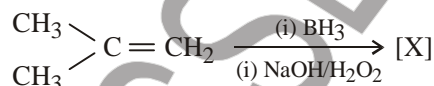
165. In the given reaction



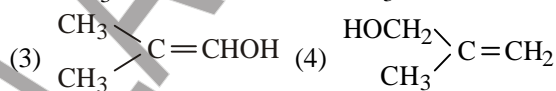
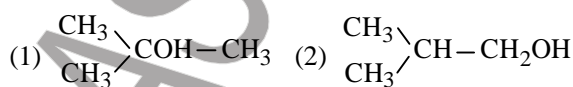
[X] will be



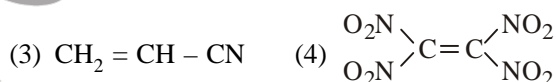
166. In the given reaction



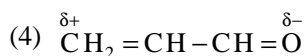
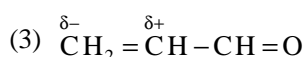
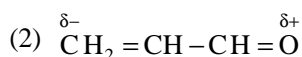
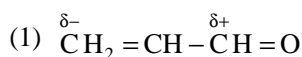
[X] will be



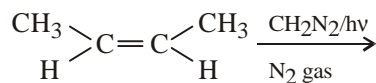
167. Which among the following compounds will give electrophilic addition reaction?



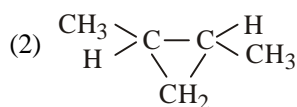
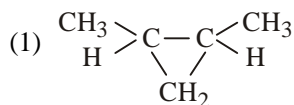
168. Polarization of electrons in acrolein may be written as



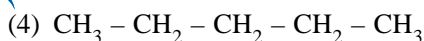
169. In the given reaction



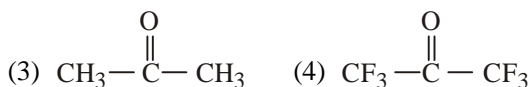
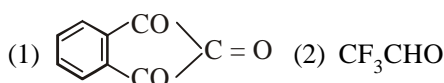
The product will be



(3) Mixture (1) and (2)



170. Which carbonyl compound will not give stable addition reaction with water ?



171. Arrange reactivity of given carbonyl compounds in decreasing order for addition reaction:



Select the correct answer from the codes given below:



172. Which of the following statements regarding the resonance energy of benzene is correct ?

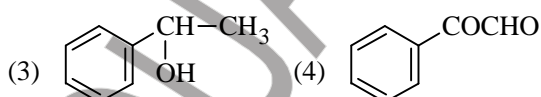
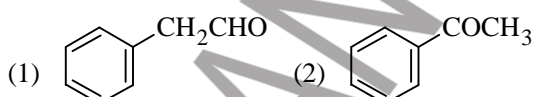
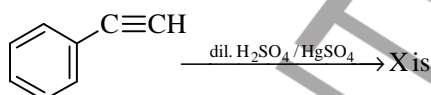
(1) The energy required to break the C - H bond in benzene

(2) The energy required to break C - C bond in benzene

(3) The energy is a measure of stability of benzene

(4) The energy required to break C = C bond in benzene

173. The compound X in the following reaction



174. Benzene is heated with a mixture of concentrated HNO_3 and concentrated H_2SO_4 at 60°C . The product of this reaction is then treated with Cl_2 in the presence of anhydrous FeCl_3 . The major product obtained in the final step is

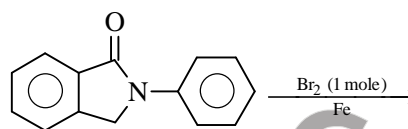
(1) 2-chloro-1-nitrobenzene

(2) 3-chloro-1-nitrobenzene

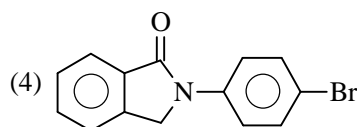
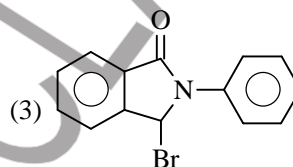
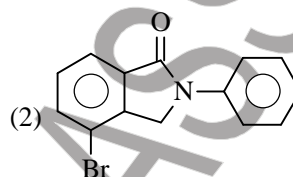
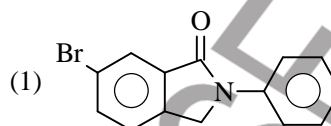
(3) 4-chloro-1-nitrobenzene

(4) equal amount of (1) and (3)

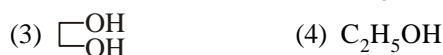
175. In the reaction



The major product formed is



176. Which among the following compounds is used for protection of carbonyl groups ?



177. The method of estimation of active hydrogen in a compound by reaction with CH_3MgI (excess) is known as

(1) Zerewitinoff method (2) Hinsberg method

(3) Zeisel method (4) Victor Meyer method

178. Mixed melting point of an organic compound is determined :

(1) To find out the purity of the compound


(2) So that melting point may become sharp

(3) So as to fill the compound easily in capillary

(4) All of these

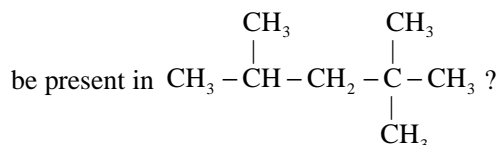
179. Two solids A and B have appreciable different solubilities in water but their melting points are very close. The mixture of A and B can be separated by

(1) sublimation

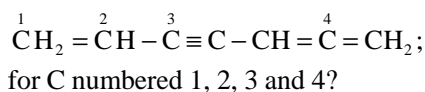
- (2) fractional crystallisation
(3) distillation (4) specific method
180. A mixture of Benzoic acid and Naphthalene can be separated by crystallization from
(1) Hot water (2) Cold water
(3) Benzene (4) Ether
181. Which of the following is purified by sublimation?
(1) Acetic acid (2) Camphor
(3) Cane sugar (4) Citric acid
182. An organic substance from its aqueous solution can be separated by?
(1) Solvent extraction (2) Steam distillation
(3) Distillation (4) Fractional distillation
183. 0.2 g of an organic compound on Kjeldahl's analysis gave enough ammonia to just neutralize 20 cm³ of 0.1 N H₂SO₄. The percentage of nitrogen in the compound is
(1) 14 (2) 28 (3) 42 (4) 4.2
184. Absolute alcohol cannot be obtained by simple fractional distillation because :
(1) Pure C₂H₅OH is unstable
(2) C₂H₅OH forms hydrogen bonds with water
(3) Boiling point of C₂H₅OH is very close to that of water
(4) Constant boiling azeotropic mixture is formed with water
185. Which of the following method can be applied to purify aniline containing nonvolatile impurities ?
(1) Simple distillation (2) Fractional distillation
(3) Crystallisation (4) Steam distillation
186. The separation of mixture of two compounds by chromatographic technique is based upon:
(1) differential solubilities (2) different densities
(3) different absorption (4) differential adsorption
187. In paper chromatography
(1) Mobile phase is liquid and stationary phase is solid
(2) Mobile phase is solid and stationary phase is liquid
(3) Both phases are solids
(4) Both phases are liquids
188. Separation of organic compounds by column chromatography is due to ?
(1) Selective absorption
(2) Selective adsorption (3) Solubilities
(4) Selective adsorption and selective absorption
189. Elution is the process for
(1) Crystallization of compounds
(2) Separation of components of a mixture
(3) Distillation of compounds
(4) Vacuum distillation
190. In Kjeldahl's method, CuSO₄ acts as
(1) oxidising agent (2) catalytic agent
(3) reducing agent (4) hydrolysing agent
191. In Lassaigne's test if both N and S are present in the organic compound, they are converted to?
(1) Na₂S and NaCN (2) NaSCN
(3) Na₂SO₃ and NaCN (4) Na₂S and NaCNO
192. Prussian blue is chemically
(1) Fe₄[Fe(CN)₆]₃ (2) Fe₃[Fe(CN)₆]₂
(3) Fe₃[Fe(CN)₆]₄ (4) None of these
193. Sodium nitroprusside is chemically
(1) Na₂[Fe(CN)₅NO] (2) Na₄[Fe(CN)₅NOS]
(3) Na₂[Fe(CN)₅NOS] (4) None of these
194. The substance which can be used as an adsorbent in column chromatography is
(1) Na₂O (2) NaCl
(3) Al₂CO₃ (4) Alum
195. In Duma's method, 0.5 g of an organic compound liberate 112 ml of N₂ at STP. The percentage of nitrogen in the compound is
(1) 70 (2) 35 (3) 14 (4) 28
196. 0.24 g of volatile liquid on vaporization gives 45 ml of vapours at NTP. What will be the vapour density of the substance ? (Density of H₂ = 0.089 gL⁻¹)
(1) 95.39 (2) 39.95 (3) 99.53 (4) 59.93
197. An organic compound was analysed by Duma's method, 0.45 g of the compound on combustion gave 48.6 ml nitrogen at 27°C and 760 mm Hg. The % of nitrogen in the compound should be
(1) 15% (2) 12.28% (3) 13.79% (4) 0.15%
198. The degree of unsaturation for the compound  is
(1) One (2) Two
(3) Three (4) None of these
199. 0.5264 g of AgBr is obtained from 0.5124 g of an organic compound. The % of bromine in the compound is (At mass of Ag = 108 and Br = 80)
(1) 10% (2) 23.65%
(3) 37.21% (4) 43.71%
200. 0.49 g of the chloroplatinate of a diacidic base gave on ignition 0.195 g of platinum. The molecular mass of the base is
(1) 20 (2) 40 (3) 80 (4) 160

SUBJECTIVE QUESTIONS

1. How many number of primary carbon, secondary carbon, tertiary carbon & quaternary C & their hydrogen will



2. What will be hybridization & shape of C in;

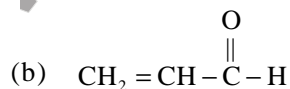


3. Suggest the structures of

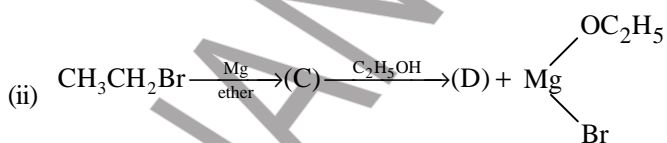
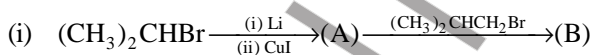
- (i) Tertiary butyl group
(ii) Isobutyl group
(iii) 3-Cyanopentanamide

4. What are the various alkanes obtained due to insertion when 2-methyl butane reacts with singlet methylene ($\cdot\text{CH}_2$) ?

5. Suggest the resonating structures of following:



6. Complete the following reactions :

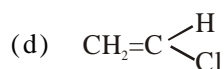
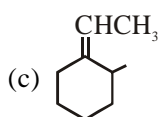
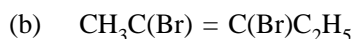


7. Draw the Newman projection of conformers of Butane?

8. Define

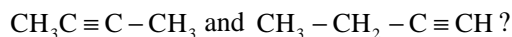
- (a) Octane number (b) Knocking

9. Which of the following compound will show Geometrical isomerism?

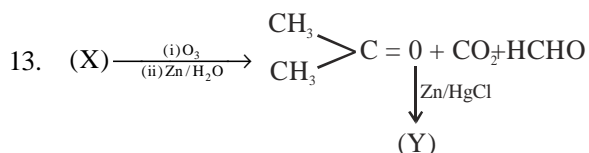


10. Define Huckel number rule? Also give two examples of aromatic compounds

11. How will you distinguish

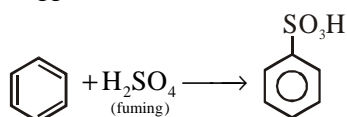


12. Differentiate isolated diene's, cumulated dienes & conjugated dienes?



Identify X and Y ?

14. Suggest the mechanism of



15. During the test for nitrogen in lassaigne's filtrate, sometimes red colouration is obtained when ferric chloride is added.

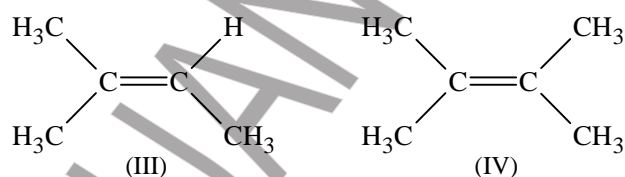
16. Why is HNO_3 added to sodium extract before adding silver nitrate for testing halogens?

17. Why is Benzyl carbocation is more stable than ethyl carbocation?

18. Give the orbital structure of singlet and triplet carbene?

19. (i) Arrange the following carbonyl compounds in decreasing order of reactivity towards nucleophilic addition
 HCHO , CH_3CHO , CH_3COCH_3 , CCl_3CHO

(ii) Arrange the following in decreasing order of stability.



20. An isomer of butyl bromide ($\text{C}_4\text{H}_9\text{Br}$) (A) forms an alkene C_4H_8 (B) with alcoholic KOH. (B) reacts with bromine to give another compound (C) with molecular formula $\text{C}_4\text{H}_8\text{Br}_2$, which when treated with KNH_2 produces a gaseous compound (D), C_4H_6 . Compound (D) forms a red precipitate when passed through ammoniacal Cu_2Cl_2 . Give structure of compounds (A), (B), (C) and (D).

ANSWERS

Quantum Success Mantraa: SCQ-NCERT Based

VOLUME - 4

1. (4)	41. (4)	81. (3)	121. (2)	161. (3)
2. (1)	42. (3)	82. (1)	122. (3)	162. (3)
3. (2)	43. (4)	83. (4)	123. (4)	163. (4)
4. (1)	44. (4)	84. (2)	124. (1)	164. (1)
5. (3)	45. (2)	85. (1)	125. (1)	165. (1)
6. (1)	46. (3)	86. (1)	126. (1)	166. (2)
7. (3)	47. (2)	87. (1)	127. (3)	167. (1)
8. (1)	48. (1)	88. (2)	128. (4)	168. (4)
9. (3)	49. (2)	89. (1)	129. (3)	169. (3)
10. (3)	50. (3)	90. (3)	130. (3)	170. (3)
11. (2)	51. (4)	91. (1)	131. (2)	171. (2)
12. (1)	52. (3)	92. (1)	132. (1)	172. (3)
13. (1)	53. (4)	93. (4)	133. (2)	173. (2)
14. (2)	54. (2)	94. (1)	134. (1)	174. (2)
15. (2)	55. (1)	95. (4)	135. (1)	175. (4)
16. (3)	56. (4)	96. (1)	136. (1)	176. (3)
17. (3)	57. (1)	97. (1)	137. (1)	177. (1)
18. (2)	58. (3)	98. (2)	138. (4)	178. (1)
19. (2)	59. (1)	99. (3)	139. (2)	179. (2)
20. (1)	60. (2)	100. (4)	140. (1)	180. (1)
21. (1)	61. (1)	101. (4)	141. (2)	181. (2)
22. (2)	62. (1)	102. (4)	142. (3)	182. (1)
23. (4)	63. (1)	103. (3)	143. (4)	183. (1)
24. (4)	64. (4)	104. (3)	144. (3)	184. (4)
25. (3)	65. (4)	105. (3)	145. (4)	185. (4)
26. (4)	66. (1)	106. (4)	146. (3)	186. (4)
27. (1)	67. (3)	107. (4)	147. (3)	187. (4)
28. (2)	68. (4)	108. (4)	148. (2)	188. (4)
29. (4)	69. (1)	109. (1)	149. (2)	189. (2)
30. (2)	70. (2)	110. (3)	150. (4)	190. (2)
31. (3)	71. (4)	111. (4)	151. (1)	191. (2)
32. (1)	72. (3)	112. (2)	152. (3)	192. (1)
33. (4)	73. (2)	113. (4)	153. (1)	193. (1)
34. (1)	74. (4)	114. (4)	154. (3)	194. (3)
35. (3)	75. (1)	115. (4)	155. (2)	195. (4)
36. (3)	76. (3)	116. (2)	156. (1)	196. (4)
37. (2)	77. (2)	117. (3)	157. (4)	197. (2)
38. (4)	78. (4)	118. (1)	158. (3)	198. (1)
39. (1)	79. (2)	119. (4)	159. (4)	199. (4)
40. (4)	80. (4)	120. (4)	160. (1)	200. (3)