



CHEMISTRY

BOOKS - S DINESH & CO CHEMISTRY (HINGLISH)

BASIC PRINCIPLES OF ORGANIC CHEMISTRY

MULTIPLE CHOICE QUESTIONS

1. The vital force theory was propounded by

A. Wohler

B. Berzelius

C. Kolbe

D. Berthelot.

Answer: B



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2. Ammonium cyanate on heating gives

- A. Urea
- B. Acetamide
- C. Hydrazine
- D. Formamide.

Answer: A

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3. The first organic compound synthesised in the laboratory from an inorganic compound is

- A. Acetic acid
- B. Acetylene

C. Methane

D. Urea.

Answer: D

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4. The credit for preparing the first organic compound in the laboratory went to

A. Berzelius

B. Wohler

C. Kolbe

D. Berthelot.

Answer: B

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5. Which of the following names is associated with the synthesis of first organic compound from its elements?

- A. Kolbe
- B. Berthelot
- C. Wolher
- D. Berzelius.

Answer: A



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6. The huge number of organic compound is due to the fact that

- A. Carbon is tetravalent
- B. Carbon possesses property of catenation
- C. Carbon compounds exhibit isomerism
- D. Both (b) and (c).

Answer: D



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7. The nature of linkage in organic compounds is generally

- A. Ionic
- B. Covalent
- C. Co-ordinate covalent
- D. Metallic bond

Answer: B



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8. Which of the following properties is not true regarding organic compounds ?

- A. They are generally covalent compounds
- B. They have high melting and boiling points
- C. They are generally insoluble in water
- D. They generally show isomerism

Answer: B

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9. Two numbers of a homologous series have

- A. Different general formula
- B. Different molecular masses
- C. Different methods of preparation
- D. Different chemical properties.

Answer: B

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10. Chemically similar compounds having the same functional group but differing by a CH_2 group in their molecular formula are known as

- A. Isomers
- B. Homologous
- C. Allotropes
- D. Polymers

Answer: B



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11. Which of the following is an aromatic hetero-cyclic compound ?

- A. Pyrrole
- B. Pyrrolidine
- C. Epoxyethane

D. Dioxane.

Answer: A

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12. Which of the following is/are alicyclic hetero-cyclic compound ?

A. Tetrahydrofuran

B. Tetrahydropyrrole

C. Tetrahydrothiophene

D. All

Answer: D

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13. Which of the following is not a carbocyclic compound ?

A. Cyclopentane

B. Naphthalene

C. Thiophene

D. Benzene.

Answer: C



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14. Which of the following group does not contain a co-ordinate covalent bond ?

A. $-N_2Cl$

B. $-NC$

C. $-NO_2$

D. None of the above

Answer: A

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15. An example of alicyclic compound is

- A. Benzene
- B. Hexane
- C. Cyclohexane
- D. Furan

Answer: C

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16. Which of the following does not contain fused benzene rings ?

- A. Naphthalene
- B. Anthracene
- C. Diphenyl

D. β -Naphthol

Answer: C

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17. A compound with molecular formula C_4H_4O has all the four carbon atoms and the oxygen atom in the ring. It also has two double bonds. The compound is

- A. Homocyclic and aromatic
- B. Heterocyclic and aromatic
- C. Homocyclic but not aromatic
- D. Heterocyclic but not aromatic

Answer: B

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18. Which of the following statement is incorrect ?

The members of the homologous series of alkanes

- A. are all straight chain compound
- B. have the general formula C_nH_{2n+2}
- C. have similar chemical properties
- D. show a regular gradation of physical properties.

Answer: A



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19. Which of the following forms a homologous series ?

- A. Ethane, ethylene, acetylene
- B. Ethane, propane, butanone
- C. Methanal, ethanol, propanoic acid
- D. Butane, 2-methylbutane, 2, 3-dimethyl-butane.

Answer: D



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20. Who synthesised benzene for first time ?

A. Wholer

B. Kolbe

C. Bertholet

D. Berzelius.

Answer: C



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21. Which of the following is cumulated diene ?

A. 1, 3-butadiene

B. Allene

C. Crotonylene

D. Allylene.

Answer: B



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22. The IUPAC name for isobutyl group is

A. 2-Methylethyl

B. 1, 1-Dimethylethyl

C. 2-Methylpropyl

D. $\bar{2}$ -Methylpropyl.

Answer: C



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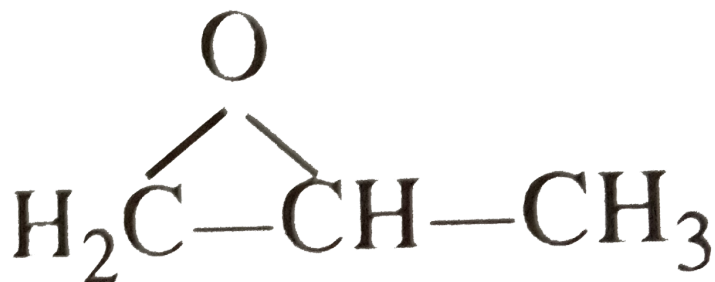
23. Systematic name of urea is

- A. Diaminoketone
- B. 1-Aminoethanamide
- C. 1-Aminomethanamide
- D. Aminoacetamide.

Answer: C

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24. The IUPAC name for the compound



is

- A. Propylene oxide

B. 1, 2 – Oxopropane

C. 1, 2 – Epoxypropane

D. 1, 2 – Propoxide

Answer: C

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25. 3-Phenyl-prop-2-enoic acid is IUPAC name of

A. Mendallic acid

B. Pivallic acid

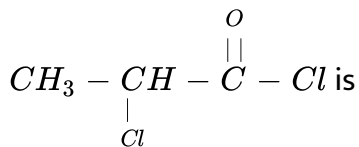
C. Succinic acid

D. Cinnamic acid.

Answer: D

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26. The correct IUPAC name of the compound

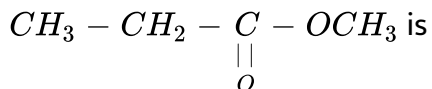


- A. 1, 2 – dichloropropanone
- B. 2 – chloropropanoylechloride
- C. 1, 2 – dichloropropanal
- D. Chloroformyl chloroethane.

Answer: B

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27. The correct IUPAC name of



- A. Methoxy propanone
- B. Methoxy propanal

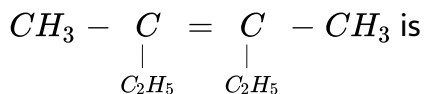
C. Methyl propanoate

D. Methoxy ethyl ketone

Answer: C

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28. The correct IUPAC name of



A. 1, 2-Diethylbutane

B. 2-Ethyl-3-methylpentane

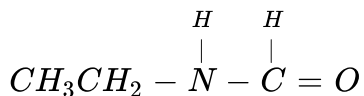
C. 3, 4-Dimethylhex-3-ene

D. none is correct

Answer: C

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29. One among the following is the correct IUPAC name for the compound



- A. N-Formylaminoethane
- B. N-Ethylformylamine
- C. N-Ethylmethanamide
- D. Ethylaminomethanal

Answer: C



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30. Which among the following is the correct IUPAC name of a-isoamylene

?

- A. 1-Pentene
- B. 2-Methylbut-2-ene

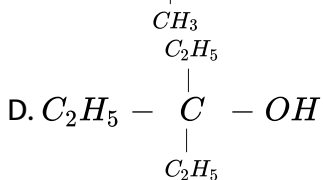
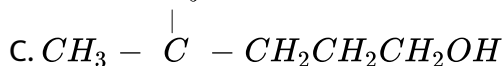
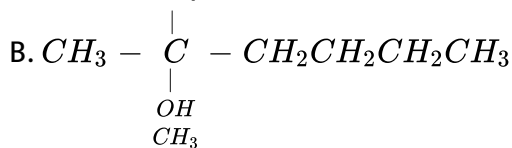
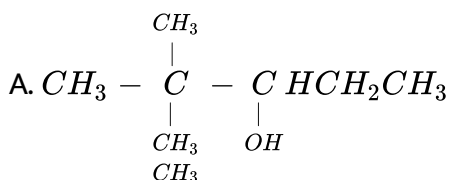
C. 3-Methylbut-1-ene

D. 2-Methylbut-1-ene.

Answer: C

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31. Neo-heptyl alcohol is correctly represented as



Answer: C

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32. The common name of $(CH_3)_3CC_2H_5$ is

- A. Isohexane
- B. Neohexane
- C. Trimethylpropane
- D. none is correct

Answer: B



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33. The family to which Methoxyethene belongs is

- A. Hydrocarbon
- B. Ketone
- C. Unsaturated ether
- D. Ester.

Answer: C

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34. The correct IUPAC name of acetonitrile is

- A. Cyanomethane
- B. 2-Ketopropanenitrile
- C. Methanenitrile
- D. Ethanenitrile.

Answer: D

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35. The correct IUPAC name of $CH_3CH_2CH(CH_3)CH(C_2H_5)_2$ is

- A. 4-Ethyl-3-methylhexane

B. 3-Ethyl-4-methylhexane

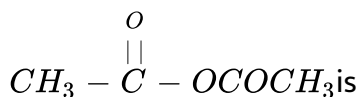
C. 3-Methyl-4-ethylhexane

D. 2-Isopentylbutane.

Answer: B

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36. The correct IUPAC name of



A. Methyl ethanoate

B. Acetato ethanoate

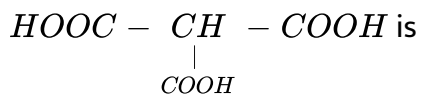
C. Ethanoic anhydride

D. Ethanoyl ethanoate.

Answer: C

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37. The correct IUPAC name of



- A. Tricarboxymethane
- B. Propanetricioic acid
- C. Tributanoic acid
- D. Methanetricarboxylic acid,

Answer: D

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38. The IUPAC name of compound



- A. 1-Ethoxy-3-methoxypropane

B. Ethoxy propaneoxymethane

C. 3-Ethoxy-1-methoxypropane

D. 2, 5-Dioxyhexane

Answer: A

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39. The IUPAC name of $\underset{\text{CN}}{\text{CH}_2} - \underset{\text{CN}}{\text{CH}} - \underset{\text{CN}}{\text{CH}_2}$ is:

A. Propanetricarbylamine

B. 3-Cyanopentane-1,5-dinitrile

C. Propane-1,2,3-tricarbonitrile

D. Propane-1,2,3-trinitrile.

Answer: C

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40. The IUPAC name of the compound

 is

- A. 5-(1-chloro-1methylethyl)-3,3-diethyl-4-methyloctane
- B. 3,3-Diethyl-4-methyl-5-chloroisopropyl-octane
- C. 6, 6-Diethyl-5-methyl-4-(1-chloro-1-methyl-ethyl) octane
- D. 6,6-Diethyl-4-chloroisopropyl-5-methyl-octane.

Answer: A



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41. IUPAC name of the following compound is



- A. 3,3-Divinyl-1-propene
- B. Triethenylmethane
- C. Trivinylethane

D. 3-Vinylpenta-1, 4-diene.

Answer: D

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42. IUPAc name of $CH_3CH(OH)COOH$ is

- A. Lactic acid
- B. α -Hydroxypropionic acid
- C. Carboxypropanol
- D. 2-Hydroxypropanoic acid.

Answer: D

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43. A student named the compound as 1, 4-butadiene

- A. The name is correct
- B. He committed an error in the selection of carbon chain
- C. He committed an error in position of double bond
- D. Unpredictable.

Answer: C

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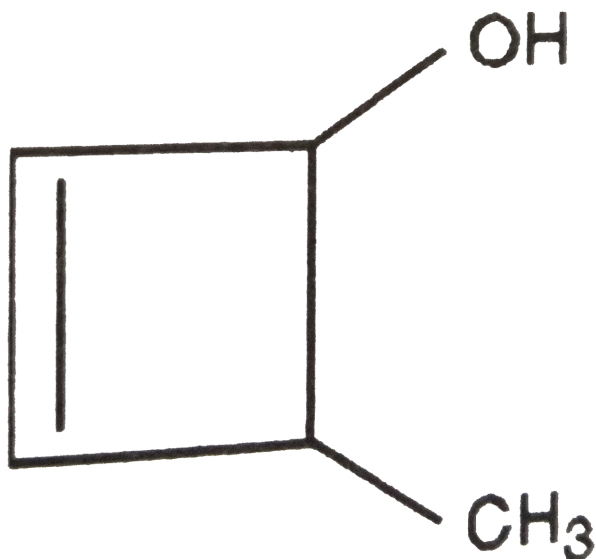
44. Which of the following structure represents 2,2,3-trimethylhexane?

- A. $CH_3C(CH_3)_2CH_2CH_2CH(CH_3)_2$
- B. $CH_3CH(CH_3)CH_2CH(CH_3)CH_2CH_3$
- C. $CH_3C(CH_3)_2CH(CH_3)CH_2CH_2CH_3$
- D. $CH_3C(CH_3)_2CH_2C(CH_3)_2CH_3$

Answer: C

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45. The IUPAC name of



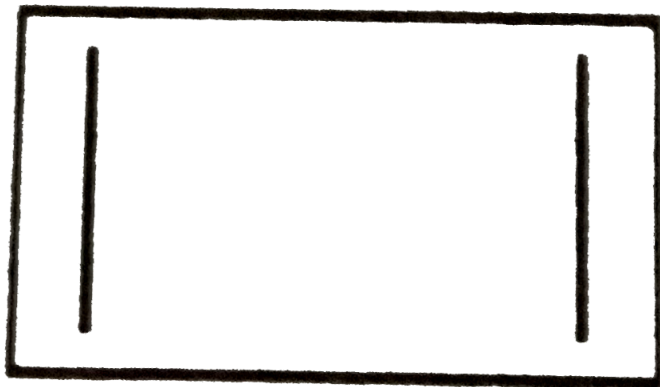
- A. 3-Methylcyclobut-1-en-2-ol
- B. 4-Methylcyclobut-2-en-1-ol
- C. 4-Methylcyclobut-1-en-3-ol
- D. 2-Methylcyclobut-3-en-1-ol

Answer: B



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46. Following compound is an example of



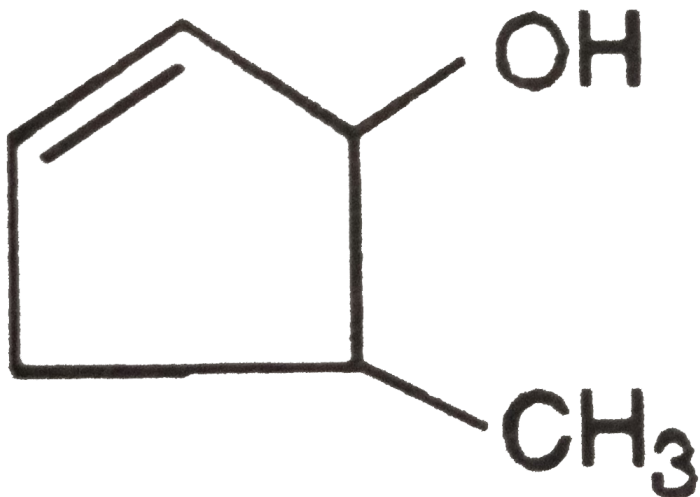
is

- A. Aromatic compound
- B. Heterocyclic compound
- C. Annulene
- D. Xanthates.

Answer: C

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47. The IUPAC name of the compound



- A. 4-Mehtylcyclopent-1-en-2-01
- B. 2-Methylcyclopent-4-en-1-01
- C. 3-Methylcyclopent-1-en-2-01
- D. 5-Methylcyclopent-2-en-01

Answer: D



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48. The correct IUPAC name of

A. Isopropylbenzene

B. Cumene

C. Phenylisopropene

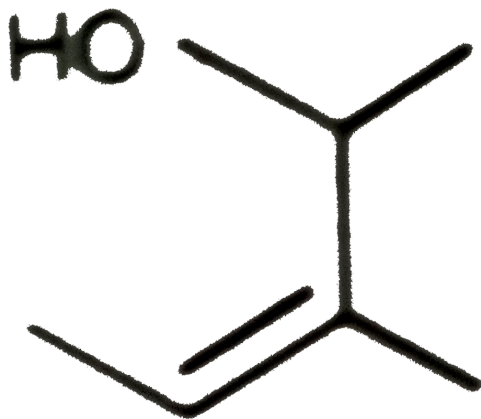
D. None of these

Answer: A



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49. The IUPAC name of the following compound is



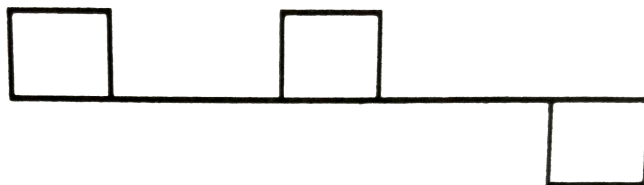
- A. 1, 2-Dimethylbut-2-en-1-01
- B. 3-Methylpent-3-en-2-01
- C. 3, 4-Dimethylbut-2-en-4-01
- D. 2,3-Dimethylpent-3-en-1-01

Answer: B



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50. The IUPAC name of the following compound is



- A. Biscyclobutylcyclobutane
- B. Cyclododecane
- C. 1,1',2',1'''-Tercyclobutane
- D. None of these

Answer: C

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51. The lowest alkane which has ethyl group is substituent has IUPAC name

- A. 2-Ethylpropane

B. 2-Ethylbutane

C. 3-Ethylpentane

D. None of these

Answer: C



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52. The compound $CH_2 = CH(CH_2)_2CH_3$ is named as

A. α -Pentylene

B. Amylene

C. Pent-1-ene

D. All A, B, C are correct.

Answer: D



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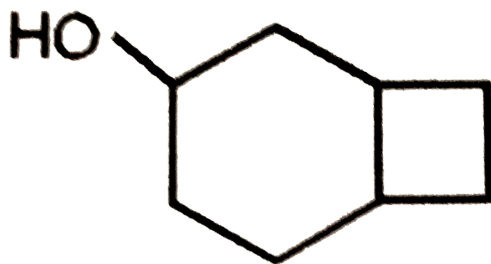
53. The correct IUPAC name of $(C_2H_5)_4C$ is

- A. Tetraethyl methane
- B. 2-Ethylpentane
- C. 3, 3-diethylpentane
- D. None of the above

Answer: C

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54. The IUPAC name of the compound



is

- A. Bicyclo [2.4.0] octan-3-01

B. Bicyclo [4.2.0] octan-3-01

C. Bicyclo [4.2.0] octan-4-01

D. Bicyclo [4.2.0] octan-6-01

Answer: B

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55. The IUPAC name of the compound $CH_3CONH(Br)$ is

A. 1-Bromoacetamide

B. N-Bromoethanamide

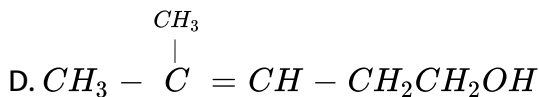
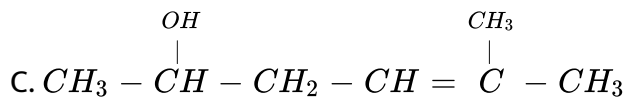
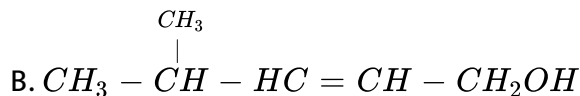
C. Ethanoyl bromide

D. None of these

Answer: B

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56. The structure of 4-Methylpent-2-en-1-ol is

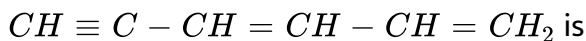


Answer: B



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57. The IUPAC name of the hydrocarbon



A. Hexa-3,5-dien-5-yne

B. Hexa-1,2-dien-5-yne

C. Hexa-1,3-dien-5-yne

D. Hexa-3,5-dien-1-yne.

Answer: C

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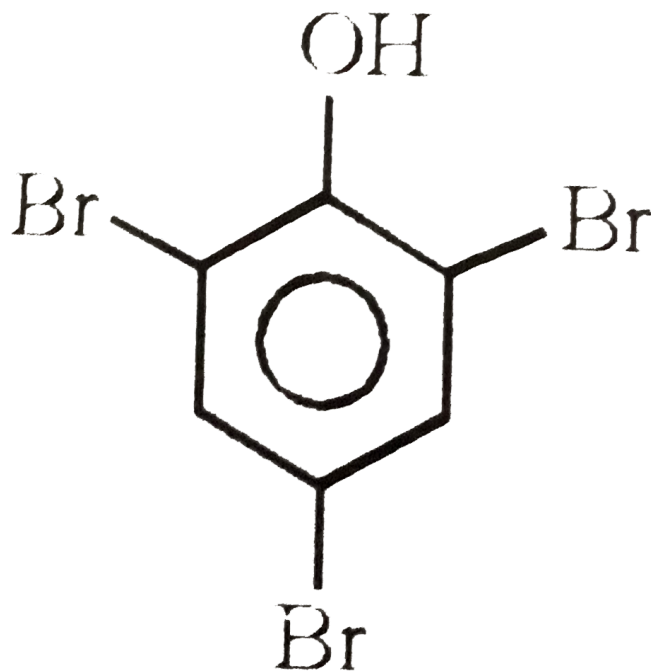
58. The IUPAC name of the compound $CH_3COCH \underset{\underset{Cl}{|}}{} - CH \underset{\underset{I}{|}}{} - COOH$ is

- A. 2-Iodo-3-chloro-4-pentanoic acid
- B. 4-Oxo-3-chloro-2-iodopentanoic acid
- C. 4-Carboxyl-4,3-chloro-2-butanone
- D. 3-Chloro-2-iodo-4-oxopentanoic acid

Answer: D

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59. The IUPAC name of



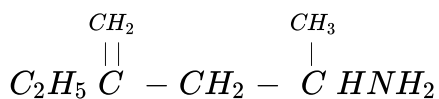
- A. 2-Hydroxy-1,3,5-tribromobenzene
- B. 1-Hydroxy-2,4,6-tribromobenzene
- C. 2,4,6-Tribromophenol
- D. Picric acid

Answer: C



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60. The IUPAC name of is



- A. 4-Ethylpent-4-en-2-amine
- B. 2-Amino-4-ethylpent-4-ene
- C. 2-Ethylpentan-4-amine
- D. 4-Amino-2-ethylpent-1-ene

Answer: A



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61. The IUPAC name of

- A. 2-Chloro-4-ethylpentanoic acid
- B. 2-Chloro-3-(N,N-diethylamino) propanoic acid

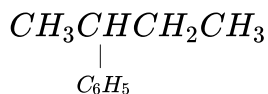
C. 2-Chloro-2-oxo-diethylamine

D. 2-Chloro-2-carboxy-N-ethylethane.

Answer: B

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62. The IUPAC name of the following compound is



A. 2-Cyclohexylbutane

B. sec-Butylbenzene

C. 3-Cyclohexylbutane

D. 3-Phenylbutane

Answer: B

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63. The systematic name of $C_{17}H_{35}COOH$ is

- A. Heptadecanoic acid
- B. Octadecanoic acid
- C. Steric acid
- D. Plamitic acid.

Answer: B



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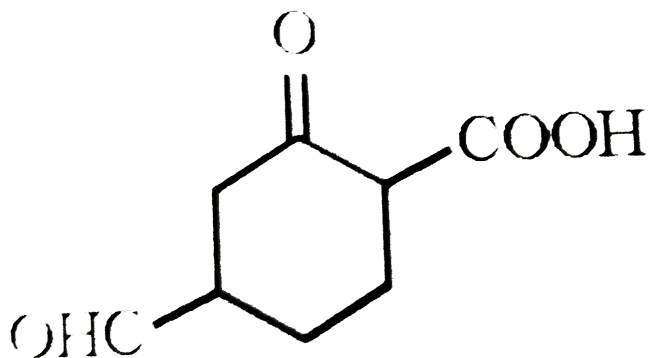
64. The compound which has one isopropyl group is :

- A. 2,2,3,3-Tetramethylpentane
- B. 2,2-Dimethylpentane
- C. 2,2,3-Trimethylpentane
- D. 2-methyl pentane

Answer: D

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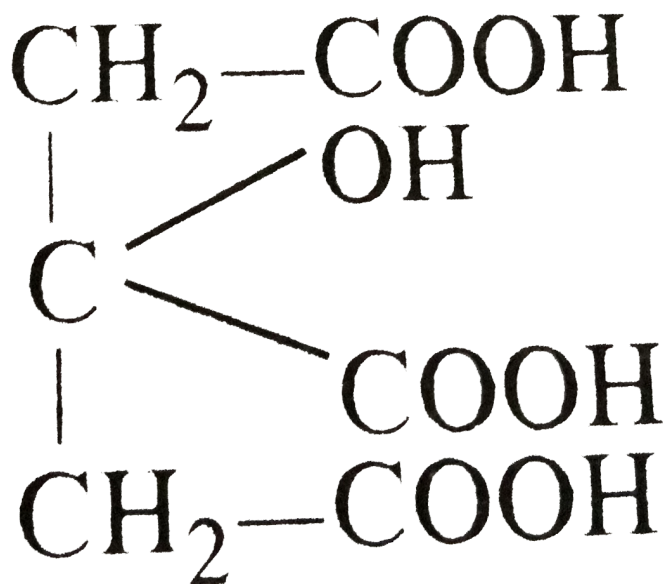
65. The correct IUPAC name of the compound



- A. 5-Carboxy-3-oxocyclohexanecarboxaldehyde
- B. 2-Carboxy-5-formylcyclohexane
- C. 4-Formyl-2-oxocyclohexanecarboxylic acid
- D. 4-Carboxy-3-oxocyclohexanal.

Answer: C

66. The IUPAC name of compound

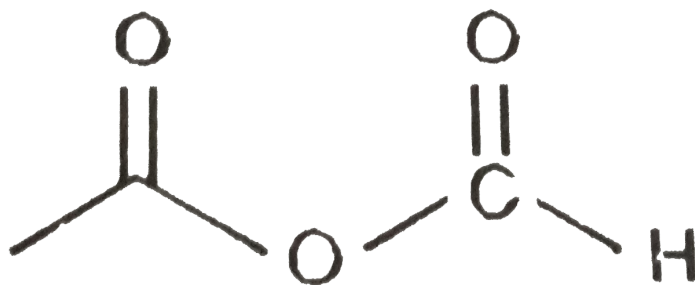


- A. 1,2,3-Tricarboxy-2,1-propane
- B. 3-Carboxy-3-hydroxy-1,5-pentanedioic acid
- C. 3-Hydroxy-3-carboxy-1,5-pentanedioic acid
- D. 2-Hydroxypropane-1,2,3-tricarboxylic acid.

Answer: D

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67. The correct IUPAC name of

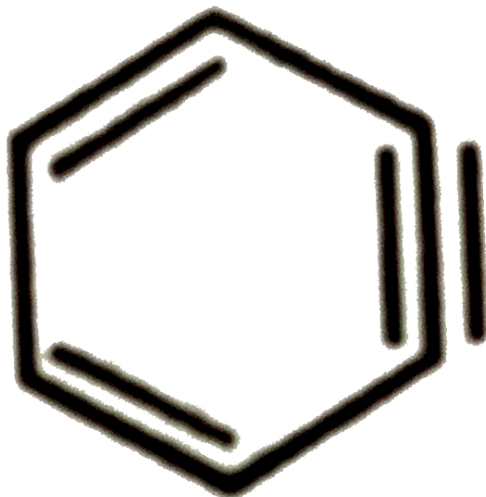


- A. Butane-2,4-dione
- B. Formyl ethanoate
- C. Acetic anhydride
- D. Ethanoicmethanoic anhydride

Answer: D

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68. The IUPAC name of the compound



- A. Benz-1,3-en-5-yne
- B. 5,6-Dihydrobenzene
- C. 1,2-Didehydrobenzene
- D. [6] Annulene

Answer: C



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69. The correct IUPAC name of the $H - \overset{\overset{O}{\parallel}}{C} - \overset{\overset{O}{\parallel}}{C} - \overset{\overset{O}{\parallel}}{C} - OH$ is

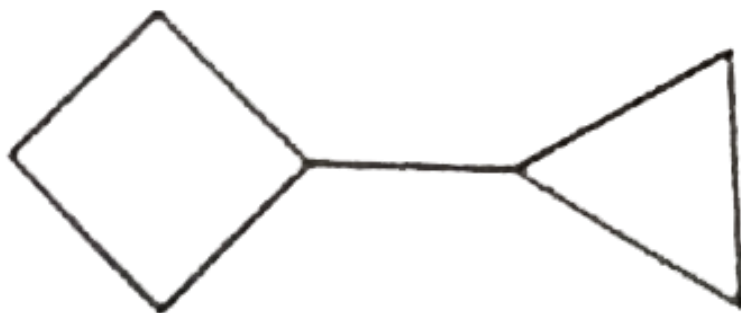
- A. 3-Aldo-2-oxopropanoic acid
- B. 2,3-Dioxopropanoic acid
- C. 1-Hydroxy propane-1,2,3-trione
- D. 2-Aldo-2-keto methanoic acid.

Answer: B



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70. The correct IUPAC name of



is

- A. 1-Cyclopropylcyclobutane
- B. 1,1'-Dicyclobutane
- C. 1-Cyclobutane-1-cyclopropane
- D. None of these

Answer: A



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71. Electrophiles are :

- A. Electron loving species
- B. Electron hating species
- C. Nucleus loving species
- D. Nucleus hating species.

Answer: A

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72. Nucleophiles are

- A. Nucleus loving species
- B. Electron loving species
- C. Nucleus hating species
- D. Electron hating species.

Answer: A

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73. A nucleophilic reagent must necessarily have

- A. An overall positive charge
- B. An overall negative charge
- C. An unpaired electron
- D. A species with complete octet and lone pair of electrons.

Answer: D



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74. Which of the following statements is false about an electrophile ?

- A. Electron-deficient species
- B. An acidic reagent
- C. A reagent which attacks an electron-deficient site in a molecule

D. A species which seeks a pair of electrons.

Answer: C

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75. Which of the following species is an electrophile ?

A. H_2O

B. NH_3

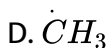
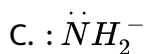
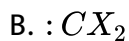
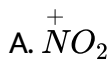
C. C_2H_5OH

D. SO_3

Answer: D

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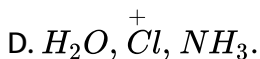
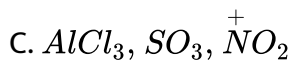
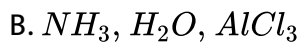
76. Which of the following species is a nucleophile ?



Answer: C

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77. Which one of the following series contains electrophiles only ?



Answer: C

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78. The order of stability of free radical is-

A. *Tertiary* > *Allyl* > *Benzyl*

B. *Allyl* > *Benzyl* > *Tertiary*

C. *Benzyl* > *Allyl* > *Tertiary*

D. *Tertiary* > *Benzyl* > *Allyl*.

Answer: C



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79. Which of the following has maximum acidic strength ?

A. o-Nitrobenzoic acid

B. m-Nitrobenzoic acid

C. p-Nitrobenzoic acid

D. p-Nitrophenol.

Answer: A

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80. Dehydration of ethyl alcohol proceeds via

A. Carbonium ion

B. carbanion

C. Ethylium

D. Free radicals.

Answer: A

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81. Inductive effect involves :

A. σ -electrons

B. π -electrons

C. Both

D. None.

Answer: A

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82. Which of the following is active species in sulphonation of benzene ?

A. H_2SO_4

B. SO_3

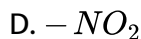
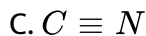
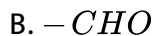
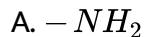
C. HSO_3^+

D. SO_3^+

Answer: B

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83. Which of the following has +R(or +M) effect?



Answer: A



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84. Which of the following statements is correct ?

A. Desmotropism is another name for tautomerism

B. Allyl carbocation is more stable than isopropyl carbocation

C. +I effect is exhibited by $-NH_3^+$

D. The formula CH_2Cl_2 is nonpolar

Answer: A

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85. A nucleophile must necessarily have

- A. an unpaired electron
- B. two lone pairs of electrons
- C. an overall positive charge
- D. tendency to donate electron pair.

Answer: D

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86. Which of the following can act as nucleophilic

- A. Diethyl ether
- B. Anilinium ion
- C. Acylium ion
- D. Dichloromethylene carbene.

Answer: A

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87. Out of the following, the one containing only nucleophiles is

- A. $AlCl_3$, BF_3 , NH_3
- B. NH_3 , CN^- , CH_3OH
- C. $AlCl_3$, NH_2^- , H_2O
- D. RNH_2 , CX_2 , H^-

Answer: B

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88. The inductive effect

- A. implies atom's ability to cause bond polarization
- B. implies transfer of lone pair of electrons from lesser electronegative atom to the more electronegative atom in a molecule
- C. implies transfer of lone pair of electrons from more electronegative atom to the lesser electronegative atom in a molecule
- D. increases with increase of distance.

Answer: A



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89. Inductive effect involves :

- A. Delocalization of σ -electrons
- B. Displacement of σ -electrons
- C. Delocalization of n-electrons
- D. Delocalization of non bonding electrons

Answer: B

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90. Which of the following alkyl group has the maximum +I effect?

- A. $(CH_3)_3C -$
- B. $(CH_3)_2CH -$
- C. $CH_3CH_2 -$
- D. $CH_3 -$

Answer: A

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91. The central C atom of an alkyl free radical possesses

- A. 6 electrons
- B. 8 electrons
- C. 7 electrons
- D. None of the above

Answer: C



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92. In Pinacol-pinacolone rearrangement the reactive species undergoing rearrangement is

- A. Carbene
- B. Free radical
- C. Carbanion

D. Carbonium ion

Answer: D



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93. CARBENES-SINGLET CARBENE

A. sp^2

B. sp

C. sp^3

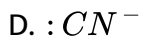
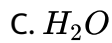
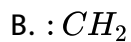
D. None of these

Answer: A



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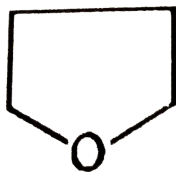
94. Which of the following is an electrophile ?



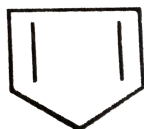
Answer: B

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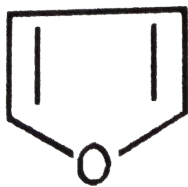
95. Which of the following is heterocyclic aromatic species ?



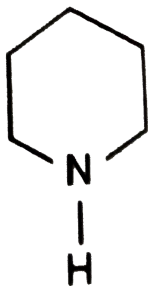
A.



B.



C.



D.

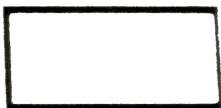
Answer: C

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96. Which of the following cyclic molecules should be most reactive ?



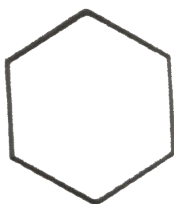
A.



B.



C.



D.

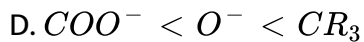
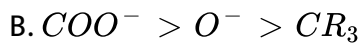
Answer: A



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97. Which of the following correctly represents the +I-effect of the substituents ?





Answer: A

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98. Which of the following does not show electromeric effect ?

A. Alkenes

B. Ethers

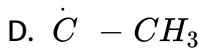
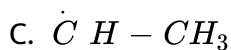
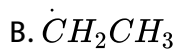
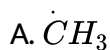
C. Aldehydes

D. Ketones.

Answer: B

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99. Which free radical is the least stable ?



Answer: A



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100. Resonance effect involves:

- A. Delocalization of π -electrons along a conjugated system
- B. Delocalization of n-electrons along a conjugated system
- C. Delocalization of negative charge along a conjugated system
- D. All are correct.

Answer: D



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101. Which of the following has +*R*(or +*M*) effect?

A. $-CN$

B. $-CHO$

C. $-NH_2$

D. NO_2

Answer: C



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102. Which of the following series contains atoms/groups having only -*M*(mesomeric) effect ?

A. COR , OR , $COOR$

B. Cl , CHO , NH_2

C. NO_2 , CN , SO_3H

D. OH , NR_2 , SR

Answer: C

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103. In which of the following molecules, the substituent does not exerts resonance effect ?

A. $C_6H_5NH_2$

B. $C_6H_5\overset{+}{N}H_3$

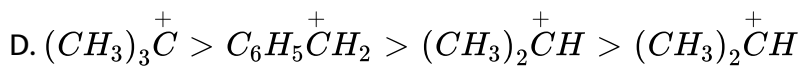
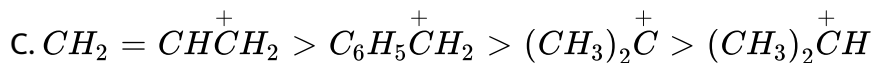
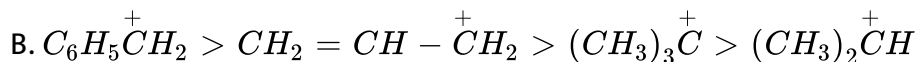
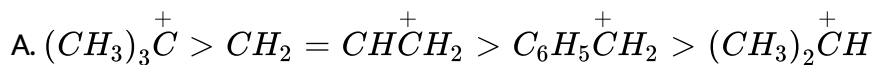
C. C_6H_5OH

D. C_6H_5Cl

Answer: B

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104. Which of the following represents the correct order of stability of carbocations ?



Answer: D

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105. Hyperconjugation involves

A. Delocalization of σ -electrons into an adjacent π -bond

B. Delocalization of n-electrons into an adjacent double bond

C. Delocalization of π -electrons into an adjacent π -bond

D. All are true.

Answer: A

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106. Hyperconjugation effect is also called

A. Baker-Nathan effect

B. Anchimeric assistance

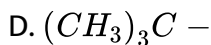
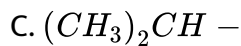
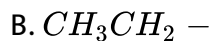
C. No bond resonance

D. All are correct.

Answer: D

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107. Which of the following group has the maximum hyperconjugation effect ?

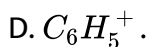
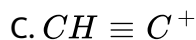
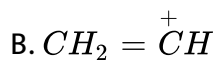
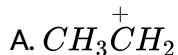


Answer: A



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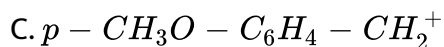
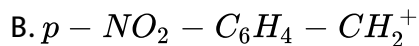
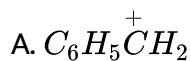
108. Which of the following carbocation is most stable ?



Answer: A

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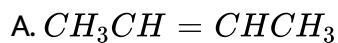
109. Which of the following carbocation is least stable ?

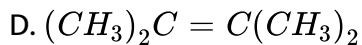
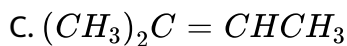
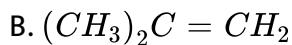


Answer: B

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110. Which of the following alkenes is the most stable ?





Answer: D

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111. The dipole moment of vinyl chloride is lower than that of methyl chloride. This is due to

A. Resonance effect

B. Inductive effect

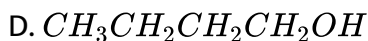
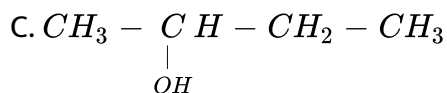
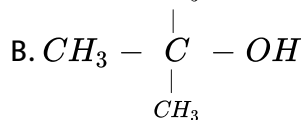
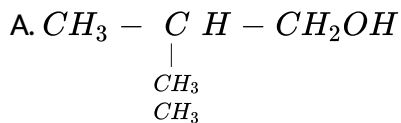
C. Electromeric effect

D. Hyperconjugation effect

Answer: A

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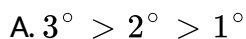
112. Which of the following compounds will produce the most stable carbonium ion ?



Answer: B

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113. The order of abstraction of primary, second and tertiary hydrogen atoms in alkanes by halogen atoms follows the sequence



B. $3^\circ > 1^\circ > 2^\circ$

C. $1^\circ > 2^\circ > 3^\circ$

D. $2^\circ > 3^\circ > 1^\circ$

Answer: A

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114. Which of the following statement regarding resonance is *NOT* correct?

- A. the different resonating structures of a molecule have fixed arrangement of atomic nuclei
- B. the different resonance structures of a molecule should have same number of unpaired electrons
- C. the hybrid structure has equal contribution from all the resonating structure

D. None of the individual resonating structures explains the various characteristics of the molecule.

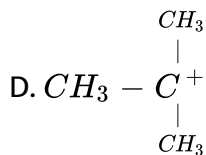
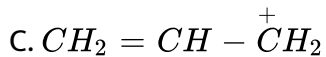
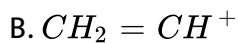
Answer: C

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115. Which of the following carbocations is the least stable ?



A.



Answer: B

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116. p-Chlorophenol is stronger acid than phenol because

- A. Cl is less electronegative than oxygen atom
- B. of the -I effect of a halogen which is greater than its +R effect
- C. of +R effect of Cl which is stronger than its -I effect
- D. of +R effect of Cl

Answer: B



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117. The stability of a carbocation depends upon-

- A. The bond angle of the attached group
- B. The substrate with which it reacts
- C. The inductive effect of the attached group

D. None of the above

Answer: C

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118. Which of the following species is paramagnetic in nature ?

A. Free radical

B. Carbonium ion

C. Both

D. None

Answer: A

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119. In the carbonium ion, the carbon atom bearing positive charge is

A. sp -hybridised

B. sp^2 -hybridised

C. sp^3 -hybridised

D. unhybridised.

Answer: B

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120. The shape of carbanion is

A. Linear

B. Planar

C. Pyramidal

D. None of these

Answer: C

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121. State of hybridisation of carbon atom of carbene in the triplet state is

A. sp^2

B. sp

C. sp^3

D. None of these

Answer: B



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122. The bond that undergoes heterolytic cleavage most readily is

A. $C - C$

B. $C - O$

C. $C - H$

D. $O - H$

Answer: D



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123. The shape of the carbonium ion is

A. Triangular planar

B. V-shaped

C. Pyramidal

D. None of these

Answer: A



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124. Carbanion is iso-structural with

A. Free radical

B. Carbonium ion

C. Ammonia

D. Carbene

Answer: C

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125. The kind of delocalisation involving sigma bond orbitals is called.....

A. Mesomeric effect

B. Tautomeric effect

C. Electromeric effect

D. Hyperconjugative effect.

Answer: D

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126. The compounds CH_3NH_2 and $CH_3CH_2NH_2$ are :

- A. isomers
- B. isobars
- C. homologues
- D. allotropes

Answer: C



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127. Which orbital hybridization may be used to describe the carbon atoms 1, 2, 3 and 4 in But-1-en-3-yne ?

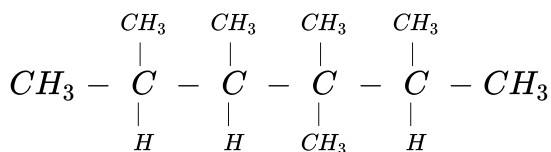
- A. sp^2 , sp^2 , sp^3 , sp^3
- B. sp , sp , sp^2 , sp^2
- C. sp^2 , sp^2 , sp , sp

D. sp , sp^2 , sp^2 , sp^2

Answer: C

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128. The number of tertiary carbon atom in :



A. 1

B. 2

C. 3

D. 4

Answer: C

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129. The first noble prize in chemistry awarded to :

- A. Pasteur
- B. vant Hoff
- C. Rutherford
- D. Madam Curie

Answer: B

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130. The decreasing order of electronegativity of the hybrid orbitals is :

- A. $sp > sp^2 > sp^3$
- B. $sp^3 sp^2 > sp$
- C. $sp^2 > sp^3 > sp$
- D. $sp^2 > sp > sp^3$

Answer: A



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131. The $CI - C - CI$ angle in 1, 1, 2, 2, tetrachloroethane and tetrachloromethane respectively will be about:

A. 90° and 109.5°

B. 109.5° and 90°

C. 109.5° and 120°

D. 120° and 109.5°

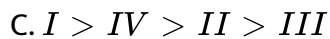
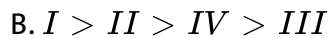
Answer: D



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132. Bond length of ethane (I), ethene (II), acetylene (III) and benzene (IV) follows the order

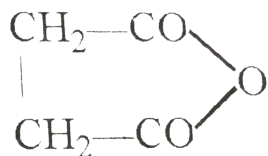
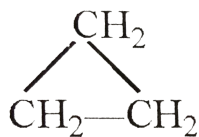
A. $I > II > III > IV$

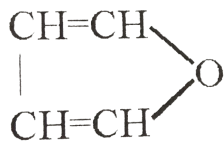


Answer: C

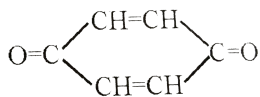
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133. The structure representing a hetrocyclic compound is :





C.



D.

Answer: C

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134. The compound with C uses in the sp^3 hybrid orbitals for bond formation is .

A. $HCOOH$

B. $(NH_2)_2CO$

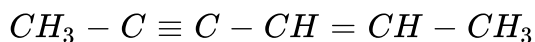
C. $(CH_3)_3C - OH$

D. $HCHO$

Answer: C

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135. The maximum number of carbon atoms arranged in a straight line in the molecule,



A. 5

B. 4

C. 3

D. 6

Answer: B

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136. Which has the smallest C-H bond length :

A. ethane

B. ethyne

C. ethene

D. Benzene.

Answer: B

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137. The bond between carbon atom 1 and carbon atom 2 in a compound

$N \equiv C - CH = CH - CH_3$ involved the hybrids as :

A. sp^2 and sp^2

B. sp^3 and sp^2

C. sp and sp^2

D. sp and sp^3

Answer: C

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138. Among the molecules of ethane, ethylene, and acetylene, the $C - H$ bond energy is the

- A. same in all
- B. lowest in ethane
- C. greatest in ethylene
- D. lowest in acetylene

Answer: D

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139. The hydrocarbon



has different

carbons in hybridised state as :

A. $2\text{in}sp^3$, $1\text{in}sp^2$, $1\text{in}sp$

B. $1\text{in}sp^3$, $2\text{in}sp^2$, $2\text{in}sp$

C. $1\text{in}sp^3$, $3\text{in}sp^2$, $1\text{in}sp$

D. $1\text{in}sp^3$, $1\text{in}sp^2$, $3\text{in}sp$

Answer: B

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140. The number of 4° carbon atoms in 2, 2, 4, 4-tetramethylpentane :

A. 1

B. 2

C. 3

D. 4

Answer: B

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141. The common and *IUPAC* name for the group, $(\text{CH}_3)_2\text{CHCH}_2 -$ respectively are

A. Isobutyl, 2-methylpropyl

B. Isobutyl, 1-methylpropyl

C. tert-Butyl, 1, 1-dimethylethyl

D. sec-Butyl, 2-methylpropyl.

Answer: A

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142. The principal functional group in the compound,

$BrCH_2CH(OH)CH_2COCH_2NO_2$ is

- A. $-Br$
- B. $>C=O$
- C. $-OH$
- D. $-NO_2$

Answer: B

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143. The secondary suffix and the secondary prefix for the functional

group, $\overset{O}{\parallel} - C - Cl$ respectively are :

- A. oyl chloride, chlorocarbonyl

B. chlorocarbonyl, oyl chloride

C. oyl chloride, yl chloride

D. yl chloride, oyl chloride

Answer: A

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144. The correct order priority for the $-CONH_2$, $-CN$ and $-COOR$ is

A. $-CONH_2$, $-COOR$, $-CN$

B. $-COOR$, $-CONH_2$, $-CN$

C. $-CN$, $-COOR$, $-CONH_2$

D. $-CN$, $-CONH_2$, $-COOR$

Answer: B

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145. The IUPAC for the hydrocarbon represented by the Swastik sign is



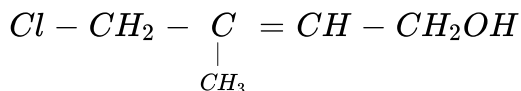
- A. Neononane
- B. Tetraethylcarbon
- C. 2-Ethylpentane
- D. 3, 3-Diethylpentane

Answer: D



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146. The IUPAC name for a given compound is



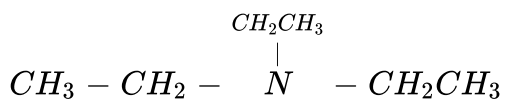
- A. 1-Chloro-2-methylbut-3-en-4-01
- B. 1-Chloro-2-methylbut-3-en-4-01
- C. 4-Chloro-2-methylbut-2-en-1-01
- D. 3-Chloroethylbut-2-en-1-01

Answer: C



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147. The IUPAC name for the compound



- A. Triethylamine

B. Ethyltriamine

C. N,N-Diethylethanamine

D. None of the above

Answer: C

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148. The systematic name of $HCON(CH_3)_2$

A. N, N-Dimethylformamide

B. N,N-Dimethylaminomethanol

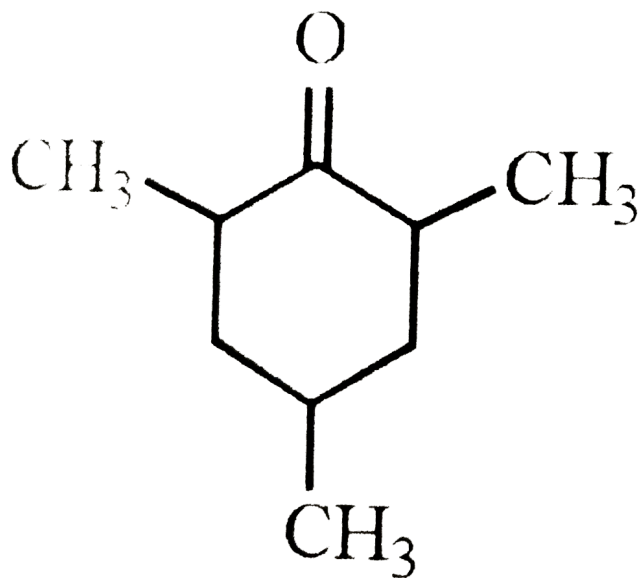
C. 2,3-Dimethylbutene

D. 1,2-Dimethylcyclobutane.

Answer: A

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149. The correct IUPAC name for the compound



- A. sym-Trimethylbutanone
- B. 1,3,5-Trimethylbenzophenone
- C. 1-Keto-2, 4-6 trimethylcyclohexane
- D. 2, 4, 6-Trimethylcyclohexanone.

Answer: D



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150. The correct IUPAC name of the compound is



- A. Cyclopentane
- B. 5-Cyclopropylprop-1-ene
- C. 1-Cyclopropylprop-2-ene
- D. 3-Cyclopropylprop-1-ene.

Answer: D

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151. The correct IUPAC name for the following compound



A. 1,1,5-Trimethylhexa-1,6-diene

B. 2,6-Dimethylhepta-2,6-diene

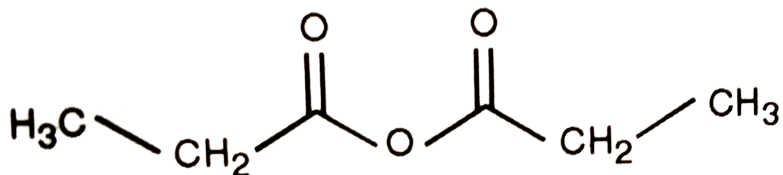
C. 2,6-Dimethylhepta-1,5-diene

D. None of the above

Answer: C

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152. The IUPAC name for the compound

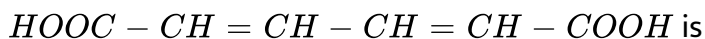


- A. Propionic anhydride
- B. Dipropionic anhydride
- C. Ethoxypropanoic acid
- D. Propanoic anhydride.

Answer: D

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153. The IUPAC name of

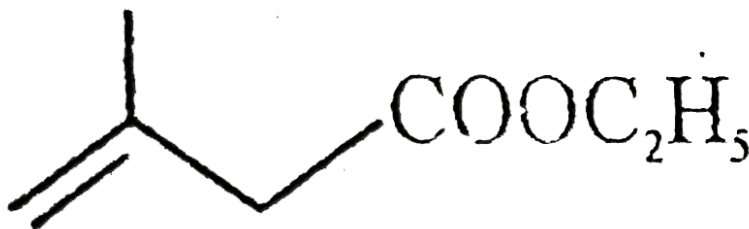


- A. Hexa-2,4-dienedioic acid
- B. 2,4-Dihexene-1,6-dioic acid
- C. Hexa-2,4-diene-1,6-dioic acid
- D. All the above

Answer: A

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154. The IUPAC name for the compound



- A. Ethyl acrylate
- B. Ethyl methylbutenoate

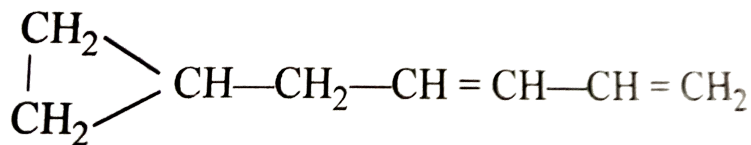
C. Ethyl acetoethenoate

D. Ethyl 3-methylbut-3-enoate.

Answer: D

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155. The IUPAC name of the compound



A. 5-Cyclopropan-1, 3-pentadiene

B. Cyclohex-1, 3-diene

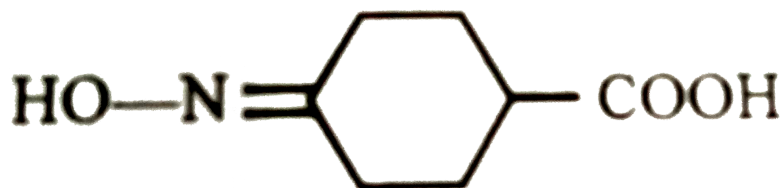
C. 4-Cyclopropyl-1-1-butane

D. 5-Cyclopropylpenta-1, 3-diene.

Answer: D

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156. The IUPAC name of the compound



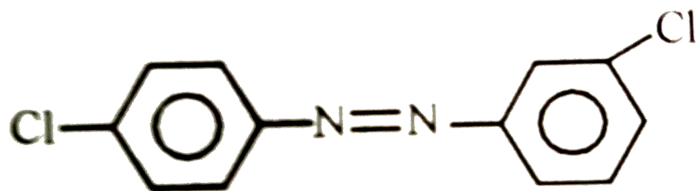
- A. 4-Hydroxyaminobenzenecarboxylic acid
- B. 4-Hydroxyaminocyclohexanoic acid
- C. 4-Hydroxyiminocyclohexanoic acid
- D. 4-Hydroxyiminocyclohexane-1-carboxylic acid.

Answer: D



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157. The IUPAC name of the compound

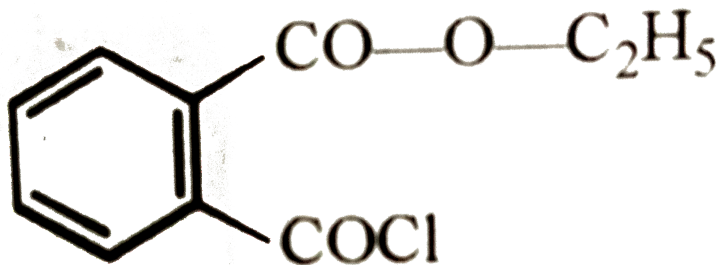


- A. 3-Chlorophenyl-4-chlorophenyldiazene
- B. 3,4-Bis(chlorophenyl)diazene
- C. N-(4-Chlorophenyl)-N-(3-chlorophenyl) diazene
- D. 3, 4-Dichloroazobenzene.

Answer: A

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158. Write the IUPAC name of the following compound

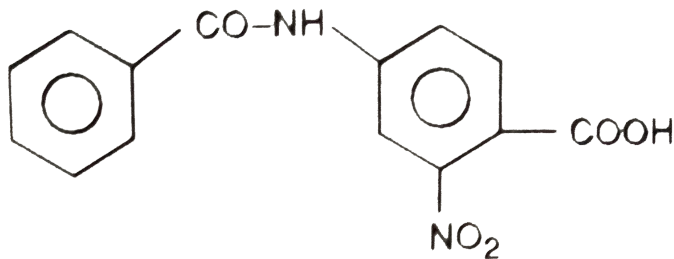


- A. 2-(Ethoxycarbonyl)benzoyl chloride
- B. Ethyl 2-(chlorocarbonyl)hexanoate
- C. Ethyl 2-(chlorocarbonyl)benzoate
- D. None of the above

Answer: C

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159. The IUPAC name of the following compound



- A. 4-(Benzoylamino)-2-nitrobenzoic acid
- B. 4-(Benzamide)-6-nitrobenzoic acid
- C. 4-(Benzoylamino)-6-nitrobenzoic acid
- D. 4-Benzenecarboxamide-6-nitrobenzoic acid.

Answer: A

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160. The inductive effect

- A. decreases with increase of distance

B. its extent increases with increase of distance

C. indicates the transfer of π pair of electrons from less electronegative atom to more electronegative atom in a molecule

D. shows the transfer of lone pair of electrons.

Answer: A

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161. Hybridisation of carbonium carbon in

CH_3^+ , CH_3^- and $CH_2 = CH - \bar{C}H_2$ carbons are :

A. sp^2 , sp^3 , sp respectively

B. sp , sp^2 , sp^3 respectively

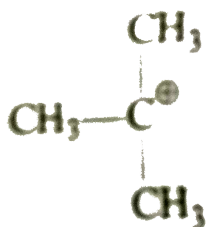
C. sp^2 , sp^3 , sp^2 respectively

D. sp^2 , sp^2 , sp^3 respectively.

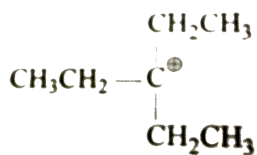
Answer: C



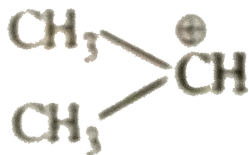
162. Which of the following carbocations is most stable ?



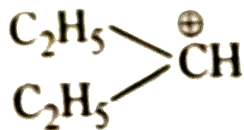
A.



B.



C.

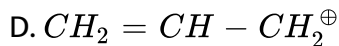
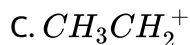
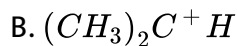
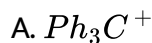


D.

Answer: A

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163. Which of the following carbocation is most stable?



Answer: A

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164. Cyclic hydrocarbon molecules 'A' has all the carbon and hydrogen in a single plane. All the carbon-carbon bonds are of same length less than 1.54\AA , but more than 1.34\AA . The $C - C$ bond angle will be

A. $109^\circ 28'$

B. 100°

C. 180°

D. 120°

Answer: D

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165. The most stable carbocation is :



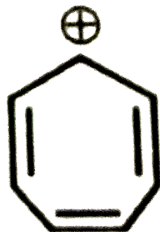
A.



B.



C.

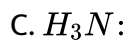
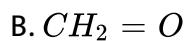
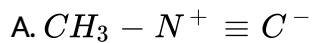


D.

Answer: D

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166. Which of the following acts as electrophile well as nucleophile ?



Answer: B

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167. A molecule is $R_3C - H$. If H is replaced by A ($R_3C - A$) and on doing so electron density on R_3C part increases, then A is :

- A. electron attracting, then A is :
- B. electron withdrawing group
- C. electron repelling group
- D. either of them.

Answer: C

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168. Removal of a hydride ion from methane molecule gives :

A. Methyl radical

B. Carbocation

C. Carbanion

D. Methyl group.

Answer: B

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169. Which of the following statement is correct ?

A. +*I* group stabilizes a carbanion

B. +*I* group stabilizes a carbocation

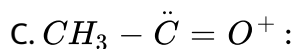
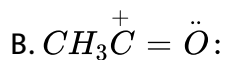
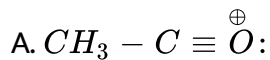
C. –*I* group stabilizes a carbocation

D. –*I* group destabilizes a carbanion.

Answer: B

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170. Which of the following formula is most stable ?

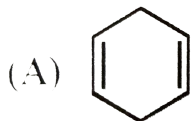


D. None of these

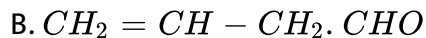
Answer: A

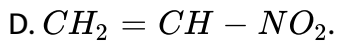
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171. Which one of the following molecules exists as a resonance hybrid ?



A.

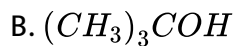




Answer: D

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172. The compound which gives the most stable carbonium ion on dehydration is



Answer: B

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173. No bond resonance explains the stability of the following :

- A. benzyne
- B. carbanions
- C. free radicals
- D. carbenes.

Answer: C



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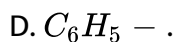
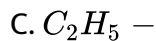
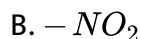
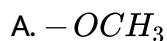
174. The non-reactivity of chlorine atom in $CH_2 = CH - Cl$ is due to :

- A. inductive effect
- B. electromeric effect
- C. resonance effect
- D. dipole moment

Answer: C

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175. Of the following groups which has an electron repelling inductive effect :



Answer: C

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176. The C-C bond length in propene is little shorter 149 pm than the C-C bond length 154 pm in ethane. This is due to

A. +I effect of CH_3 group

B. Mesomeric effect

C. Electromeric effect

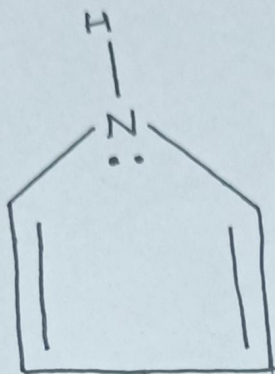
D. Hyperconjugation effect

Answer: D



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177. How many π electrons are there in



A. 2

B. 4

C. 6

D. 8

Answer: C



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178. In hyperconjugation of an alkene there is overlap between :

A. p – and π – or *bitals*

B. 2π – or *bitals*

C. d – and π – or *bitals*

D. σ – and π – or *bitals*.

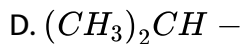
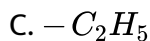
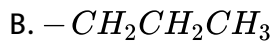
Answer: D



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179. Which one of the following belongs to -I group ?

A. $-C_6H_5$

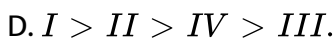
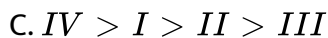
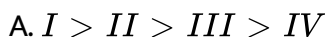


Answer: A

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180. The order of decreasing stability of the carbanions :

$(CH_3)_3C^-$ (I), $(CH_3)_2CH^-$ (II), $CH_3CH_2^-$ (III), $C_6H_5CH_2^-$ (IV) is



Answer: B

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REVISION QUESTIONS FROM COMPETITIVE EXAMS.

1. The systematic name of $(CH_3)_2CH - COOH$

- A. 2-Propanoic acid
- B. Isobutanoic acid
- C. 2-Methylpropanoic acid
- D. 2-Methylbutanoic acid.

Answer: C



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2. The IUPAC name of $(CH_3)_2CHCH_3$ is

- A. Dimethylethane
- B. Trimethylmethane

C. Isopropylmethane

D. 2-Methylpropane.

Answer: D

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3. The IUPAC name of

$(CH_3)_2CH - CH_2 - CH_2Br$ is

A. 1-Bromopentane

B. 2-Methyl-4-bromopentane

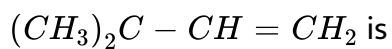
C. 1-Bromo-3-methylbutane

D. 2-Methyl-3-bromopropane.

Answer: C

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4. The IUPAC name of



- A. 2,2-Dimethylbut-2-ene
- B. 2,2-Dimethylpent-3-ene
- C. 3,3-Dimethylbut-1-ene
- D. Hex-1-ene

Answer: C



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5. The IUPAC name of



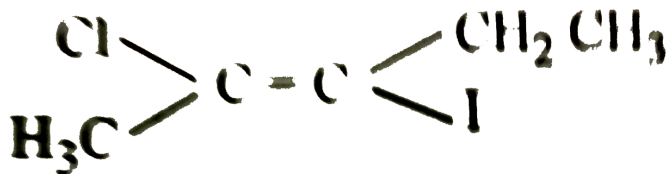
- A. 1-Chloropentane
- B. 1-Chloro-2-methylbutane
- C. 2-Methyl-3-chloropropane

D. None

Answer: B

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6. IUPAC name for the compound given below is



A. trans-2-Chloro-3-iodopent-2-ene

B. cis-2-Chloro-3-iodopent-2-ene

C. trans-3-Iodo-4-chloro-3-pentene

D. cis-3-Iodo-4-chloro-3-pentane.

Answer: A

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7. What is the IUPAC name of $H - \overset{O}{\parallel}C - CH_2 - CH_2 - OCH_3$

A. 2-Formylmethoxyethane

B. Methoxypropanal

C. 2-Methoxypropanal.

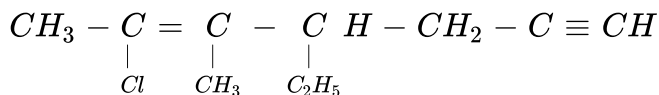
D. 3-Methoxypropanal.

Answer: D



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8. The IUPAC name of



A. 6-Chloro-4-ethyl-5-methyl hept-5-en-1-yne

B. 6-Chloro-4-ethyl-5-methyl hept-1-yn-5-ene

C. 2-Chloro-4-ethyl-3-methyl hept-2-en-6-yne

D. 2-Chloro-4-ethyl-3-methyl hept-6-yn-2-ene.

Answer: A

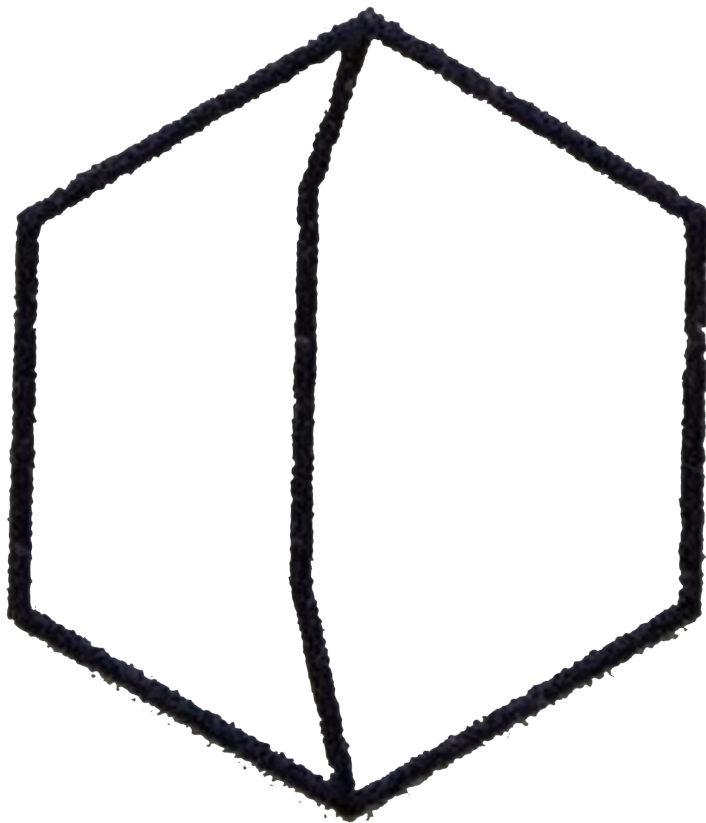


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9.

The

compound



is known by

which of the following names

A. Bicyclo [2,2,2] octane

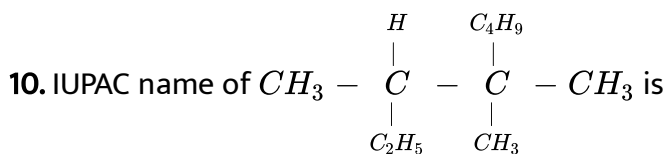
B. Bicyclo [2,2,1] octane

C. Bicyclo [1,2,1] octane

D. Bicyclo [1,1,1] octane.

Answer: A

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A. 2-Butyl-2-methyl-3-ethylbutane

B. 2-Ethyl-3,3-dimethylheptane

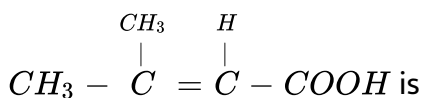
C. 3,4,4-Trimethylheptane

D. 3,4,4-Trimethyloctane.

Answer: D

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11. The IUPAC name of the formula



A. 2-Methylbut-2-enoic acid

B. 3-Methylbut-3-enoic acid

C. 3-Methylbut-2-enoic acid

D. 2-Methylbut-3-enoic acid.

Answer: C

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12. The name of $\begin{array}{c} C & H \\ | & \\ CHO & \end{array} = \begin{array}{c} C & H \\ | & \\ NH_2 & \end{array}$ is

A. 1-Aminoprop-2-enal

B. 3-Aminoprop-2-enal

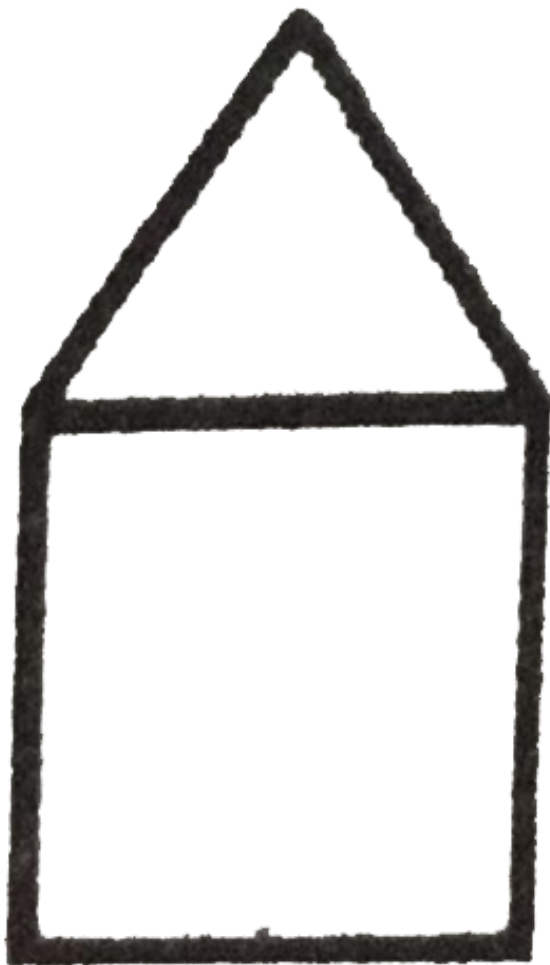
C. 1-Amino-2-formylethene

D. 3-Amino-1-oxoprop-2-ene

Answer: B

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13. The IUPAC name of the compound



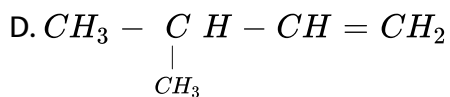
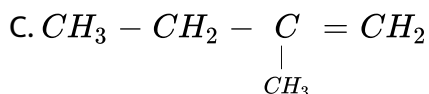
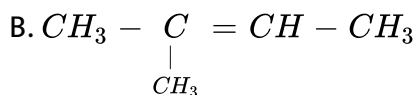
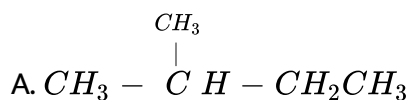
is

- A. Bicyclo [2,1,0] pentane
- B. 1,2-Cyclopropyl cyclobutane
- C. Cyclopentane [4,3] annulene
- D. 1,2-Methylene cyclobutane.

Answer: A

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14. 2-Methylbut-2-ene will be represented as

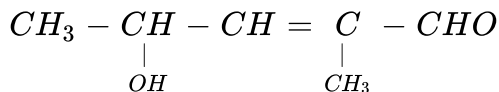


Answer: B



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15. The IUPAC name of



is

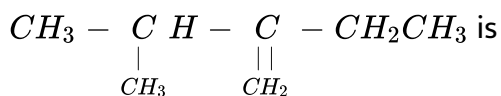
- A. 4-Hydroxyl-1-methylpentanal
- B. 4-Hydroxy-2-methylpent-2-en-1-al
- C. 2-Hydroxy-4-methylpent-3-en-5-al
- D. 2-Hydroxy-3-methylpent-en-5-al.

Answer: B



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16. The IUPAC name of the compound



A. 2-Ethyl-3-methylbut-1-ene

B. 2-Isopropylbut-1-ene

C. 2-Methyl-3-ethyl-3-butene

D. 2-(1-Methylethyl)but-1-ene.

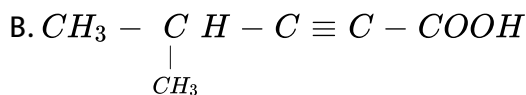
Answer: A

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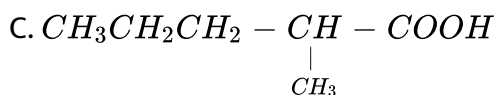
17. Indicate the wrongly named compound



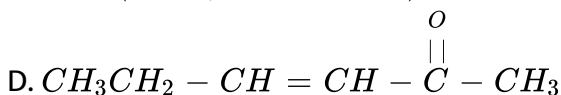
(4-Methyl-1-pentanal)



(4-Methyl-2-pentyn-1-oic acid)



(2-Methyl-1-pentanoic acid)

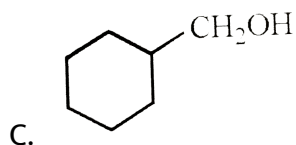
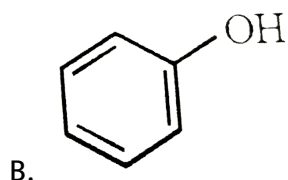
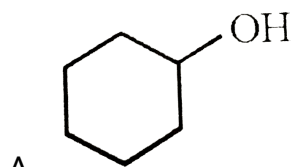


(3-Hexen-5-one)

Answer: D

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18. The structural formula of cyclohexyl alcohol is



D. None of these

Answer: A

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19. The IUPAC name of this compound



A. 2-Isopropyl pentane

B. 2,3-Dimethylhexane

C. Isonanane

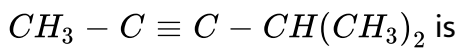
D. 2,4-Dimethylhexane.

Answer: B



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20. The IUPAC name of



A. 4-Methyl-pent-2-yne

B. 4,4'-Dimethyl-but-2-yne

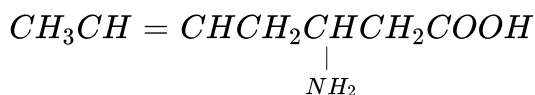
C. Isopropylmethylacetylene

D. 2-Methylpent-2-yne

Answer: A

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21. The *IUPAC* name of the compound



is

- A. 5-Aminohept-2-enoic acid
- B. β -Amino-&-heptanoic acid
- C. 5-Aminohex-2-enecarboxylic acid
- D. 3-Aminohept-5-enoic acid.

Answer: D

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22. Which of the following IUPAC names is correct ?

- A. 2-Methyl-3-ethylpentane
- B. 3-Ethyl-2-methylpentane
- C. 2-Ethyl-3-methylpentane
- D. 3-Methyl-2-ethylpentane.

Answer: B



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23. Which of the following represents the systematic name of the compound $CH_2 = CH - CH_2Cl$?

- A. Allyl chloride
- B. 1-Chloroprop-3-ene
- C. 3-Chloroprop-1-ene
- D. Vinyl chloride

Answer: C

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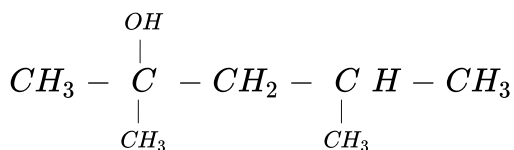
24. The IUPAC name of $CH_3 - \overset{\overset{CH_3}{|}}{CH} - \overset{\overset{O}{||}}{C} - CH_2CH_2OH$ is

- A. 1-Hydroxy-4-methylpentan-3-one
- B. 2-Methyl-5-hydroxypentan-3-one
- C. 4-Methyl-3-oxopentan-1-ol
- D. Hexan-1-ol-3-one

Answer: A

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25. The IUPAC name of



A. 2,4-Dimethylpentan-2-01

B. 2,4-Dimethylpentan-4-01

C. 2,2-Dimethylbutan-2-01

D. Butanol-2,

Answer: A

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26. The IUPAC name of

$(CH_3)_2CH - CH_2 - CH_2Br$ is

A. 1-Bromopentane

B. 2-Methyl-4-bromobutane

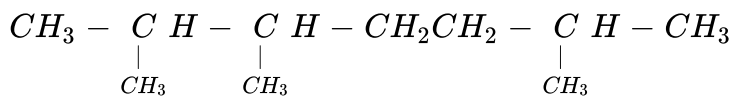
C. 1-Bromo-3-methylbutane

D. 2-Methyl-3-bromopropane.

Answer: C

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27. The IUPAC name of

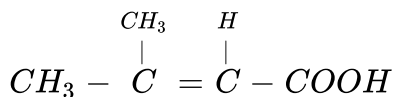


- A. 2,5,6-Trimethylhexane
- B. 2,3,6-Trimethylheptane
- C. 2,3,6-Trimethylhexane
- D. 2,5,6-Trimethylheptane

Answer: B

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28. The IUPAC name of the compound



is

A. 2-Methylbut-2-enoic acid

B. 3-Methylbut-3-enoic acid

C. 3-Methylbut-2-enoic acid

D. 2-Methylbut-3-enoic acid.

Answer: C



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29. The correct IUPAC name of compound with molecular formula

$(CH_3)_3C - CH_3$ is

A. Pentane

B. 1, 1, 1-Trimethylethane

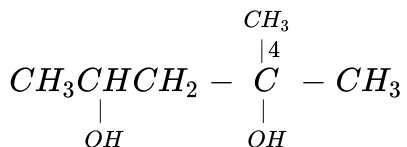
C. 2,2-Dimethylpropane

D. Neopentane.

Answer: C

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30. The IUPAC name of the compound



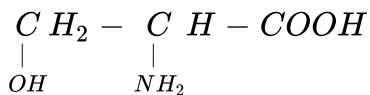
is

- A. 1,1-Dimethylbutane-1,3-diol
- B. 1,3,3-Trimethylpropane-1,3-diol
- C. 2-Methylpentane-2, 4-diol
- D. 1,3,3-Trimethyl-1,3-propanediol

Answer: C

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31. The IUPAC name of the compound

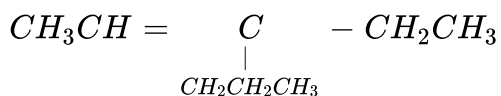


- A. 2-Amino-3-hydroxypropanoic acid
- B. 1-Hydroxy-2-aminopropan-3-oic acid
- C. 1-Amino-2-hydroxypropanoic acid
- D. 3-Hydroxy-2-aminopropanoic acid

Answer: A

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32. The *IUPAC* name of the following compound



will be

- A. 3-Propyl-3-ene
- B. 3-Propyl-2-ene
- C. 3-Ethylhex-2-ene
- D. 4-Ethylhex-4-ene

Answer: C

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33. The *IUPAC* name of the following compound $Cl_3C - CH_2CHO$ is

A. 3,3,3-Trichloropropanal

B. 1,1,1-Trichloropropanal

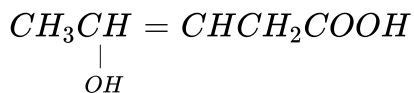
C. 2,2,2-Trichloropropanal

D. Chloral.

Answer: A

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34. The *IUPAC* name of the compound



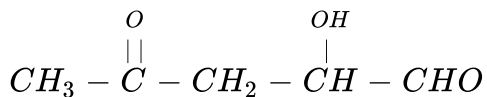
is

- A. Hydroxypentenoic acid
- B. 4-Hydroxypent-3-enoic acid
- C. 4-Hydroxypent-4-enoic acid
- D. 4-Hydroxy-4-methyl-3-enepentanoic acid

Answer: B

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35. The *IUPAC* name of



is

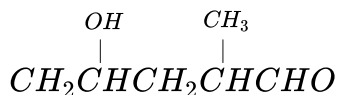
- A. 5-Oxo-4-hydroxy-2-pentanone
- B. 4-Hydroxy-5-al-2-pentanone
- C. 2-Hydroxy-4-oxopentanal
- D. 1-Al-4-oxo-2-pentanol

Answer: C



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36. The *IUPAC* name of



is



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37. The *IUPAC* name of $\text{CH}_3\text{OC}_2\text{H}_5$ is

- A. Methyl ethyl ether
- B. Ethyl methyl ether
- C. Methoxyethane
- D. Ethoxymethane.

Answer: C



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38. The IUPAC name for $CH_3CH_2CH_2CH(CH=CH_2)CH_2CH_2CH_3$ is

- A. 4-Ethenlyheptane
- B. 3-Propylhex-1-ene
- C. 4-Ethenylhexane
- D. 3-Ethyenylheptane

Answer: B



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39. The *IUPAC* name of tert-butyl chloride is

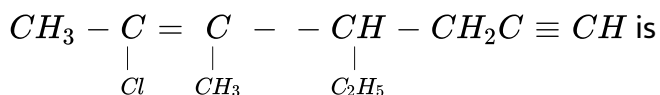
- A. 4-Chlorobutane
- B. 2-Chlorobutane
- C. 1-Chloro-3-methylpropane

D. 2-Chloro-2-methylpropane

Answer: D

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40. The IUPAC name of:

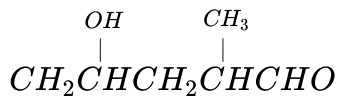


- A. 6-Chloro-4-ethyl-5-methyl hept-5-en-1-yne
- B. 6-Chloro-4-ethyl-5-methyl hept-1-yn-5-ene
- C. 2-Chloro-4-ethyl-3-methyl hept-2-en-6-yne
- D. 2-Chloro-4-ethyl-3-methyl hept-6-yn-2-ene.

Answer: A

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41. The *IUPAC* name of



is

- A. 4-Hydroxy-2-methylpentanal
- B. 2-Hydroxy-4-methylpentanal
- C. 2-Methylpent-4-01-1-al
- D. None of these

Answer: A



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42. The *IUPAC* name of acryldehyde is

- A. Prop-2-en-1-al
- B. Propenylaldehyde

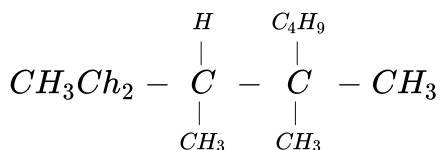
C. But-2-en-1-al

D. Propenal.

Answer: A

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43. The *IUPAC* name of



is

- A. 3,4,4-Trimethylheptane
- B. 3,4,4-Trimethyloctane
- C. 2-Butyl-2-methyl-3-ethylbutane
- D. 2-Ethyl-3,3-dimethylheptane.

Answer: B

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44. The IUPAC name of $CH_3CH = CHCOOC_2H_5$ is

- A. Ethyl but-1-enoate
- B. Ethyl but-2-enoate
- C. Ethyl prop-2-enoate
- D. None of these

Answer: B



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45. The IUPAC name of $CH_3 - \underset{\substack{| \\ C_2H_5}}{C} = CHCH_3$ is

- A. 2-Ethylbutene
- B. 2-Ethylbut-2-ene
- C. 3-Methylpent-2-ene

D. 3-Methylpent-3-ene

Answer: C

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46. The IUPAC name of $H - \overset{O}{\underset{|}{C}} - CH = O$ is

A. Formylmethanal

B. 1,2-Ethanedione

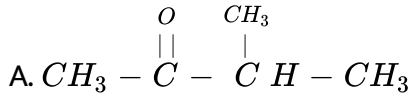
C. Formyl methanoate

D. Ethane-1,2-dial

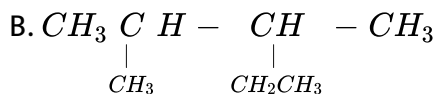
Answer: D

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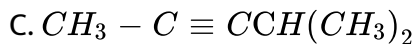
47. The incorrect IUPAC name is



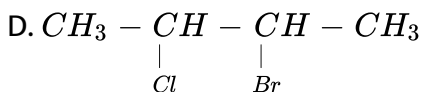
2-Methylbutan-3-ene



2,3-Dimethylpentane



4-Methylpent-2-yne

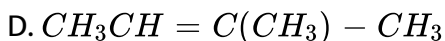
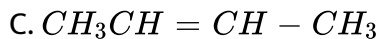
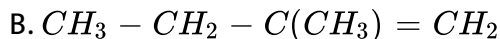


2-Bromo-3-chlorobutane

Answer: A

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48. The structural formula of 2-methyl-2-butene is



Answer: D



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49. IUPAC name of $CH_2 = CH - CN$ is

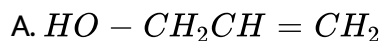
- A. Ethenenitrile
- B. Vinyl cyanide
- C. Cyanoethene
- D. 2-Propenenitrile

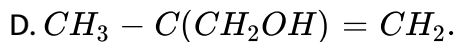
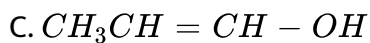
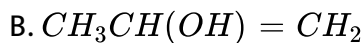
Answer: D



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50. Vinyl carbinol is

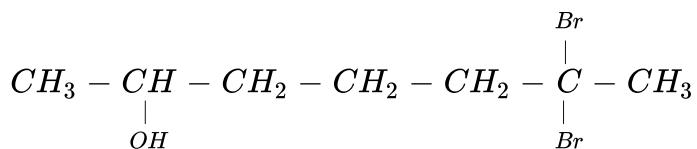




Answer: A

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51. The *IUPAC* name of



A. 6,6-Dibromoheptan-2-ol

B. 2,2-Dibromoheptan-2-ol

C. 6,6-Dibromoheptan-2-al

D. None of these

Answer: A





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52. The IUPAC name of the following $CH_3C(CH_3)_2CH_2CH = CH_2$ is

- A. 2,2-Dimethyl-4-pentene
- B. 4,4-Dimethyl-4-pentene
- C. 1,1,1-Trimethyl-1-butene
- D. 4,4,4-Trimethyl-1-butene.

Answer: B



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53. The IUPAC name of 4-isopropyl-m-xylene is

- A. 1-Isopropyl-2,4-dimethylbenzene
- B. 4-Isopropyl-m-xylene
- C. 4-Isopropyl-3,5-dimethylbenzene

D. 4-Isopropyl-3,5-dimethylbenzene

Answer: A

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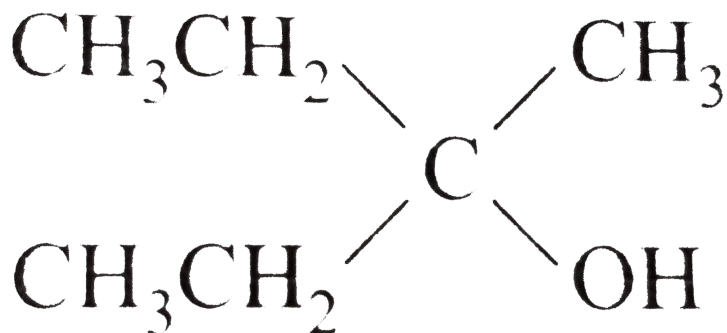
54. IUPAC nomenclature of the given organic compound $(CH_3)_2C(CH_2CH_3)CH_2CH(Cl)CH_3$ will be

- A. 5-Chloro-3,3-dimethylhexane
- B. 4-Chloro-2-ethyl-2-methylpentane
- C. 2-Chloro-4-ethyl-4methylpentane
- D. 2-Chloro-4,4-dimethylhexane.

Answer: D

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55. The correct nomenclature (*IUPAC*) for the following alcohol is

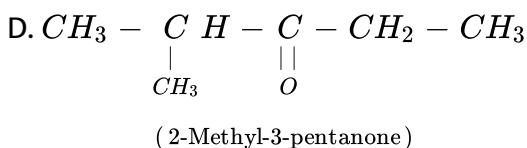
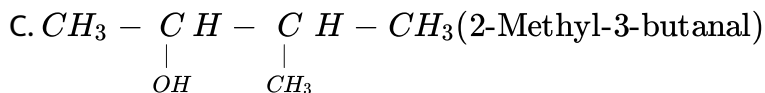
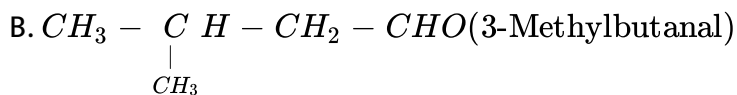
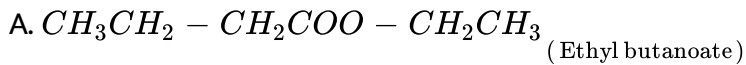


- A. 2-Ethyl-2-butanol
- B. 3-Methyl-3-pentanol
- C. 3-Ethyl-3-methyl-2-pentanol
- D. 1,1-Dimethylanol.

Answer: B

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56. Which of the following compound has wrong IUPAC name?



Answer: C



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57. The name of $Cl - CH_2 - \underset{\substack{| \\ Br}}{C} = \underset{\substack{| \\ Br}}{C} - CH_2 - Cl$ according to the

IUPAC nomenclature system is

A. 2,3-Dibromo-1,4-dichlorobutene-2

B. 1,4-Dichloro-2,3-dibromobutene-2

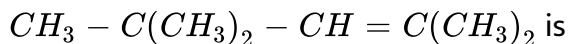
C. Dichlorodibromobutene

D. Dichlorodibromobutane

Answer: A

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58. The IUPAC name of the following compound



- A. 1,1,3,3-Tetramethylbut-1-ene
- B. 1,3,3-Trimethylpent-2-ene
- C. 2,2,4-Trimethylbut-4-ene
- D. 2,4,4-Trimethylpent-2-ene

Answer: D

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59. IUPAC name of 3-isopropyl-o-xylene is

A. 1-Isopropyl-2,4-dimethylbenzene

B. 4-Isopropyl-m-xylene

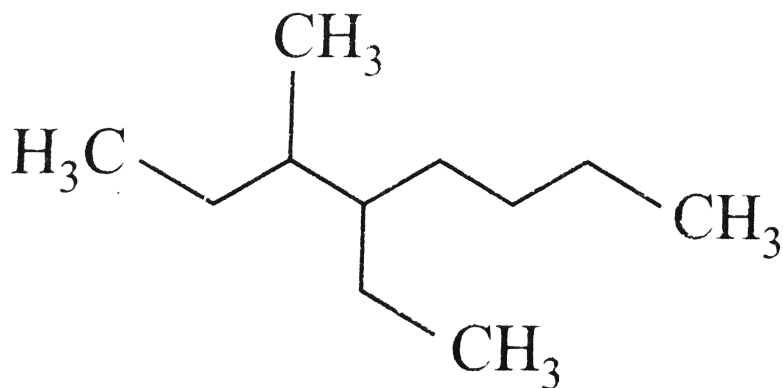
C. 1-Isopropyl-3,2-dimethylbenzene

D. 4-Isopropyl-3,5-dimethylbenzene

Answer: C

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60. Name of the compound given below is



A. 5-Ethyl-6-methyloctane

B. 4-Ethyl-3-methyloctane

C. 3-Methyl-4-ethyloctane

D. 2,3-diethylheptane.

Answer: B

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61. Decreasing order C-C bond length is (I) C_2H_4 , (II) C_2H_2

(III) C_6H_6 , (IV) C_2H_6

A. $IV > III > I > II$

B. $I > II > IV > III$

C. $II > I > IV > III$

D. $IV > I > III > II$.

Answer: A

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62. IUPAC name of $CH_2 = CH - CH(CH_3CH_2)C \equiv CH_2$ is
|
Br

- A. 4-Bromo-3-ethyl-1,4-pentadiene
- B. 2-Bromo-3-ethyl-1,4-pentadiene
- C. 2-Bromo-3-ethyl-1,5-pentadiene
- D. None of the above

Answer: B



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63. The IUPAC name of $CH_3COCH(CH_3)_2$ is

- A. Isopropyl methyl ketone
- B. 2-Methylisopropyl ketone
- C. 4-Methylisopropyl ketone

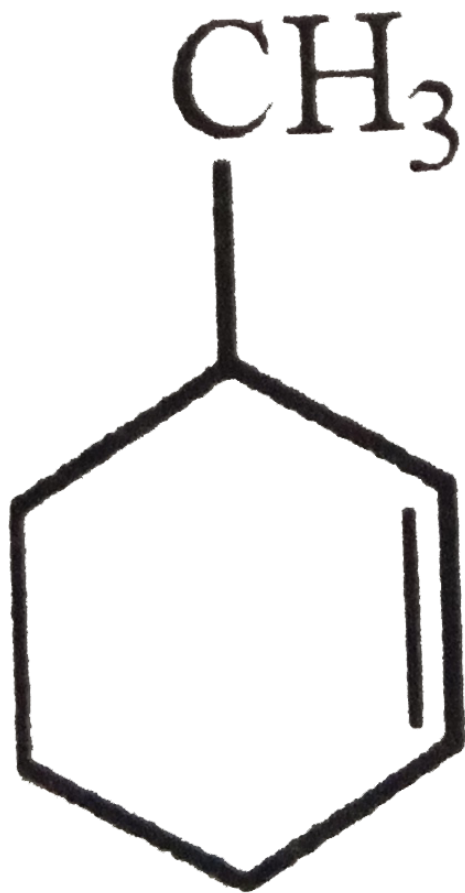
D. 3-Methyl-2-butanone.

Answer: D



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64. The IUPAC name of



A. 3-Methylcyclohexene

B. 1-Methylcyclohex-2-ene

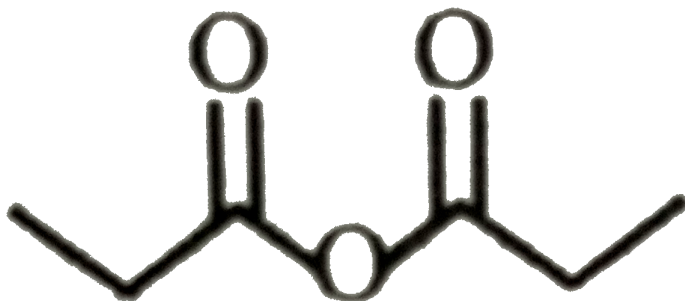
C. 6-Methylcyclohexene

D. 1-Methylcyclohex-5-ene.

Answer: A

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65. The IUPAC name of the following compound



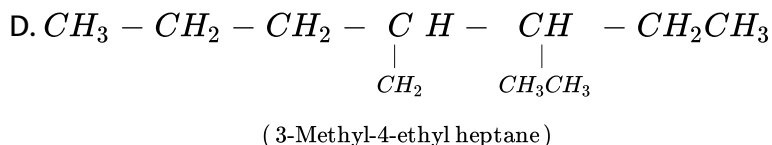
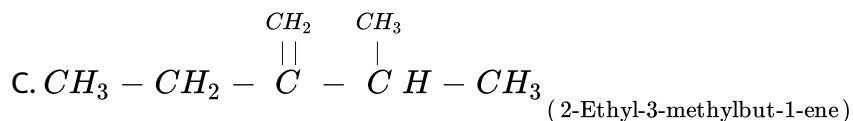
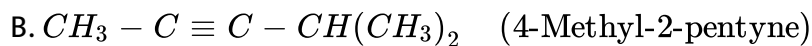
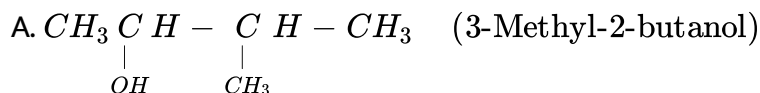
- A. Propionic anhydride
- B. Dipropionic anhydride
- C. Ethoxy propanoic acid
- D. Propanoic anhydride.

Answer: D



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66. The names of some compounds are given. Which one not in the IUPAC system?

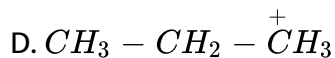
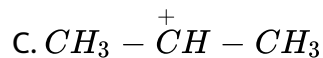
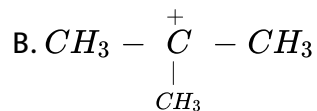
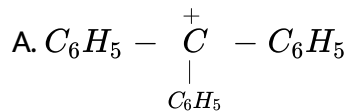


Answer: D



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67. Pick out the most stable carbonium ion:



Answer: A

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68. Electrophilic reagents are

- A. Electron pair donors
- B. Lewis acids
- C. Odd electron molecules
- D. None of the above

Answer: B



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69. Heterolytic cleavage of a covalent bond gives only,

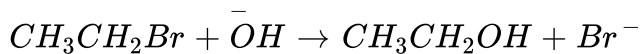
- A. Cationic species
- B. Anionic species
- C. Both the above
- D. Free radicals.

Answer: C



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70. The reaction



is an example of

- A. Electrophilic addition

B. Electrophilic substitution

C. Nucleophilic addition

D. Nucleophilic substitution

Answer: D

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71. Which of the following contains three pairs of electrons in the valence shell?

A. Carbocations

B. Carbanions

C. free radicals

D. None.

Answer: A

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72. Heterolysis of carbon-chlorine bond produces

- A. Two free radicals
- B. Two carbonium ions
- C. Two carbanions
- D. One cation and one anion.

Answer: D



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73. Which of the following is an electrophilic reagent ?

- A. RO^-
- B. BF_3
- C. NH_3
- D. ROH .

Answer: B

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74. The most stable carbonium ion is,

- A. Methyl carbonium ion
- B. Primary carbonium ion
- C. Secondary carbonium ion
- D. Tertiary carbonium ion.

Answer: D

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75. Homolytic fission of carbon-carbon bond of ethane produces an intermediate in which the carbon atom is in

A. sp^3 – hybridised

B. sp^2 – hybridised

C. sp-hybridised

D. sp^2 hybridised

Answer: B

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76. The typical reaction of olefinic bond is

A. Electrophilic substitution reactions

B. Electrophilic addition reactions

C. Nucleophilic substitution reactions

D. Nucleophilic addition reactions.

Answer: B

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77. The homolytic fission of hydrocarbon results in the formation of

- A. Carbonium ion
- B. Free radicals
- C. Carbanions
- D. carbenes.

Answer: B



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78. Which of the following is an example of elimination reaction?

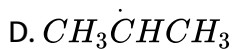
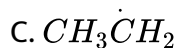
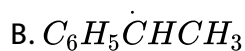
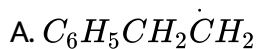
- A. Chlorination of methane
- B. Dehydration of ethanol
- C. Nitration of benzene

D. Hydroxylation of ethylene.

Answer: B

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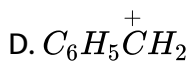
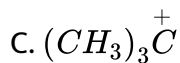
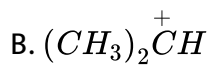
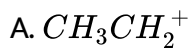
79. The most stable free radical among the following is



Answer: B

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80. Which of the following is the most stable carbocation (carbonium ion) ?



Answer: C

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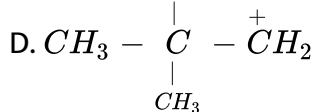
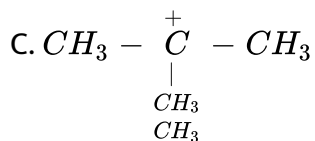
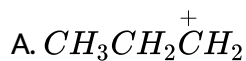
81. Which of the following is not a nucleophile?



Answer: D

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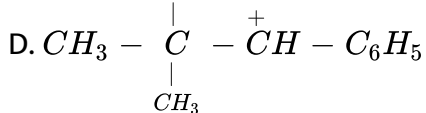
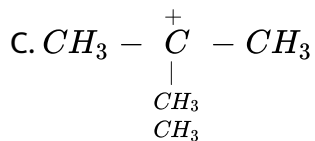
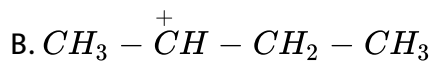
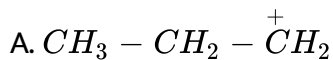
82. Which of the following ion is most stable ?



Answer: C

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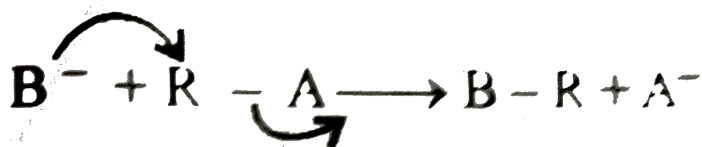
83. Which of the following is least stable ?



Answer: A

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84. To which of the following four types does this reaction belong ?



A. Unimolecular electrophilic substitution

B. Bimolecular electrophilic substitution

C. Unimolecular nucleophilic substitution

D. Bimolecular nucleophilic substitution.

Answer: D

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85. Which of the following statements is false about resonance contribution structures ?

- A. Contribution structures contribute to the resonance hybrid in proportion of their relative energies
- B. Equivalent contributing structures make the resonance very important
- C. Contributing structures represent molecules having no real existence
- D. Contributing structures are less stable than the resonance hybrid

Answer: B

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86. The order of decreasing stability of the carbanions :

$(CH_3)_3C^-$ (I), $(CH_3)_2CH^-$ (II), $CH_3CH_2^-$ (III), $C_6H_5CH_2^-$ (IV) is

A. $I > II > III > IV$

B. $IV > III > II > I$

C. $IV > I > II > III$

D. $I > II > IV > III$.

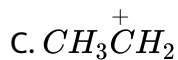
Answer: B

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87. The most stable carbonium ion among the following is

A. $C_6H_5\overset{+}{C}HC_6H_5$

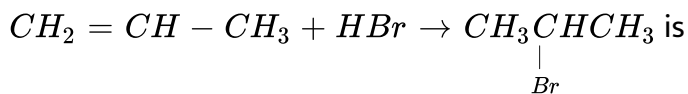
B. $C_6H_5\overset{+}{C}H_2$



Answer: A

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88. The reaction

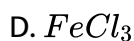


- A. Nucleophilic addition
- B. Electrophilic substitution
- C. Electrophilic addition
- D. Free radical addition.

Answer: C

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89. Electrophile in the case of chlorination of benzene in presence of $FeCl_3$ is

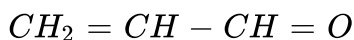
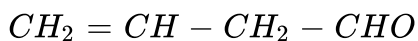


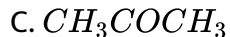
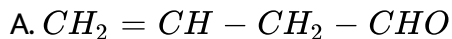
Answer: A



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90. Among the given molecule, what is the number of molecules which show resonance?

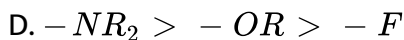
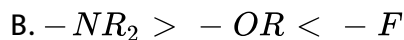
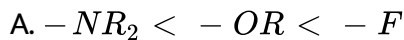




Answer: B

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91. Which of the following is correct regarding the -I-effect of the substituents ?



Answer: A

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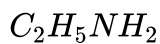
92. Heterolytic fission of a covalent bond in organic molecules gives

- A. Free radicals
- B. Cations and anions
- C. Only cations
- D. Only anions

Answer: B

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93. How many of the following species is/are electrophile?



A. H_2O

B. NH_3

C. $AlCl_3$

D. $C_2H_5NH_2$

Answer: C



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94. Point out incorrect statement about resonance

A. Resonance structures should have equal energy

B. In resonance structures, the constituent atoms must be in the same position

C. In resonance structures, there should not be same number of electron pairs

D. Resonance structures should differ only in the location of electrons around the constituent atoms.

Answer: C

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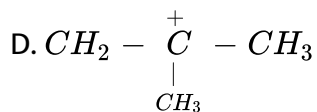
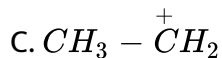
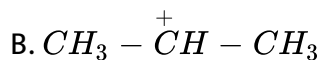
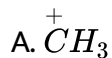
95. Which of the following is the active species in the nitration of aromatic organic compounds ?



Answer: B

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96. Which of the following is least stable carbonium ion ?

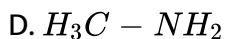
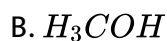


Answer: A



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97. Which of the following behaves both as a nucleophile and as an electrophile ?



Answer: A



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98. Intermediate involved in Reimer-Tiemann reaction is

- A. Carbocation
- B. Carbanion
- C. Carbene
- D. Free radical

Answer: C



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99. Among the following alkenes:

(1 - Butene, , *cis* - 2 - Butene, , *trans* - 2 - Butene,), (I,II,III)The stability order is

A. $III > II > I$

B. $III > I > II$

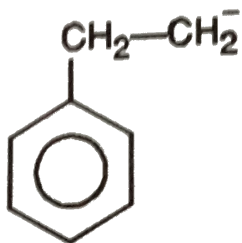
C. $I > II > III$

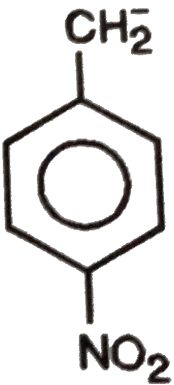
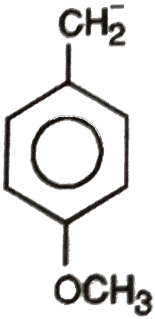
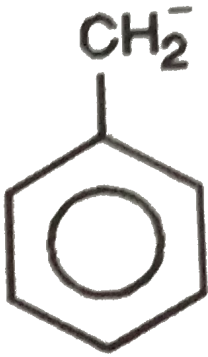
D. $II > I > III$

Answer: A

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100. Most stable carbanion among the following is





Answer: D



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101. The addition of HCN to carbonyl compounds is an example of

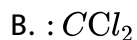
- A. nucleophilic substitution
- B. electrophilic addition
- C. nucleophilic addition
- D. electrophilic substitution

Answer: C



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102. For the reaction of phenol with $CHCl_3$ in presence of KOH , the electrophile is

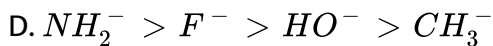
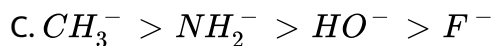
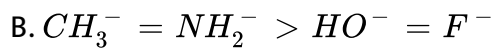
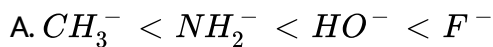


D. CCl_4

Answer: B

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103. Nucleophilicity order is correctly represented by



Answer: C

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104. In which of the following homolytic bond fission takes place ?

A. Alkaline hydrolysis of ethyl chloride

B. Addition of HBr to double bond

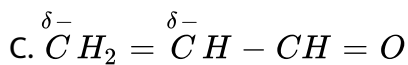
C. Photochlorination of methane

D. Nitration of benzene

Answer: C

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105. Polarization of electrons in acrolein may be written as:



Answer: D

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106. Select the most stable carbocation from amongst the following



A.



B.



C.



D.

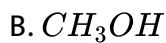
Answer: B



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107. Which of the following is not a nucleophile ?

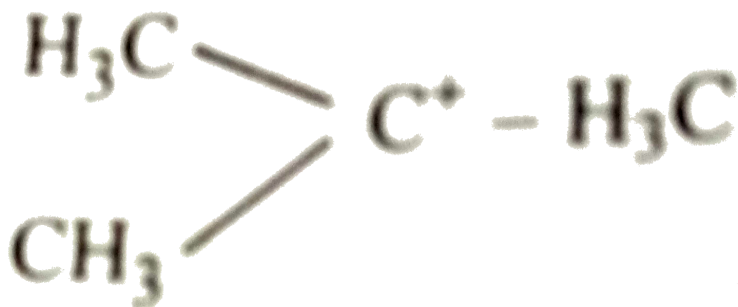
A. H_2O



Answer: C

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108. Among the following, the true property about



A. non-polar

B. C^+ is sp^2 -hybridized

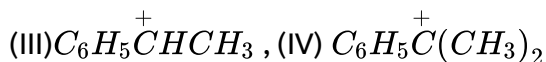
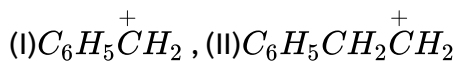
C. electrophile can attack C^+

D. does not undergo hydrolysis

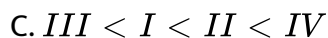
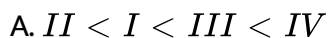
Answer: B

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109. Consider the following carbocations



The correct sequence for the stability of these is



Answer: A

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110. Intermediate formed during reaction of $RCONH_2$ with Br_2 and KOH are .

- A. $RCONHBr$ and $RNCO$
- B. $RNHCOBr$ and $RNCO$
- C. $RNHBr$ and $RCONHBr$
- D. $RCONBr_2$

Answer: A



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111. Acetaldehyde is the rearrangement product of

- A. Methyl alcohol
- B. Allyl alcohol
- C. Vinyl alcohol
- D. All are correct.

Answer: C

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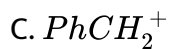
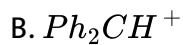
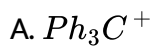
112. In the mechanism of Hoffmann reaction which intermediate rearranges to alkyl isocyanate ?

- A. Bromamide
- B. Nitrene
- C. Nitroso
- D. Amide.

Answer: B

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113. Which of the following is most stable ?



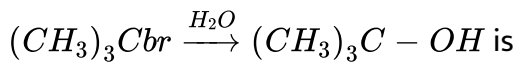
D. Troplium cation.

Answer: A



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114. The reaction



A. elimination reaction

B. substitution reaction

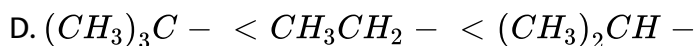
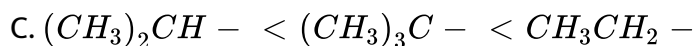
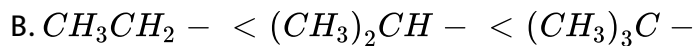
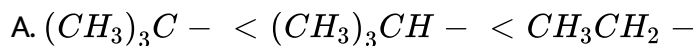
C. free radical reaction

D. displacement reaction

Answer: B

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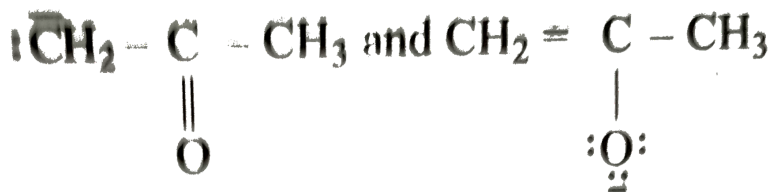
115. The arrangement of $(CH_3)_3C -$, $(CH_3)_2CH -$, $CH_3CH_2 -$ when attached a benzene or an unsaturated group in increasing order of inductive effect is:



Answer: C

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116. Choose the correct option which isomer for the given structure



A. Resonating structures

B. Tautomers

C. Geometrical isomers

D. Optical isomers.

Answer: A

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

- A. The energy required to break the C-H bond in benzene
- B. The energy required to break C-C bond in benzene
- C. The energy is a measure of stability of benzene
- D. The energy required to convert.

Answer: C

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118. The compound having only primary hydrogen atoms is

- A. Isobutene
- B. 2,3-Dimethylbutene
- C. Cyclohexane
- D. Propyne.

Answer: B

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119. Pick out the alkane which differs from the other members of the group

A. 2,2-Dimethylpropane

B. Pentane

C. 2-Methylbutane

D. 2,2-Dimethylbutane

Answer: D



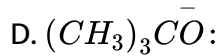
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120. The most reactive nucleophile among the following is

A. CH_3O^- :

B. $\text{C}_6\text{H}_5\text{O}^-$:

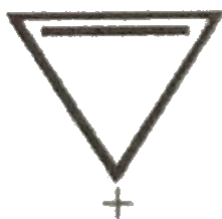
C. $(\text{CH}_3)_2\text{CHO}^-$:



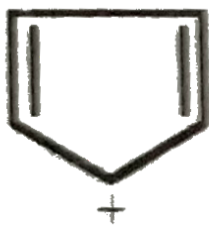
Answer: A

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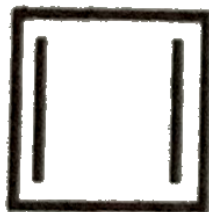
121. Among the following, the aromatic compound is



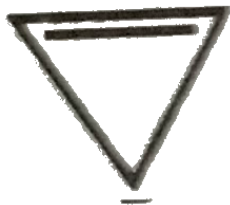
A.



B.



C.

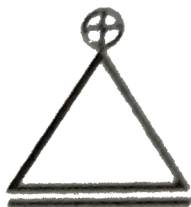


D.

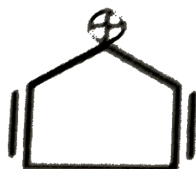
Answer: A

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122. Which of the following compound is anti aromatic ?



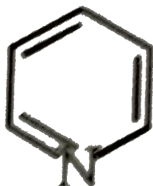
A.



B.



C.



D.

Answer: B



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123. The number and type of bonds between two carbon atoms in calcium carbide are

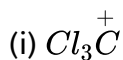
- A. One sigma, one pi
- B. One sigma, two pi
- C. Two sigma, one pi

D. Two sigma, two pi.

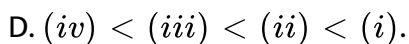
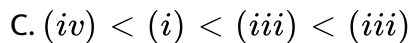
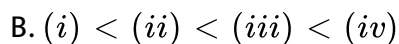
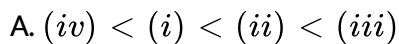
Answer: B

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124. Consider the following carbocation:



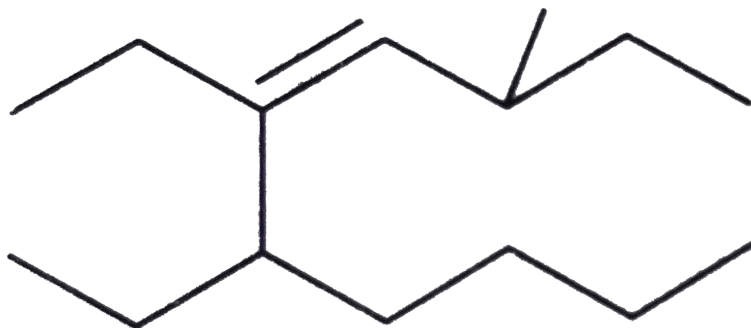
(ii) $\text{Cl}_2\text{C}^+\text{H}$, (iii) ClC^+H_2 , (iv) C^+H_3 The stability order is



Answer: B

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125. Consider the following compound:



The *IUPAC* name of the this compound is

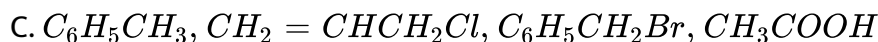
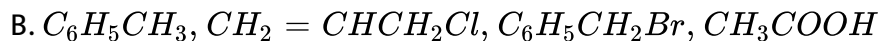
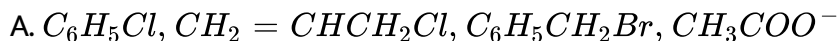
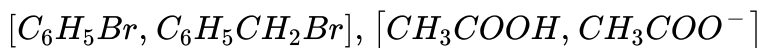
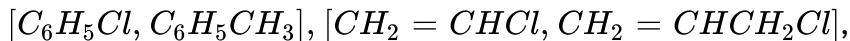
- A. 5,6-diethyl-3-methyldecane
- B. 5,6-diethyl-3-methyldec-4-ene
- C. 3,5,6-triethyldec-6-ene
- D. 3,5,6-trimethyldec-6-ene

Answer: B



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126. Which species are more resonance stabilized in the following pairs:



Answer: B



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127. Inductive effect involves :

A. displacement of σ electrons

B. delocalization of π electrons

C. delocalization of σ -electrons

D. displacement of π -electrons

Answer: A

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128. Consider the following compounds

(i) Chloroethane (ii) Benzene (iii) 1,3-butadiene (iv) 1,3,5-hexatriene

All the carbon atoms are sp^2 hybridized in

A. (i),(iii),(iv),only

B. (i),(ii), only

C. (ii),(iii),(iv),only

D. (iii),(iv),only

Answer: D

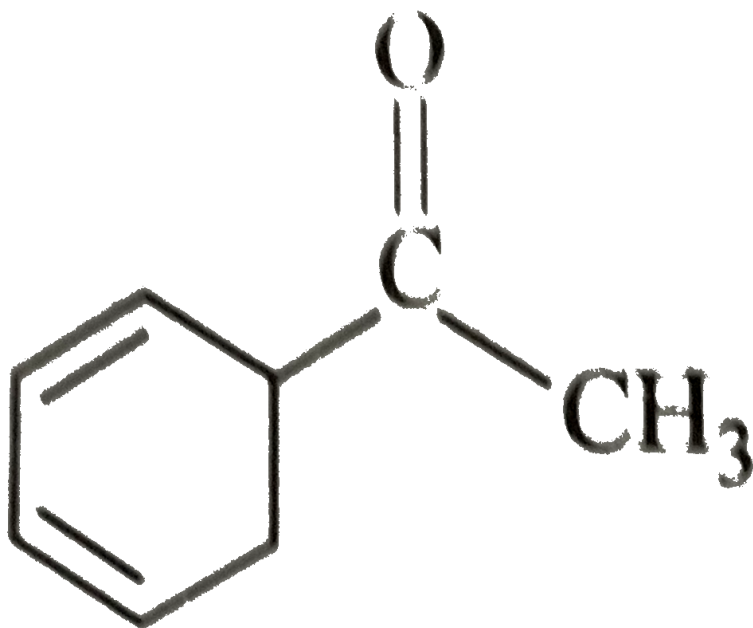
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129.

IUPAC

name

of



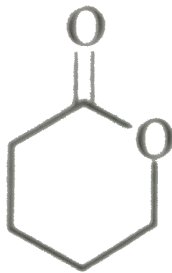
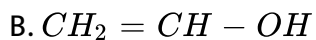
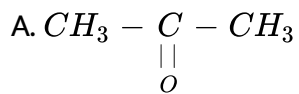
- A. acetyl cyclo hexadiene
- B. 1-cyclohexa-2,4-dienylethanone
- C. 1-cyclohexa-2,4-dienylethanone
- D.

Answer: B

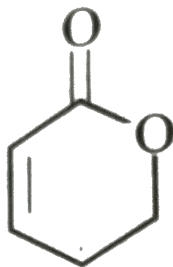


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130. Which one of the following compounds cannot show tautomerism?



C.

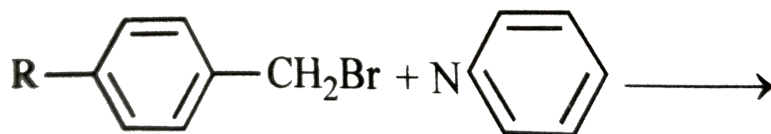


D.

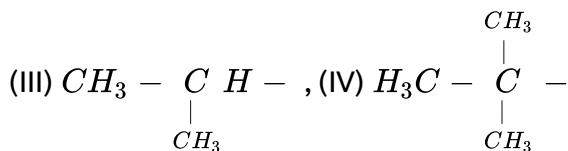
Answer: D

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131. The rate of the reaction



is influenced by the hyperconjugation effect of group R. If R is sequentially



the increasing order of speed of above reaction is

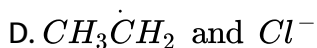
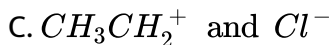
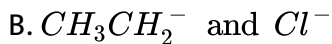
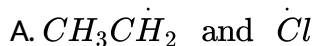
- A. IV,III,II,I
- B. I,II,III,IV
- C. I,IV,III,II
- D. III,II,I,IV

Answer: B



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132. CH_3CH_2Cl undergoes homolytic fission to produce



Answer: A



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133. The number of σ bonds, π bonds and lone pair

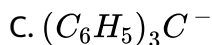
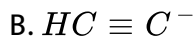
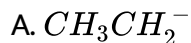


D. None of these

Answer: A

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134. Which one of the following carbanions is the least stable



Answer: D

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135. An alkyne combines with a conjugated diene to give an unconjugated cycloalkadiene. The most likely title of this reaction is

- A. Schotten Baumann reaction
- B. Hoffmann-bromamide reaction
- C. Pinacol-colone rearrangement
- D. Diels-Alder reaction.

Answer: D

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136. The enolic form of butanone contains

- A. 12σ bonds , 1π bond and 2 lone pairs of electrons
- B. 11σ bonds , 1π bond and 2 lone pairs of electrons
- C. 12σ bonds , 1π bond and 1 lone pair of electrons
- D. 10σ bonds , 2π bonds and 2 lone pairs of electrons.

Answer: B

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137. Which among the following statements are true with respect to electronic displacement in a covalent bond?

- (1) Inductive effect operates through a π - bond
- (2) Resonance effect operates through a σ -bond
- (3) Inductive effect operates through a σ -bond
- (4) Resonance effect operates through a π – bond
- (5) Resonance and inductive effects operate through σ -bond

A. 3 and 4

B. 1 and 2

C. 2 and 4

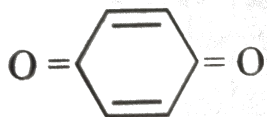
D. 1 and 3

Answer: A



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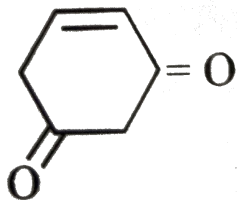
138. Which of the following does not exhibit tautomerism?



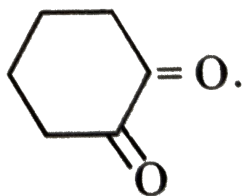
A.



B.



C.



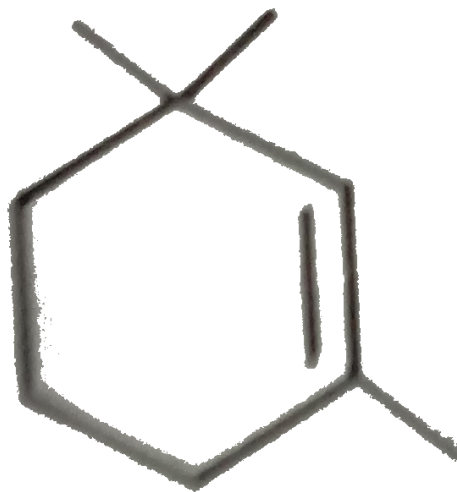
D.

Answer: A



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139. Give the IUPAC name of the compound



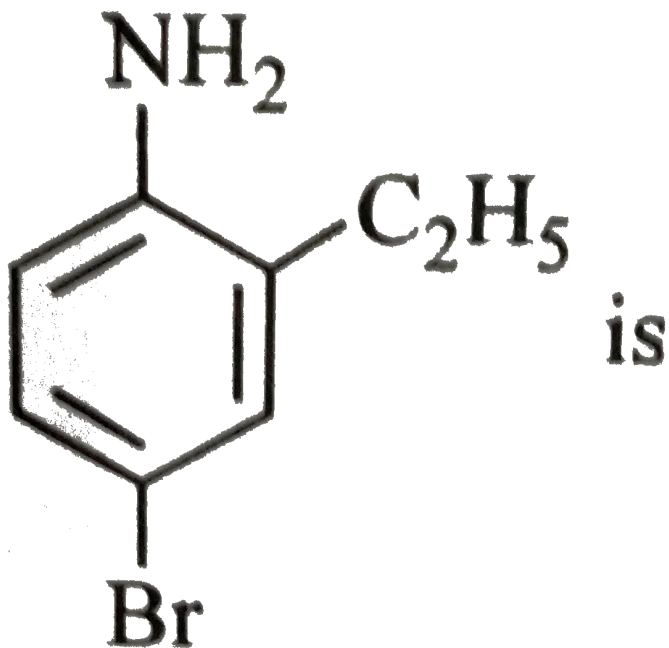
- A. 1,1,3-Trimethyl cyclohex-2 ene
- B. 1,3,3-Trimethyl cyclohex-1 ene
- C. 1,1,5-Trimethyl cyclohex-5 ene
- D. 2,6,6-Trimethyl cyclohex-1-ene.

Answer: B



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140. The latest IUPAC name of the following compound



- A. 2-Ethyl-4-bromoaniline
- B. 4-Bromo-2-ethylaniline
- C. 4-Bromo-2-ethylbenzene amine
- D. 2-Ethyl-4-bromobenzene amine.

Answer: C

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141. IUPAC name of $(CH_3)_3Cl$ is

- A. n-butyl chloride
- B. 3-chloro butane
- C. 2-chloro-2 methyl propane
- D. t-butyl chloride.

Answer: C

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142. In the compound $HC \equiv C - CH = CH_2$, the hybridizations of $C - 2$ and $C - 3$ carbons are, respectively,

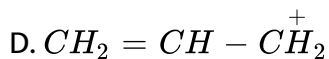
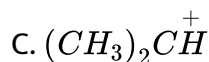
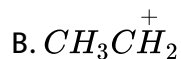
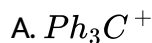
- A. sp^2 and sp^3
- B. sp^2 and sp^3
- C. sp^2 and sp
- D. sp^3 and sp

Answer: C



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143. Which of the following carbocations will be the most stable?



Answer: A



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144. Arrange the following free radicals in the order of decreasing stability: methyl (*I*), vinyl (*II*), allyl (*III*), benzyl (*IV*)

A. $I > II > III > IV$

B. $III > II > I > IV$

C. $II > I > IV > III$

D. $IV > III > I > II$.

Answer: D



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145. Which isomer of hexane has only two different sets of structurally equivalent hydrogen atoms?

A. 2,2-dimethyl butane

B. 2-methyl pentane

C. 3-methyl pentane

D. 2,3-dimethyl butane.

Answer: D

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146. The number of primary, secondary and tertiary carbons in 3,4-dimethylheptane are

- A. 4, 3 and 2
- B. 2, 3 and 4
- C. 4, 2 and 3
- D. 3, 4 and 2

Answer: A

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147. Which of the following is a 3 methyl butyl group.

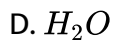
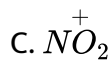
- A. $CH_3CH_2CH_2CH_2CH_2$
- B. $(CH_3CH_2)_2CH^-$



Answer: D

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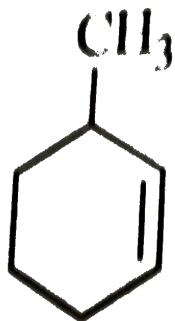
148. An example of electrophile is



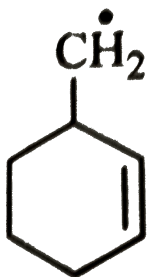
Answer: C

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149. Which among the following free radicals is most stable



A.



B.

C. $\dot{\text{C}}\text{H}_3$



D.

Answer: A



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150. The molecule which is free from angular strain is

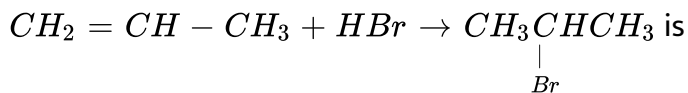
- A. Cyclo propane
- B. Cyclo butane
- C. Cyclo pentane
- D. Cyclo hexane

Answer: D



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151. The reaction



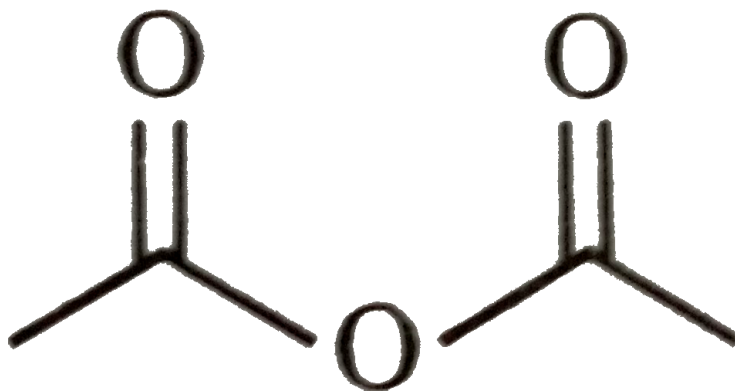
- A. Nucleophilic addition
- B. Electrophilic substitution

C. Electrophilic addition

D. Free radical addition.

Answer: C

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152.

IUPAC

name is

A. 2,4-butane dione

B. ethanoic anhydride

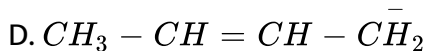
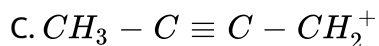
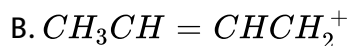
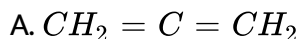
C. ethoxyl ethanone

D. acetic anhydride.

Answer: B

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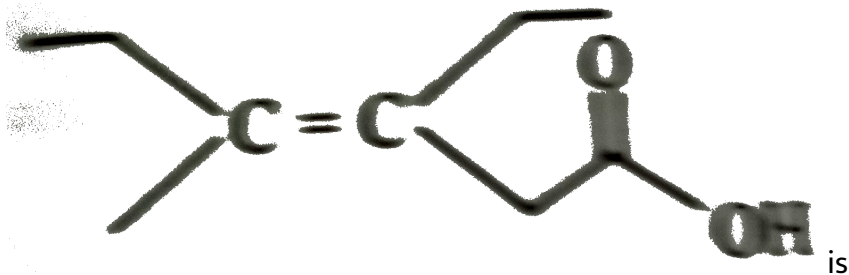
153. In which of the following species, all the three types of hybrid carbons are present ?



Answer: C

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154. The correct IUPAC name of the acid



A. z-3-ethyl-4-methyl hex-3-en-1-oic acid

B. E-3-ethyl-4-methyl hex-3-en-1-oic acid

C. 2,3,4, diethylpent-3-en-1-oic acid

D. E-3-ethyl-4-methyl hex-4-en-1-oic acid

Answer: B

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155. How many σ (sigma) bonds are there in $CH_2 = CH - CH = CH_2$?

A. 3

B. 6

C. 9

D. 12

Answer: C



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156. The common names of the lower fatty acids are obtained from

A. their parent hydrocarbon

B. their reduction products

C. the sources from which they are obtained

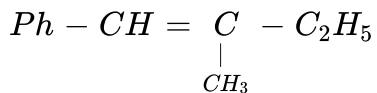
D. IUPAC names.

Answer: C



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157. How many σ and π bonds are present in the given compound



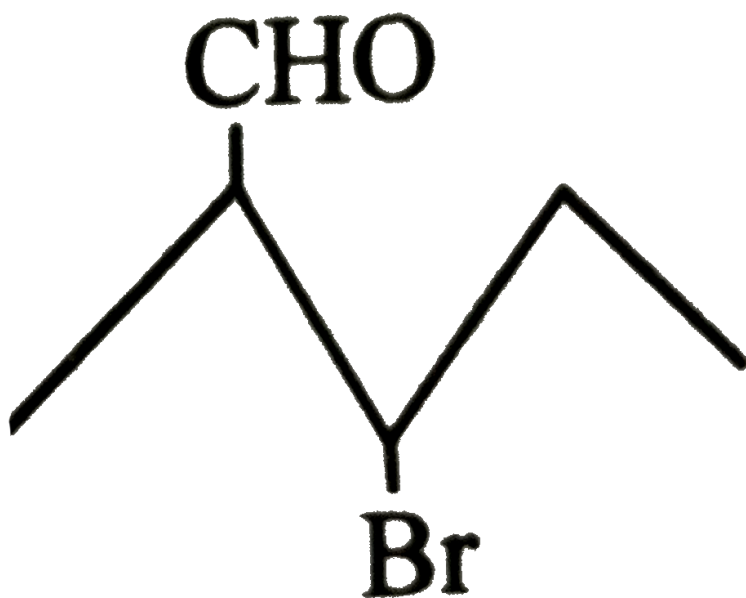
- A. 19σ and 4π bonds
- B. 22σ and 4π bonds
- C. 25σ and 4π bonds
- D. 26σ and 4π bonds.

Answer: A



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158. The IUPAC name of



- A. 2-methyl-3-bromohexanal
- B. 3-bromo-2-methylbutanal
- C. 2-methyl-3-bromobutanal
- D. 3-bromo-2-methylpentanal.

Answer: D

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159. Which one of the following forms propanenitrile as the major product ?

- A. Ethyl bromide + alcoholic KCN
- B. Propyl bromide + alcoholic KCN
- C. Propyl bromide + alcoholic AgCN
- D. Ethyl bromide + alcoholic AgCN.

Answer: A

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160. All carbon atoms sp^2 hybridised in

- A. 1,3-butadiene
- B. $CH_2=C=CH_2$
- C. Cyclohexane

D. 2-butene

Answer: A



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161. Hyperconjugation is most useful for stabilizing which of the following carbocations?

A. neo-Propyl

B. tert-Butyl

C. iso-Propyl

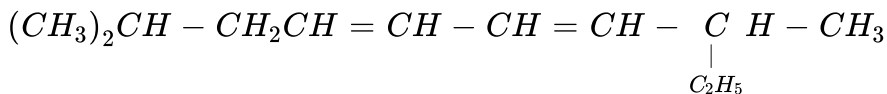
D. Ethyl

Answer: B



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162. The IUPAC name of the following compound is



- A. 1,1,7,7-tetramethyl-2,5-octadiene
- B. 2,8-dimethyl-3,6-decadiene
- C. 1,5-di-iso-propyl-1,4-hexadiene
- D. 3,9-dimethyl-1,6-decadiene

Answer: D



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163. IUPAC name of the $CH_3 - CH(Br) - CH(CH_3) + COOH$ is

- A. 2-Bromo-3-methyl butanoic acid
- B. 1-Bromo-3-methyl butanoic acid
- C. 2-Bromo-3-methyl butane

D. 3-Bromo-2-methyl butanoic acid

Answer: D

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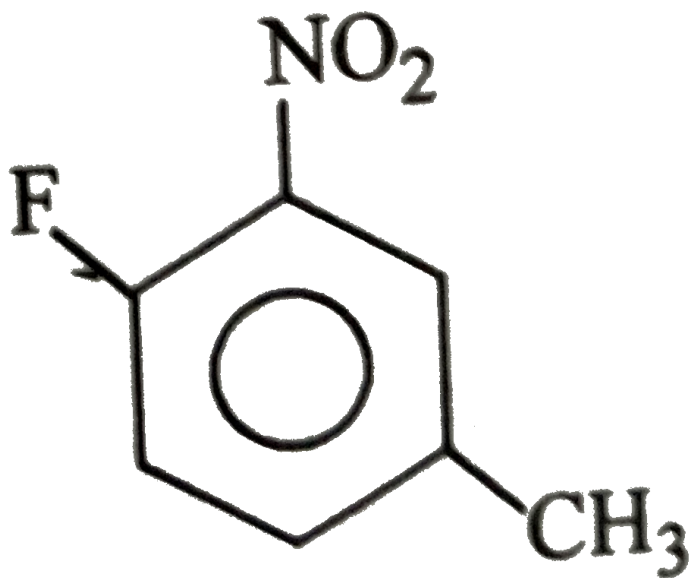
164. Stability of iso-butylene can be best explained by

- A. inductive effect
- B. Mesomeric effect
- C. hyperconjugative effect
- D. steric effect.

Answer: C

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165. IUPAC name of the compound is



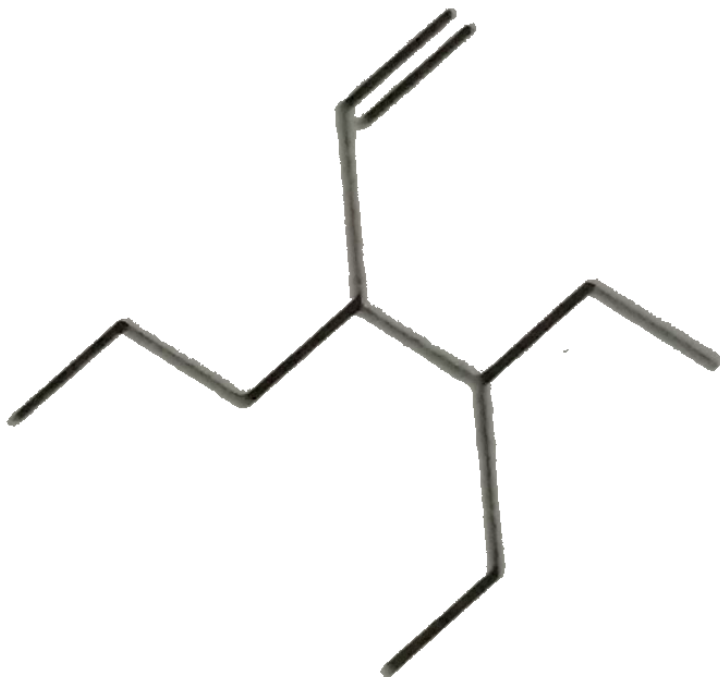
- A. 1-fluoro-4-methyl-2-nitrobenzene
- B. 4-fluoro-1methyl-3-nitorbenzene
- C. 4-methyl-1-fluoro-2-nitrobenzene
- D. 2-Fluoro-5-methyl-1-nitrobenzene.

Answer: A



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166. The correct IUPAC name of the compound

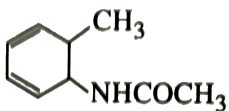


- A. 3-ethyl-4-propylhex-5-ene
- B. 3-ethyl propylhex-1-ene
- C. 4-ethyl-3-propylhex-1-ene
- D. 3-ethyl-4-ethenylheptane.

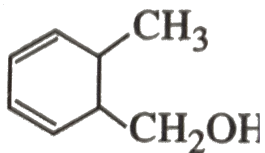
Answer: A



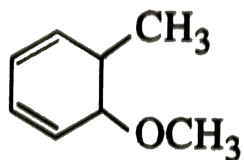
167. Which one of the following is most reactive towards electrophilic reagent ?



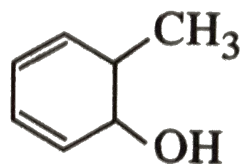
A.



B.



C.



D.

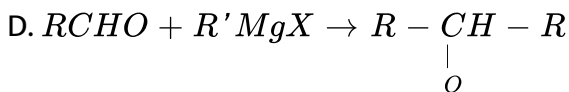
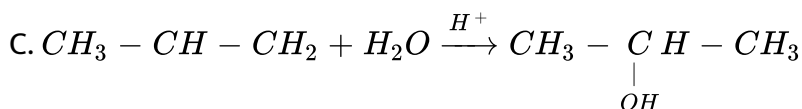
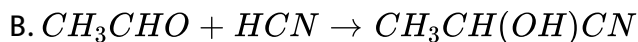
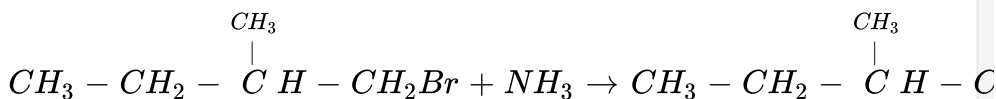
Answer: D



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168. Which one is a nucleophilic substitution reaction among the following?

A.

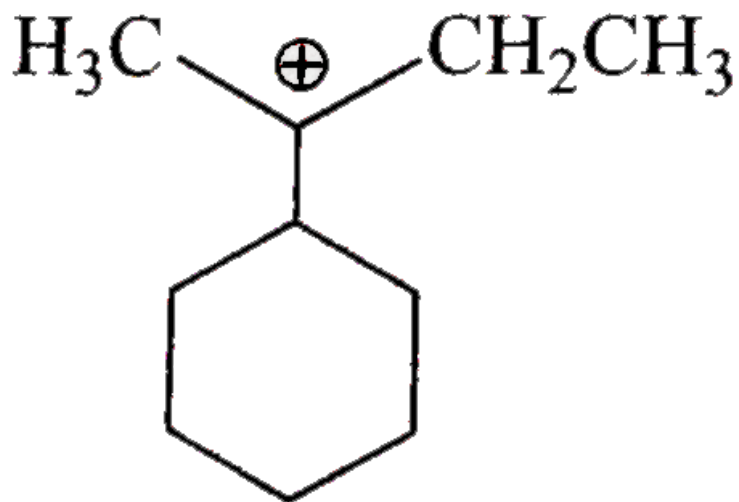


Answer: A

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169. The total number of contributing structures showing hyperconjugation (involving $C - H$ bonds) for the following carbocation

is



A. 6

B. 5

C. 4

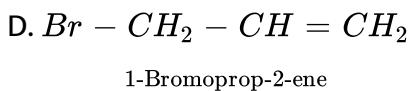
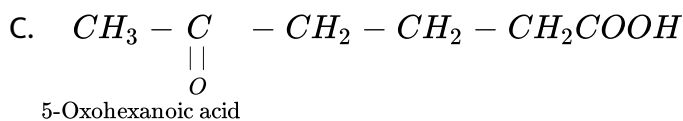
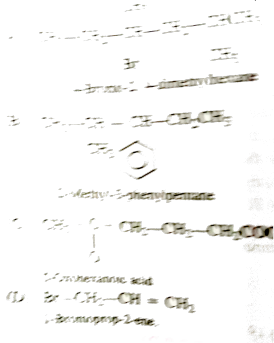
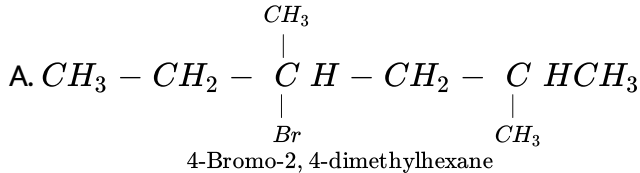
D. 3

Answer: A



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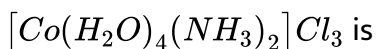
170. Which nomenclature is not according to IUPAC system ?



Answer: D

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171. As per IUPAC nomenclature, the name of the complex



A. tetraaquadiaminocobalt(III) chloride

B. tetraaquadiammincobalt(III) chloride

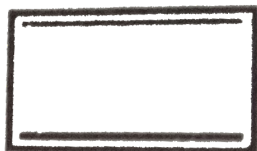
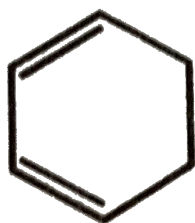
C. diamineteraaquacobalt(III) chloride

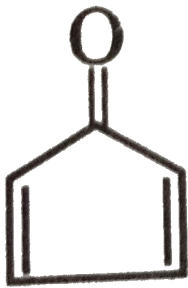
D. diamminetetraaquacobalt(III) chloride

Answer: D

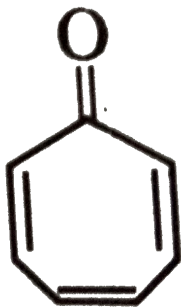
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172. Which of the following molecules, in pure form, is /are stable at room temperature?





C.

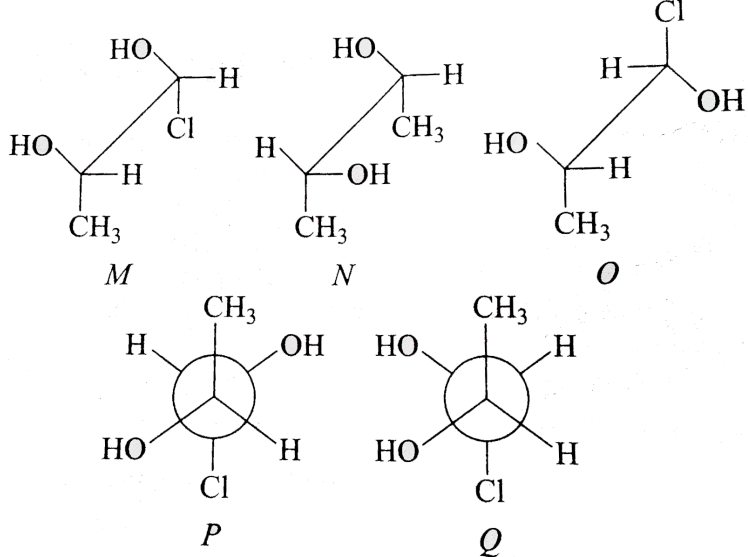


D.

Answer: B::C

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173. Which of the given statement(s) about N, O, P and Q with respect to M is/are correct?

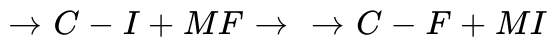


- A. M and N are non-mirror image stereoisomers
- B. M and O are identical
- C. M and P are enantiomers
- D. M and Q are identical.

Answer: A::B::C

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174. In the replacement reaction



The reaction will be most favourable if M happens to be

A. Na

B. K

C. Rb

D. Li

Answer: C

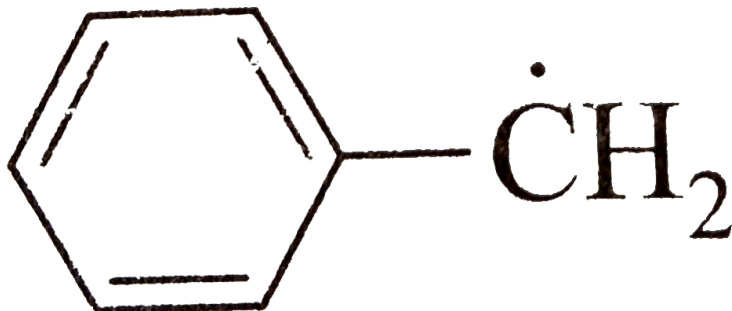


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175.

The

radical



is aromatic

because it has

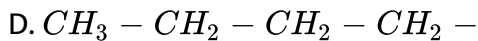
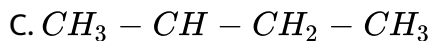
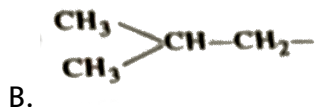
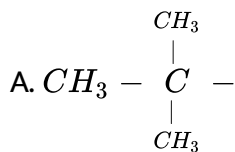
- A. 6 p-orbitals and 7 unpaired electrons
- B. 6 p-orbitals and 6 unpaired electrons
- C. 7 p-orbitals and 6 unpaired electrons
- D. 7 p-orbitals and 7 unpaired electrons.

Answer: B



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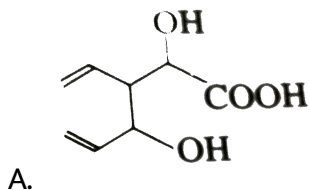
176. The structure of isobutyl group in an organic compound is

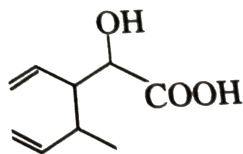


Answer: B

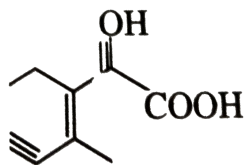
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177. Structure of the compound whose *IUPAC* name is 3-ethyl-2-hydroxy-4-methylhex-3-en-5-ynoic acid is

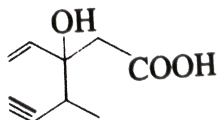




B.



C.



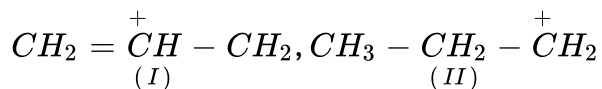
D.

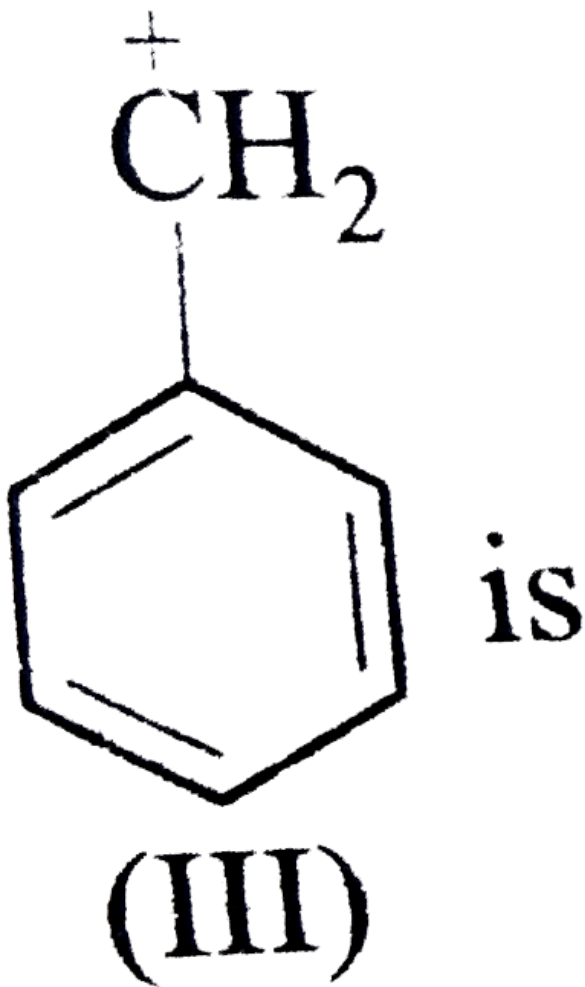
Answer: C



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178. The order of stability of the following carbocations





A. $I > II > III$

B. $III > I > II$

C. $III > II > I$

D. $II > III > I$.

Answer: B

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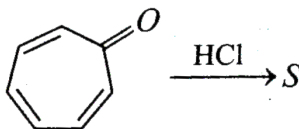
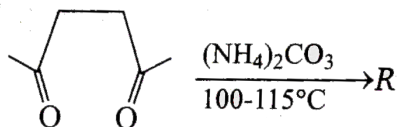
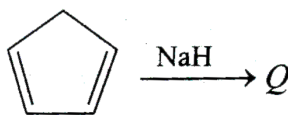
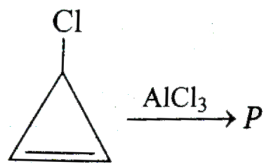
179. The hyperconjugative stabilities of tert-butyl cation and 2-butene, respectively, are due to

- A. $\sigma \rightarrow p$ (empty) and $\sigma \rightarrow \pi^*$ electron delocalisations
- B. $\sigma \rightarrow \sigma^*$ and $\sigma \rightarrow \pi$ electron delocalisation
- C. $\sigma \rightarrow p$ (filled) and $\sigma \rightarrow \pi$ electron delocalisations
- D. p (filled) $\rightarrow \sigma^*$ and $\sigma \rightarrow \pi^*$ electron delocalisations.

Answer: A

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180. Among P, Q, R and S, the aromatic compounds(s) is/are



A. P

B. Q

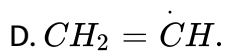
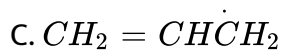
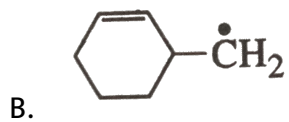
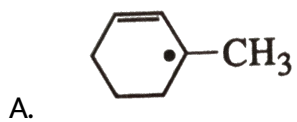
C. R

D. S

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

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181. Most stable radical is

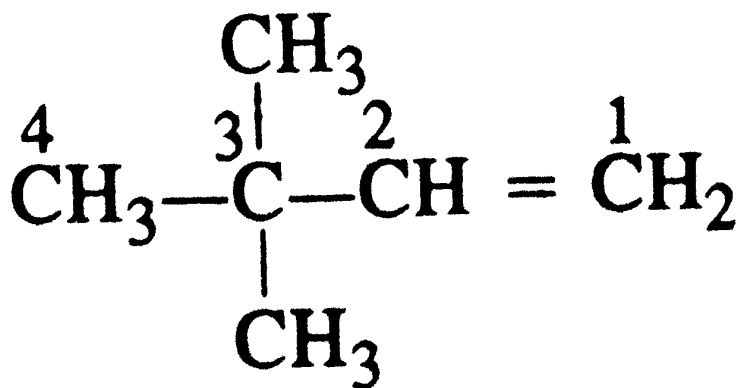


Answer: C



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182. The IUPAC name of the following compound is :



A. 3, 3, 3-Trimethyl-1-propene

B. 3, 3-Dimethyl-1-butene

C. 1, 1, 1-Trimethyl-2-propene

D. 2,2-Dimethyl-3-butene.

Answer: B

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183. The which is not used as gaseous fuel :

- A. gasoline
- B. acetylene
- C. carbon monoxide
- D. methane

Answer: A



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184. The petrol of octane number 80 has :

- A. 80% n-heptane + 20% iso-octane
- B. 20% n-heptane + 80% iso-octane
- C. 20% n-heptane + 80% n-octane
- D. 80% n-heptane + 20% n-octane

Answer: B

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185. Which of the following is not a an allylic halide ?

- A. 4-Bromopent-2-ene
- B. 3-Bromo-2-methylbut-1-ene
- C. 4-Bromobut-1-ene
- D. 3-Bromo-2-methylpropene.

Answer: D

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186. Which one of the following is not correct in respect to hybridization of orbitals ?

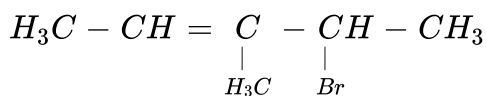
- A. The orbitals present in the valence shell only are hybridized.
- B. The orbitals undergoing hybridization have almost equal energy
- C. Promotion of electron is not essential condition for hybridization
- D. It is not always that only partially filled orbitals participate in hybridization, in some cases even filled orbitals in valence shell take part

Answer: D



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187. The correct IUPAC name of the following compound is :



- A. 4-Bromo-3-methylpent-2-ene
- B. 2-Bromo-3-methylpent-4-ene
- C. 3-Methyl-4-bromopent-2-ene

D. 3-Methyl-2-bromopent-4-ene

Answer: A

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188. IUPAC name of $\overset{5}{\text{C}}\text{H}_3 - \overset{4}{\underset{\text{OH}}{\text{C}}}\text{H} - \overset{3}{\text{C}}\text{H}_2 - \overset{2}{\underset{\text{COOH}}{\text{C}}}\text{H} - \overset{1}{\text{C}}\text{H}_3$ is

A. 4-Hydroxy-1 methylpentanoic acid

B. 4-Hydroxy-2 methylpentanoic acid

C. 2-Hydroxy-4 methylpentanoic acid

D. 2-Hydroxy-2 methylpentanoic acid

Answer: B

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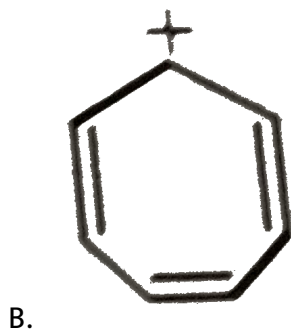
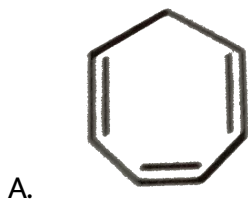
189. Mesomeric effect involves

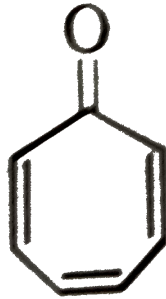
- A. delocalisation of π -electrons
- B. delocalisation of σ -electrons
- C. partial displacement of electrons
- D. delocalisation of π and σ -electrons.

Answer: A

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190. Which of the following is an aromatic species ?





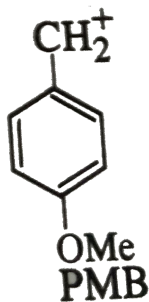
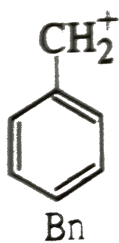
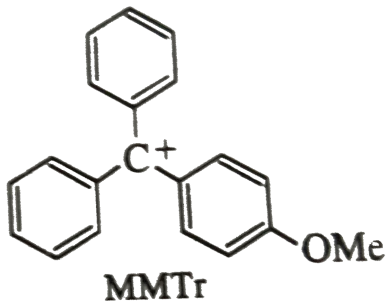
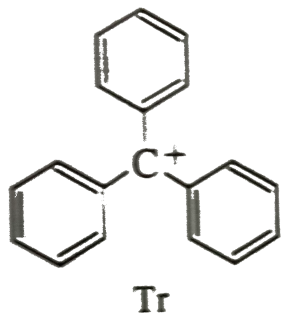
C.

D. None of the above

Answer: B

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191. The relative stability of the following carbocations in decreasing order will be



A. $Tr > MMTr > Bn > PMB$

B. $MMTr > Tr > PMB > Bn$

C. $MMTr > Tr > Bn > PMB$

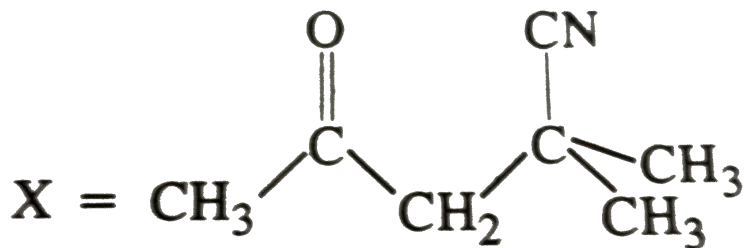
D. $PMB > Bn > MMTr > Tr$.

Answer: B



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192. The IUPAC name of the compound X is



- A. 4-cyano-4-methyl-2-oxopentane
- B. 2-cyano-2-methyl-4-oxopentane
- C. 2,2-dimethyl-4-oxopentanenitrile
- D. 4-cyano-4-methyl-2-pentanone.

Answer: C

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SELECTED STRAIGHT OBJECTIVE TYPE MCQS

1. The correct IUPAC name(s) of $ClCH_2 - CH_2 - NH - CH_2 - CH_2 - CH_3$

- A. 2-Chloroethylaminoethane
- B. (2-Chloroethyl)(propyl)amine
- C. N-(2-Chloroethyl)propan-1-amine
- D. N-(2-Chloroethyl)propylamine.

Answer: B::C::D

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2. The correct IUPAC name(s) of $CH_3 - CH_2 - CH_2 - CH_2 - \overset{CH_3}{\underset{|}{N}} - CH_2 - CH_3$ is (are)

- A. N-Ethyl-N-methylbutan-1-amine
- B. N-Ethyl-N-methylaminobutane

C. N-Ethyl-N-methylbutylamine

D. Butyl(ethyl) methylamine.

Answer: A::C::D

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3. The correct IUPAC name(s) of $CH_3 - CH_2 - NH_2$ (are)

A. Aminoethane

B. Ethylazide

C. Ethanamine

D. Ethylamine.

Answer: B::C::D

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4. The correct IUPAC name(s) of $OHC - CH_2 - \overset{CH_3}{\underset{|}{C}}H - COOH$ is (are)

- A. 3-Carboxylbutanal
- B. 3-Formyl-2-methylpropanoic acid
- C. 3-Formyl-2-methylbutanoic acid
- D. 2-Methyl-4-oxobutanoic acid.

Answer: B::D

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5. The correct IUPAC name(s) of

$H - \overset{O}{\parallel}C - CH_2 - CH_2 - \overset{O}{\parallel}C - CH_2 - COOH$ is (are)

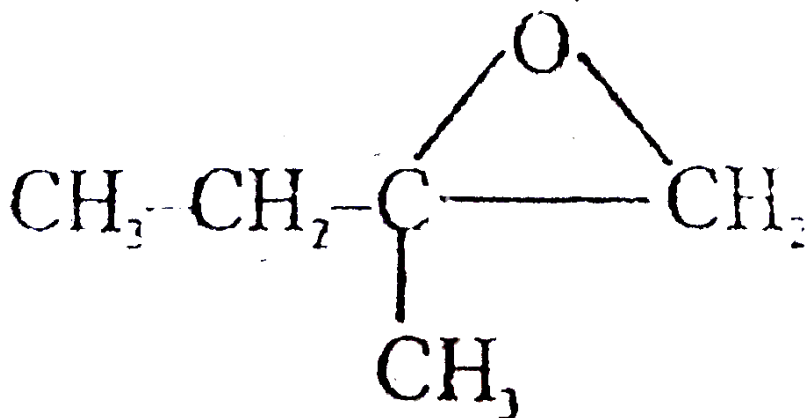
- A. 3,6-Dioxohexanoic acid
- B. 5-Formyl-3-oxohexanoic acid
- C. 6-Formyl-3-oxohexanoic acid

D. 5-Formyl-3-oxopentanoic acid

Answer: A::D

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6. The compound



may be

named as : —

A. 2-Ethyl-2-methoxirane

B. 1,2-Oxapentane

C. 1,2-Epoxy-2-methylbutane

D. 2-Methyl-1, 2-butoxide.

Answer: A::C

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7. The compound $CH_3 - \overset{OH}{\underset{|}{C}}H - CH_3$ can be named as

A. Propan-2-ol

B. Dimethylcarbinol

C. Isopropyl alcohol

D. 1-Methylethanol.

Answer: A::B::C

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8. The compound $(CH_3)_3COH$ can be named as

- A. Trimethyl cabinol
- B. 1,1,1-Trimethyl Imethanol
- C. tert-Butyl alcohol
- D. 2-Methyl-2-propanol.

Answer: A::C::D

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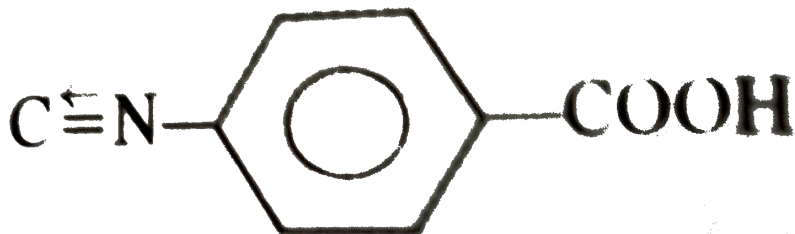
9. The correct IUPAC name of $C_6H_5 - NC$ is

- A. Phenyl carbylamine
- B. Phenyl isonitrile
- C. Phenyl isocyanide
- D. None of these

Answer: C

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10. The correct IUPAC name of



- A. 4-Isocyanobenzoic acid
- B. 4-Carbylaminebenzoic acid
- C. 4-Isonitrilebenzoic acid
- D. None of these

Answer: A

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11. The IUPAC name of diglyme is

- A. 1-Ethoxypentane

- B. 1-Pentoxyethane
- C. Bis(2-methoxyethyl)ether
- D. None of these

Answer: C

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12. The IUPAC name of phenetole is

- A. Methoxybenzene
- B. Ethoxybenzene
- C. Diphenyl ether
- D. Benzoxybenzene.

Answer: B

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13. The correct IUPAC name of the compound, $CH_2 = CH - CH(CH_3)_2$ is

- A. 1,1-Dimethylprope-2-ene
- B. 3-Methylbut-1-ene
- C. 2-Vinylpropane
- D. 1-Isopropylethlene.

Answer: B



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14. The compound which has one isopropyl group is :

- A. 2,2,3,3-Tetramethylpentane
- B. 2,2,-Dimethylpentane
- C. 2,2,3-Trimethylpentane
- D. 2-Methylpentane.

Answer: D

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15. The IUPAC name of compound

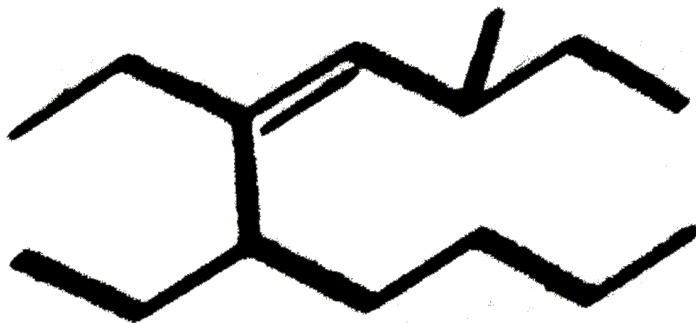
$CH_3 - CH_2CH(CH_3)CH_2COCl$ is

- A. 3-Methylpentanoyl chloride
- B. 3-Methylbutanoyl chloride
- C. 1-Chloro-3-ethylbutanone
- D. 1-Chloro-3-methylpentanone.

Answer: A

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16. The correct IUPAC name of compound



- A. 5,6-Diethyl-8-methyldec-6-ene
- B. 6-Butyl-5-ethyl-3-methyloct-4-ene
- C. 5,6-Diethyl-3-methyldec-4-ene
- D. 2,4,5-Triethylnon-3-ene.

Answer: C

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17. The IUPAC name of $OHCCH = CH - \underset{\substack{| \\ CH_2CH_2CH_2CH_3}}{CH}} - CH = CH_2$

is

- A. 5-Vinyloct-3-en-1-al
- B. 4-Butylhexa-2, 5-dien-1-al
- C. 5-Vinyloct-5-en-8-al
- D. 3-Butylhexa-1, 4-dien-8-al.

Answer: B

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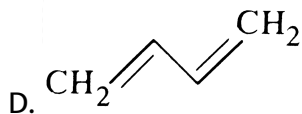
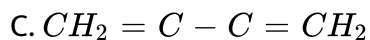
18. Choose the correct IUPAC name for $CH_3 - \underset{\substack{| \\ CH_2 - CH_3}}{CH} - CHO$ is -

- A. Butan-2-aldehyde
- B. 2-Methylbutanal
- C. 3-Methylisobutyraldehyde
- D. 2-Ethylpropanal

Answer: B

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19. Which of the following represents the given mode of hybridization $sp^2 sp^2 sp - sp$ from left to right ?



Answer: A



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20. Isovalent hyperconjugation explains the stability of

A. Carbocations

B. Carbanions

C. Free radicals

D. carbenes.

Answer: A::C

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21. Homolytic fission of organic compound yields

A. Electrophiles

B. Nucleophiles

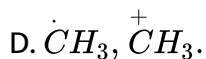
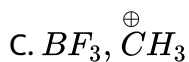
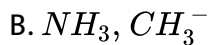
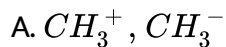
C. Free radicals

D. Electrophiles and nucleophiles.

Answer: A::C

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22. Which of the following pairs of species are isostructural ?



Answer: B::C::D



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23. Which of the following species contain six electrons around the central carbon atom ?

A. Carbanion

B. Carbocation

C. Carbene

D. Free radical.

Answer: B::C

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24. Which of the following species are planar ?

- A. Singlet carbene
- B. Triphenyl methyl carbocation
- C. Isopropyl carbanion
- D. Nitromethyl carbanion.

Answer: A::B::D

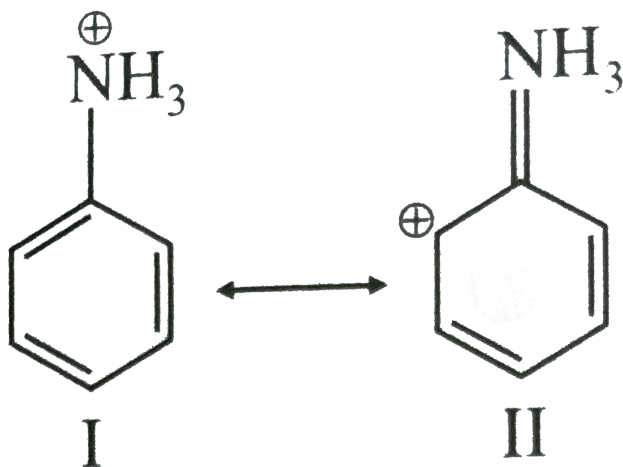
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25. The greater stability of tert-butyl carbocation than methyl carbocation can be explained on the basis of

- A. + *I* effect of the methyl groups
- B. electromeric effect of the methyl groups
- C. hyperconjugation effect of the methyl groups
- D. – *I* effect of the methyl groups.

Answer: A:C

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26.

Examine the following two structures for the anilinium ion and choose the correct statement from the ones given below:

- A. It is not an acceptable canonical structure because carbonium ions are less stable than ammonium ions
- B. It is not the acceptable structure because it is non aromatic
- C. It is not the acceptable canonical structure because the nitrogen has 10 valence electrons.
- D. It is an acceptable canonical structure.

Answer: B::C



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27. An aromatic molecule will

- A. have $4n$ π - electrons
- B. have $(4n + 2)\pi$ - electrons
- C. be planar
- D. be cyclic

Answer: B::C::D

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28. Resonance structure of a molecule cannot have

- A. Identical arrangement of atoms
- B. Nearly the same energy content
- C. The same number of paired electrons
- D. Identical bonding.

Answer: D

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29. Which one of the following acids would you expect to be the strongest ?

A. $I - CH_2COOH$

B. $Cl - CH_2COOH$

C. $Br - CH_2COOH$

D. $F - CH_2COOH$.

Answer: D

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30. Amongst the following the most basic compound is :

A. Benzylamine

B. Aniline

C. Acetanilide

D. p-nitroaniline.

Answer: A

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31. Homolytic fission of carbon-carbon bond of ethane produces an intermediate in which the carbon atom is in

A. sp^3 – hybridised

B. sp^2 – hybridised

C. sp-hybridised

D. sp^2d – hybridised.

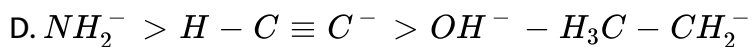
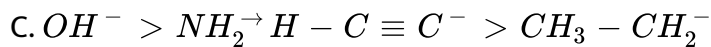
Answer: B

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32. The decreasing order of strength of the bases, OH^- , NH_2^- , $H-C \equiv C^-$ and $CH_3-CH_2^-$:

A. $CH_3-CH_2^- > NH_2^- > H-C \equiv C^- > OH^-$

B. $H-C \equiv C^- > CH_3-CH_2^- > NH_2^- > OH^-$



Answer: A

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

A. 1-Butene

B. trans-2-Butene

C. cis-2-Butene

D. 1,3-Butadiene.

Answer: D

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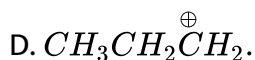
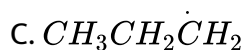
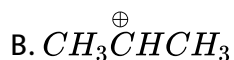
34. The kind of delocalisation involving sigma bond orbitals is called.....

- A. inductive effect
- B. Hyperconjugation effect
- C. Electromeric effect
- D. Mesomeric effect.

Answer: B

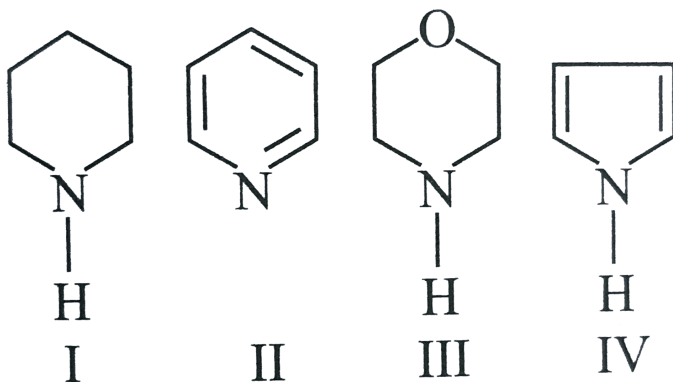
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35. The intermediate during the addition of HCl to propene in the presence of peroxide is :



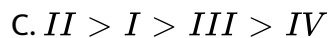
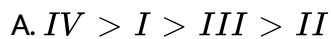
Answer: B

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36.

In the following compounds The order of basicity is



Answer: D



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37. The formation of cyanohydrin from ketone is an example of :

- A. Electrophilic addition
- B. Nucleophilic addition
- C. Nucleophilic substitution
- D. electrophilic substitution

Answer: B



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38. Polarisation of electrons in acrolein may be written as :

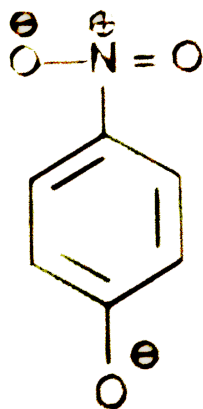




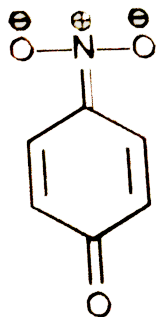
Answer: D

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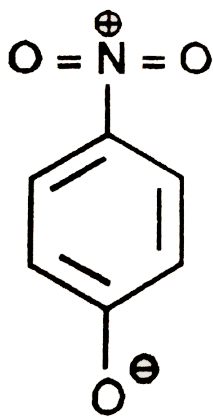
39. The most unlikely representation of resonance structure of *p*-nitrophenoxide ion is:



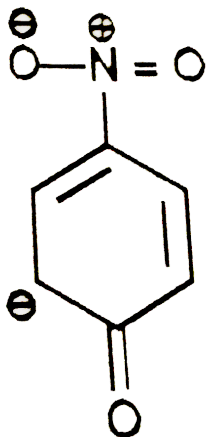
A.



B.



C.



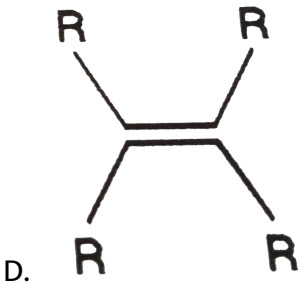
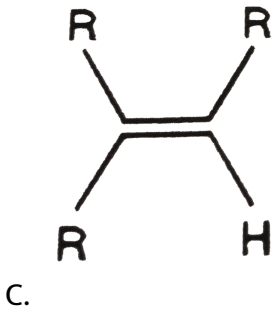
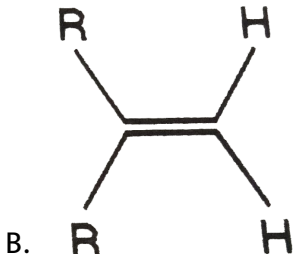
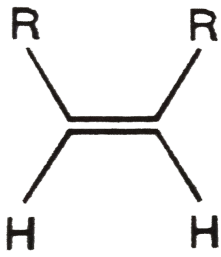
D.

Answer: C



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40. Which of the following alkenes will react fastest with H_2 under catalytic hydrogenation conditions



Answer: A

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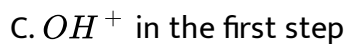
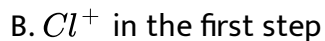
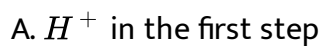
41. Which of the following has highest nucleophilicity ?



Answer: C

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42. The reaction of propene with HOCl proceeds via the addition of :

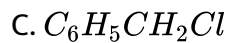
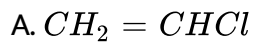


D. Cl^+ and OH^- in a single step.

Answer: B

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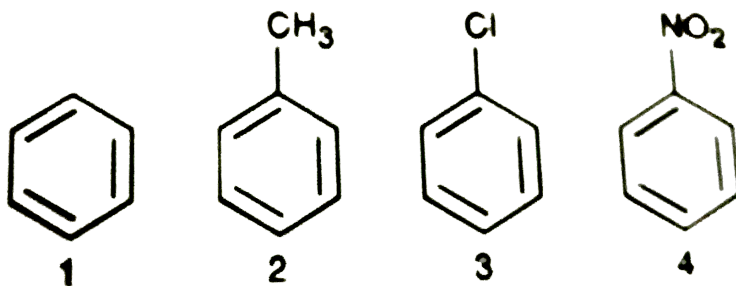
43. Which is most stable ?



Answer: A

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



A. $1 > 2 > 3 > 4$

B. $4 > 3 > 2 > 1$

C. $2 > 1 > 3 > 4$

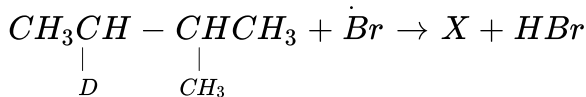
D. $2 > 3 > 1 > 4$

Answer: C

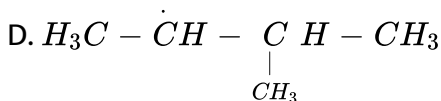
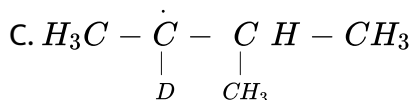
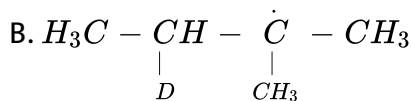
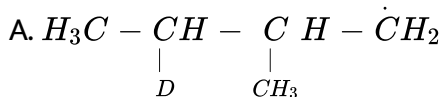


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45. Consider the following reaction:



Identify the structure of the major products (X) from among the following :

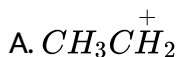


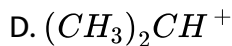
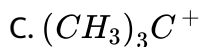
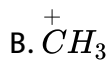
Answer: B



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46. Which among the following is the most stable carbocation ?

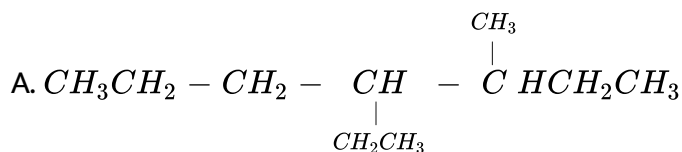




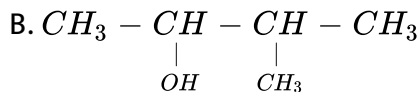
Answer: C

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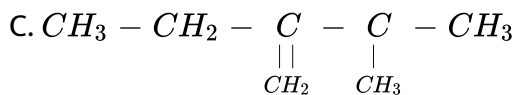
47. The names of some compounds are given. Which one not in the *IUPAC* system?



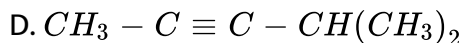
3-Methyl-4, ethyl heptane



3-Methyl-2 butanol



2-Ethyl-3 methyl but-1-ene



4-Methyl-2-pentyne.

Answer: A



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48. Due to the presence of an unpaired electron free radicals are

- A. Chemically reactive
- B. Chemically inactive
- C. Anions
- D. Cations.

Answer: A



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49. The *IUPAC* name of C_6H_5COCl is

- A. Chloro benzyl ketone

B. Benzene chloro ketone

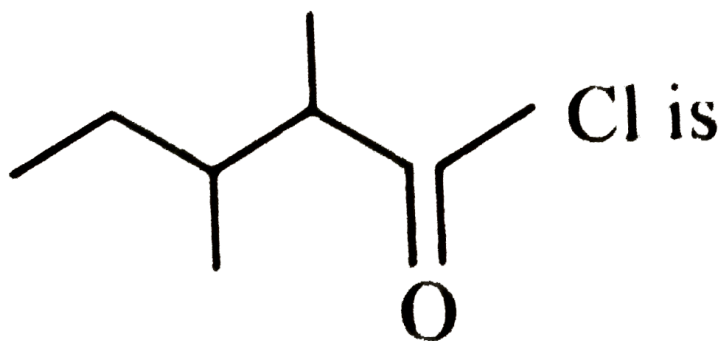
C. Benzene carbonyl chloride

D. chloro phenyl ketone.

Answer: C

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50. IUPAC name of



A. 2,3-dimethyl pentanoyl chloride

B. 3,4-di methyl pentanoyl chloride

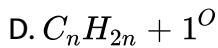
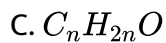
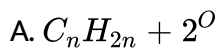
C. 1-choro-1-1-oxo-2,3-dimethyl pentane

D. 2-ethyl-3-methylbutanoyl chloride.

Answer: A

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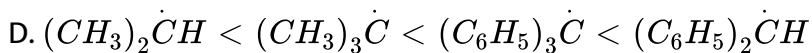
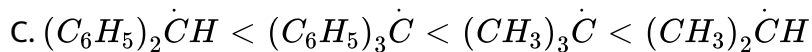
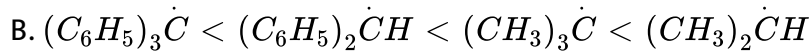
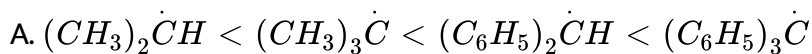
51. The general molecular formula, which represents the homologous series of alkanols is



Answer: A

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52. The increasing order of stability of the following free radicals is:

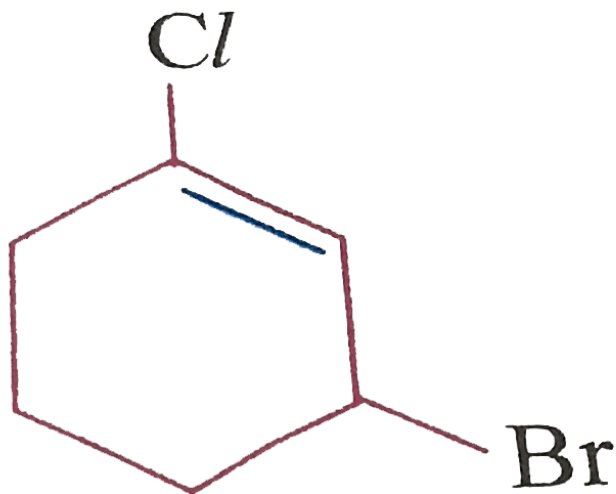


Answer: A



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53. The IUPAC name of the compound shown below is



- A. 2-bromo-3-chloro cyclo-hexan-1-ene
- B. 6-bromo-2-chloro cyclohexene
- C. 3-bromo-1-chloro cyclohexene
- D. 1-bromo-3-chloro-cyclohexene.

Answer: C



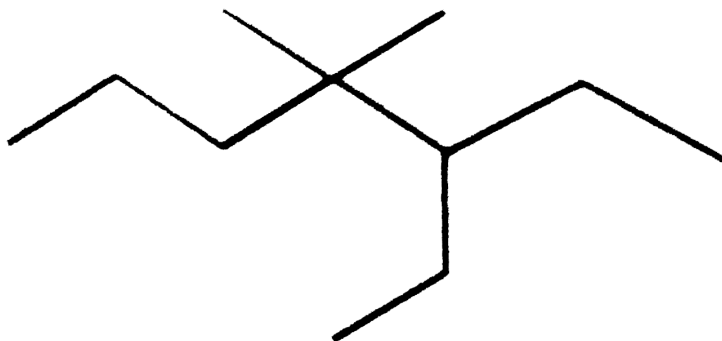
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54.

IUPAC

name

of

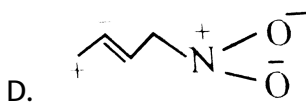
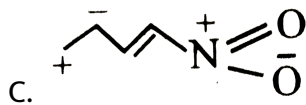
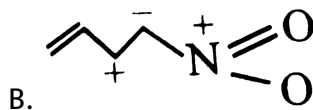
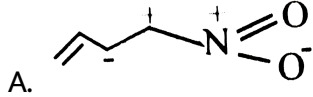


- A. 3-ethyl-4,4 dimethylheptane
- B. 1,1-diethyl-2,2- dimethyl pentane
- C. 4,4-dimethyl -5,5- diethyl pentane
- D. 5,5-diethyl -4,4 dipentyl pentane.

Answer: A

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55. Among the following, the least stable resonance structure is :



Answer: A



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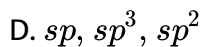
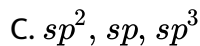
56. In the hydrocarbon $CH_3 - CH = CH - CH_2 - C \equiv CH$

6 5 4 3 2 1

The state of hybridization of carbons 1, 3 and 5 are in the following sequence

A. sp, sp^2, sp^3

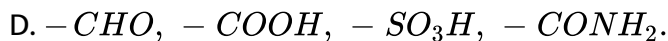
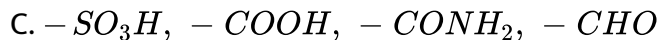
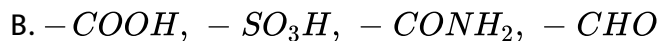
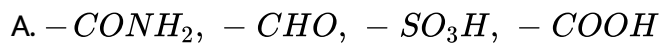
B. sp^3, sp^2, sp



Answer: D

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57. The correct decreasing order of priority for the functional groups of organic compounds in the IUPAC system of nomenclature is



Answer: A

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58. Hyperconjugation involves overlap of the following orbitals :

A. $\sigma - \sigma$

B. $\sigma - \pi$

C. $p - p$

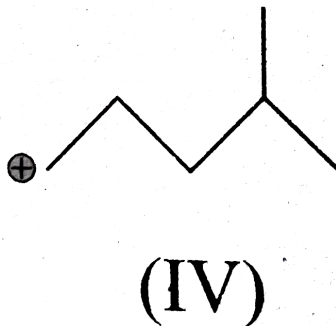
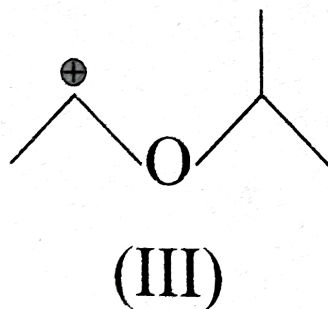
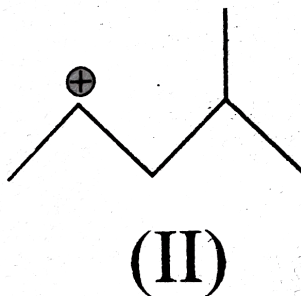
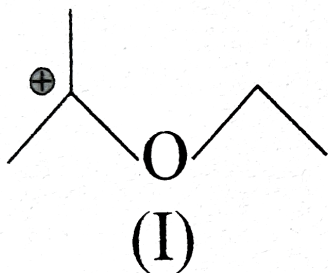
D. $\pi - \pi$.

Answer: B



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59. The correct of stability for the following species is :



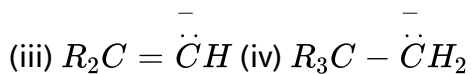
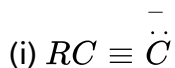
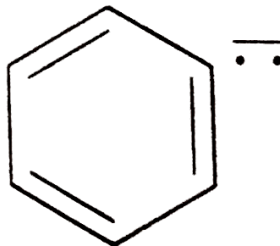
- A. $(II) > (IV) > (I) > (III)$
- B. $(I) > (II) > (III) > (IV)$
- C. $(II) > (I) > (IV) > (III)$
- D. $(I) > (III) > (II) > (IV)$.

Answer: D

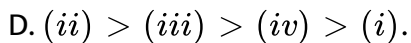
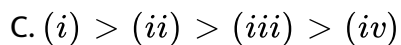
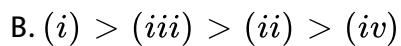
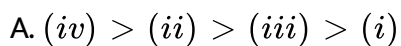
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60. The stability of carbanions in the following

(ii)



is in the order

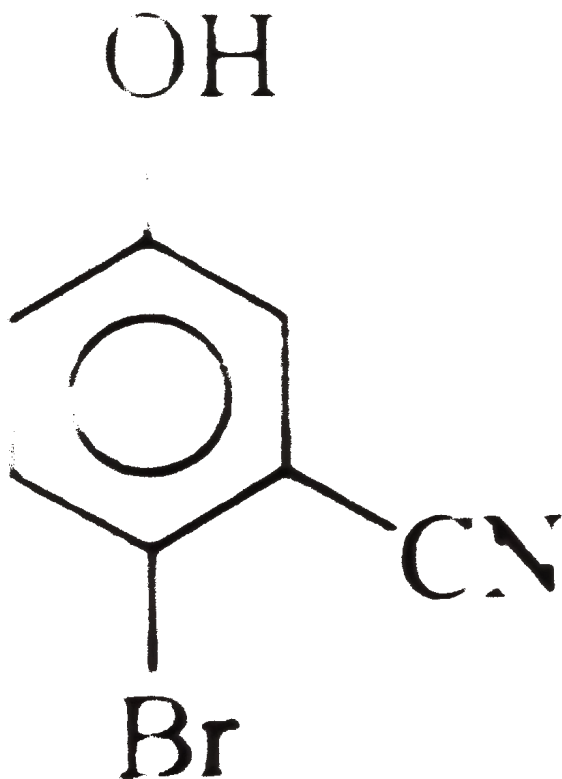


Answer: C



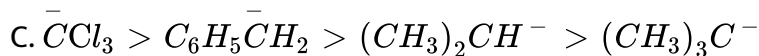
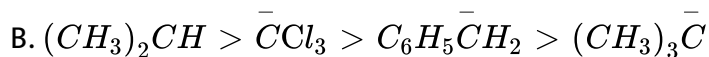
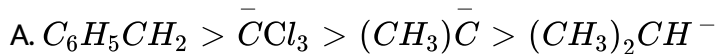
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61. The *IUPAC* name of the following compound is



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62. Arrange the carbanions, $(CH_3)_3\bar{C}$, $\bar{C}Cl_3$, $(CH_3)_2\bar{C}H$, $C_6H_5\bar{C}H_2$, in order of their decreasing stability



Answer: C

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

A. But-1-ene-3-yne

B. But-3-ene-1-yne

C. But-1-yne-3-ene

D. But-3-yne-1-ene.

Answer: A

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64. The IUPAC name of neopentane is

- A. 2-methylbutane
- B. 2, 2 dimethyl propane
- C. 2-methyl propane
- D. 2, 2-dimethyl butane.

Answer: B

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LINKED COMPREHENSION TYPE MCQS

1. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these

intermediates depends upon the dissociation energies of covalent bonds.

1. Which is not the intermediate formed by cleavage of covalent bonds.

A. Free radical

B. Carbocation

C. Carbonium ion

D. Carbanion.

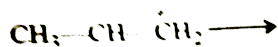
Answer: C



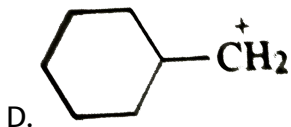
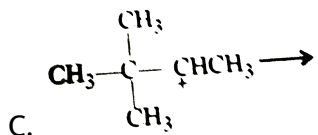
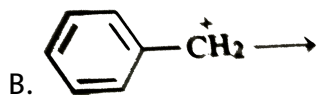
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2. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these intermediates depends upon the dissociation energies of covalent bonds.

2. In which cases free energy may decrease, if there can be some intramolecular rearrangement ?



A. CH_3

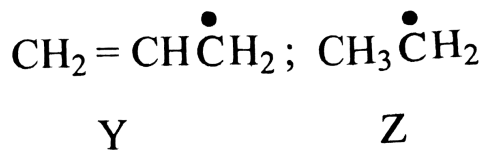
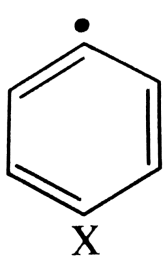


Answer: A::C::D

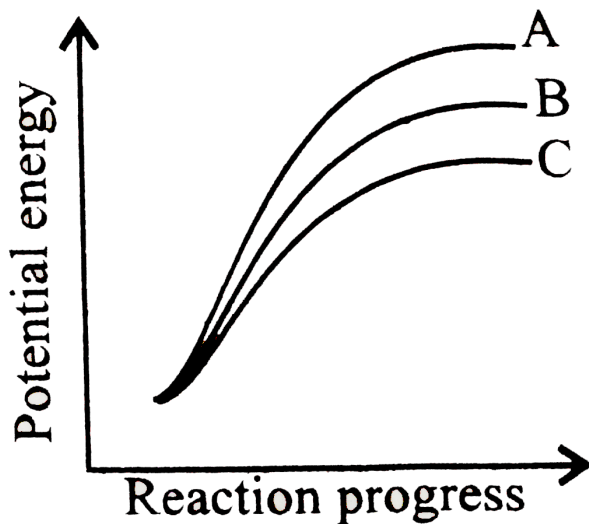
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3. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these intermediates depends upon the dissociation energies of covalent bonds.

3. In the following diagram, stability of different radicals have been represented. These can be



Match the potential curve with free radical

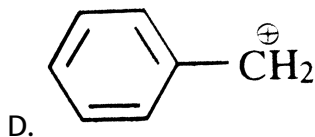
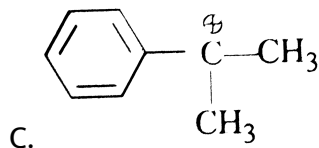
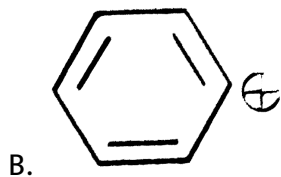
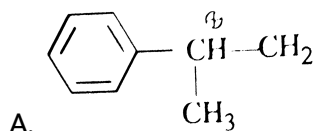


- A. X Y Z
A B C
- B. X Y Z
B A C
- C. X Y Z
C A B
- D. X Y Z
A C B

Answer: D

4. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these intermediates depends upon the dissociation energies of covalent bonds.

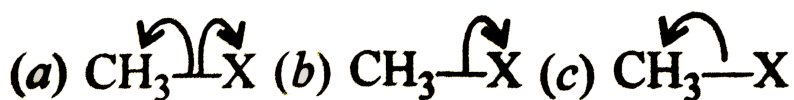
Which is most stable carbocation ?



Answer: C

5. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these intermediates depends upon the dissociation energies of covalent bonds.

Consider the following transformations



Carbon species formed in A, B and C are respectively

- A. Carbocation, carbanion, free radical
- B. Free radical, carbocation, carbanion
- C. Free radical, carbanion, carbocation
- D. Carbanion, carbocation, free radical.

Answer: B

6. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these intermediates depends upon the dissociation energies of covalent bonds. When a methyl radical is formed from CH_3Cl , select the incorrect statement.

- A. Carbon undergoes geometric change from tetrahedral to planar
- B. Hybridization changes from sp^3 , to sp^2
- C. Bond angle of $109^{\circ} 28'$ is retained
- D. Number of sigma bonds is three

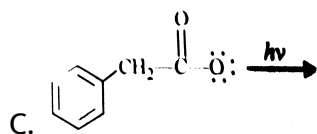
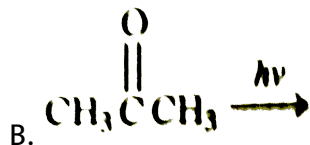
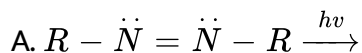
Answer: C

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7. Organic reactions take place through the formations of reactive carbon intermediates formed by cleavage of covalent bonds. Formation of these

intermediates depends upon the dissociation energies of covalent bonds.

In which cases, free radicals can be formed by homolytic fission ?



D. In all cases.

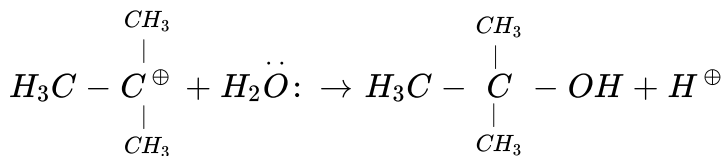
Answer: D

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8. The reaction of an electrophile with a nucleophile is the same as the reaction of a Lewis acid with a Lewis base and is termed as Lewis acid-base combination reaction. Each atom in the product completes its octet (except hydrogen which attains complete duplet) as a consequence of this combination.

Consider following reaction between an electrophile and a nucleophile

Incorrect statement (s) is/are



- A. It is a Lewis acid base combination reaction
- B. It is a Lowry-Bronsted acid base reaction
- C. Driving force that makes ΔG negative is the completion of the octet of C and O atoms in the product.
- D. It is an electrophile and B is a nucleophile.

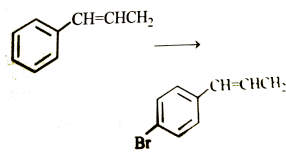
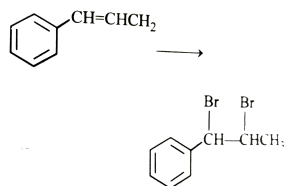
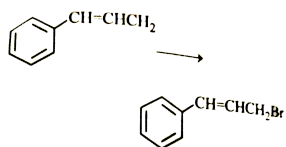
Answer: B

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9. The reaction of an electrophile with a nucleophile is the same as the reaction of a Lewis acid with a Lewis base and is termed as Lewis acid-base combination reaction. Each atom in the product completes its octet (except hydrogen which attains complete duplet) as a consequence of

this combination.

In which case additional reagent is needed to generate an electrophile ?



D. In all cases.

Answer: C

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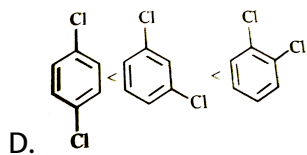
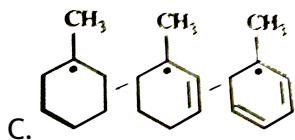
10. The reaction of an electrophile with a nucleophile is the same as the reaction of a Lewis acid with a Lewis base and is termed as Lewis acid-base combination reaction. Each atom in the product completes its octet

(except hydrogen which attains complete duplet) as a consequence of this combination.

Which is not correct increasing order of the property indicated ?

A. $CH_3OH < CH_3CO_2^- < CH_3\hat{I}^-$ (base strength and nucleophilic strength)

B. $F\hat{I}^- < Cl\hat{I}^- < Br\hat{I}^- < I\hat{I}^-$ (base strength and nucleophilic strength)



(dipole moment)

Answer: D

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1. Assertion : Benzene is a highly unsaturated hydrocarbon but it is too stable to be an alkene.

Reason : Benzene is resonance stabilised.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: A

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2. Assertion : Acetylene on reacting with sodium gives hydrogen.

Reason : sp hybridised carbon atoms of acetylene are considerably electronegative.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: B

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3. Assertion : $CH_3C \equiv CH$ is more polar than $CH_3CH = CH_2$.

Reason : sp -carbon is more electronegative than sp^2 carbon.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: A

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4. Assertion: All the carbon atoms of buta-1, 3-diene lie in one plane.

Reason : All the carbon atoms in buta-1, 3-diene are sp^2 hybridized.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: A

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5. Assertion : Alkanes having more than three carbon atoms exhibit chain isomerism.

Reason : All carbon atoms in alkanes are sp^3 hybridized

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: C

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6. A) C-H bond in ethyne is shorter than C-H bonds in ethene.
- R) Carbon atom in ethene is sp -hybridised while it is sp^2 in ethyne.
- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: C

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7. Assertion : Acetylene is linear.

Reason : Carbons of acetylene are sp hybridised.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: A

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8. Assertion : Carbonium ions are trigonal planar.

Reason : Its carbon is sp^2 hybridised.

- A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: A



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9. Assertion (A) : All the carbon atoms in $H_2C = C = CH_2$ are sp^2 hybridised

Reason (R) : In this molecule, all the carbon atoms are attached to each other by double bonds.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

D. A is false but R is true

Answer: D



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10. Assertion : Butane and isopentane are homologues.

Reason : Butane is a straight chain alkane while isopentane is a branched chain alkane.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: B



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11. Assertion : $sp^2 - sp^2$ overlapping is more efficient than $sp^3 - sp$.

Reason : sp^3 orbital has higher electron density than sp^2 orbital.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A
- C. A is true but R is false
- D. A is false but R is true

Answer: C



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12. Assertion : Benzyl carbonium ion is more stable than tertiary carbonium ion.

Reason : In Benzyl carbonium ion +I effect is more in comparison to tertiary carbonium ion.

- A. Both A and R are true and R is the correct explanation of A
- B. Both A and R are true but R is not a correct explanation of A

C. A is true but R is false

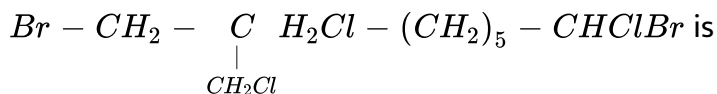
D. Both A and R are false.

Answer: D

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ULTIMATE PREPARATORY PACKAGE

1. The correct IUPAC name of



A. 1-Bromo-1,8-dichloro-7-(bromomethyl) octane

B. 1,8-Dibromo-8-chloro-2-(chloromethyloctane

C. 1,8-Dibromo-1-chloro-7-(chloromethyl) octane

D. 1-Bromo-1,8-dichloro-2-(bromomethyl) octane.

Answer: C



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2. The correct IUPAC name of $HCOOCH_3$ is

- A. Acetic acid
- B. Ethanoic acid
- C. Methyl methanote
- D. None of these.

Answer: C



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3. The correct IUPAC name of $[(CH_3)_2CH]_3CO$ is

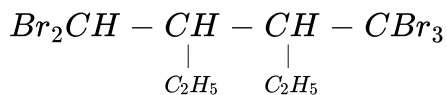
- A. Tri-isopropylcarbinol
- B. 2,4-Dimethyl-3-isopropylpentan-3-ol
- C. 2,4-Dimethyl-3-(1-methylethyl) pentan-3-ol

D. Tri-isopropylmethanol.

Answer: C

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4. The IUPAC name of

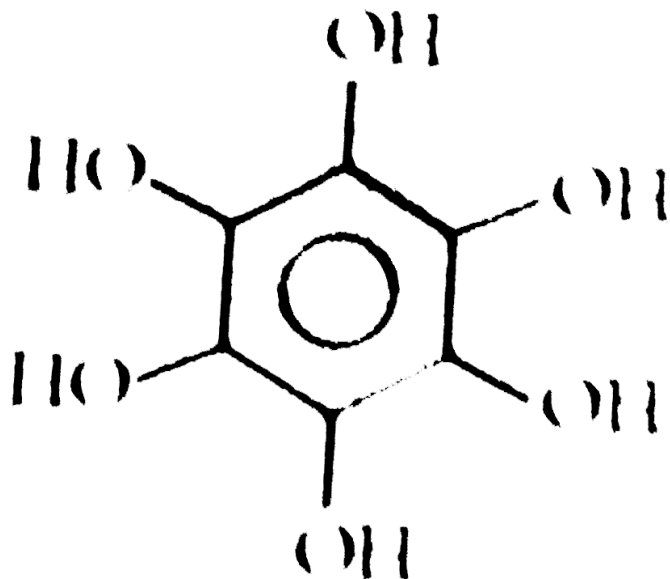


- A. 3-(Dibromomethyl)-4-(tribromomethyl) hexane
- B. 1, 1, 1,4,4-Pentabromo-2,3-diethylbutane
- C. 4-(Dibromomethyl)-3-(tribromomethyl) hexane
- D. 1, 1,4,4,4-Pentachloro-2,3-diethyl butane.

Answer: A

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5. The correct IUPAC name of the compound



A. 1, 2, 3, 4, 5, 6-Hexahydrobenzene

B. Benzene-1, 2, 3, 4, 5, 6-hexanol

C. Benzenehexanol

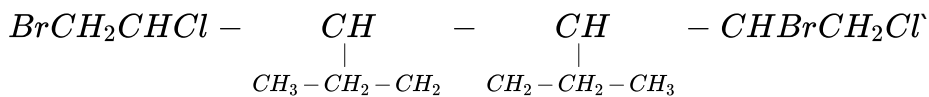
D. None of these.

Answer: D



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6. The IUPAC name of the compound

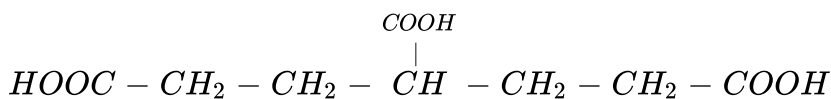


- A. 4-(1-Bromo-2-chloroethyl)-5-(2-bromo-1-chloroethyl) octane
- B. 1,5-Dibromo-2,6-dichloro-3,4-dipropylhexane
- C. 2,6-Dibromo-1,5-dichloro-3,4-dipropylhexane
- D. None of these.

Answer: A

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7. According to the latest rules the correct IUPAC name of the compound



- A. 4-Carboxyheptanedioic acid

B. 4-Carboxyhexandioic acid

C. Pentane-1,3,5-tricarboxylic acid

D. None of these.

Answer: C

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8. The correct IUPAC name of the compound



A. Cyclohexanecarboxylic acid

B. Cyclohexanoic acid

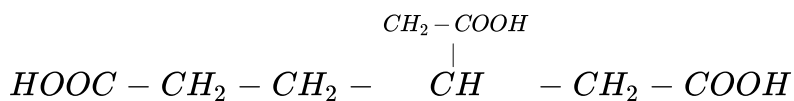
C. Cyclohexancarboxylic acid

D. None of these.

Answer: A

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9. According to the latest rules the IUPAC name of the compound

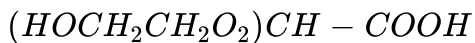


- A. 3-(Carboxymethyl)hexandioic acid
- B. 3-(Carboxymethyl)hexanedioic acid
- C. 3-(Carboxyethyl)hexanedioic acid
- D. None of these.

Answer: B

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10. The correct IUPAC name of the compound

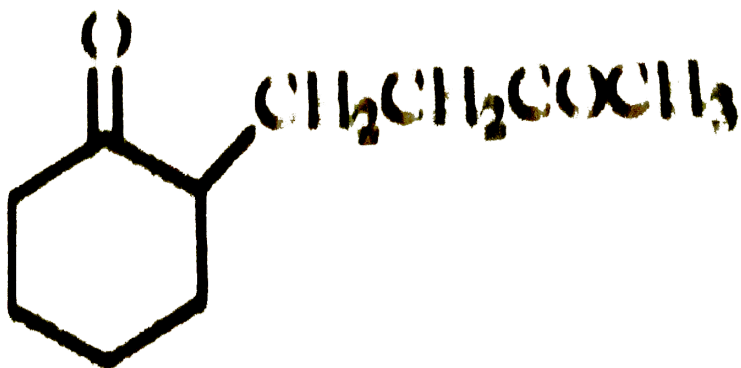


- A. 4-Carboxy-3, 5-dioxaheptane-1,7-diol
- B. 2,2-Bis (2-hydroxyethoxy)ethanoic acid
- C. 4-Carboxy-3, 5-dioxoheptane-1, 7-diol
- D. None of these.

Answer: B

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11. The correct IUPAC name of



A. 4-(2-Oxobutyl)cyclohexane-1-one

B. 2-(3-Oxobutyl)cyclohexan-1-one

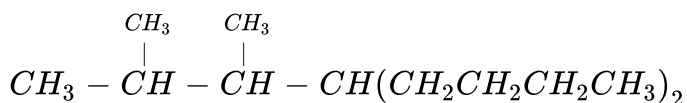
C. 1-(2-Oxocyclohexyl)butan-3-one

D. 4-(2-Oxocyclohexyl)butan-2-one.

Answer: B

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12. The IUPAC name of the compound



A. 4-Butyl-2, 3-dimethyloctane

B. 1, 1-Dibutyl-2, 3-dimethylbutane

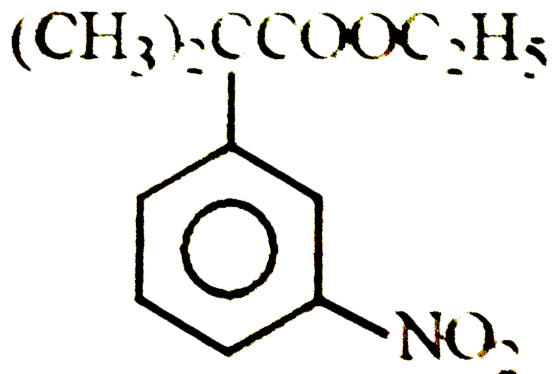
C. 2,4,4-Dibutyl-3, 3-dimethylbutane

D. None of these.

Answer: D

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13. The correct IUPAC name of

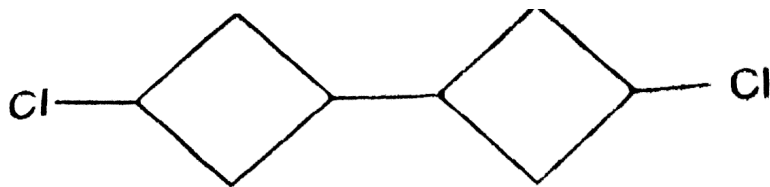


- A. Ethyl 2-methyl-2-(3-nitrophenyl)propanoate
- B. Ethyl-2-methyl-2-(3-nitrophenyl)propanoic
- C. Ethyl 2-methyl-2-(3-nitrophenyl)propionate
- D. None of these.

Answer: A

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14. The IUPAC name of the compound

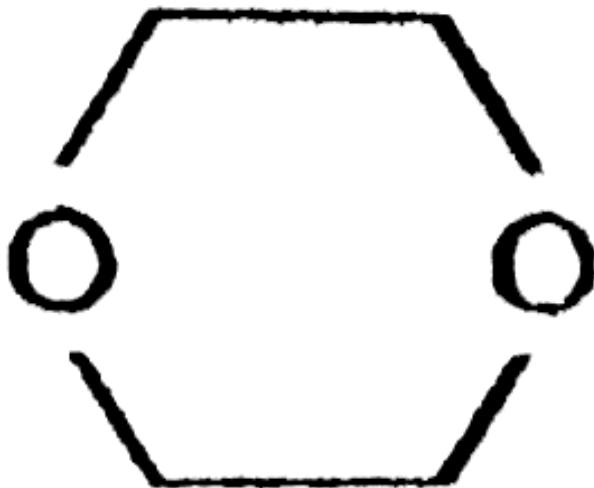


- A. 3, 3'-Dichloro-1, 1-bicyclobutane
- B. 1, 6-Dichlorocyclo (dibutane)
- C. bis(1-Chlorocyclobutane)
- D. 1-Chloro-3-(3'-chloro) cyclobutane.

Answer: A

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15. The correct IUPAC name of the compound

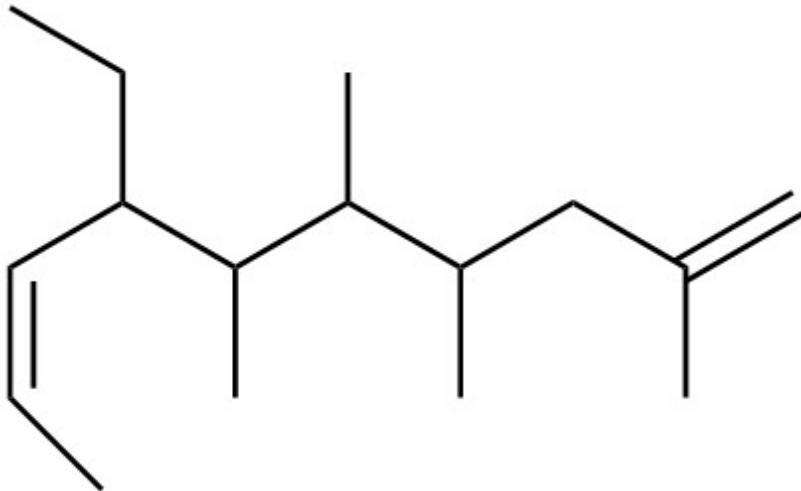


- A. 1,4-Dioxacyclohexane
- B. 2,5-Dioxacyclohexane
- C. Diethylene dioxide
- D. Cyclobutane-1,4-dioxide.

Answer: B

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16. The IUPAC name of

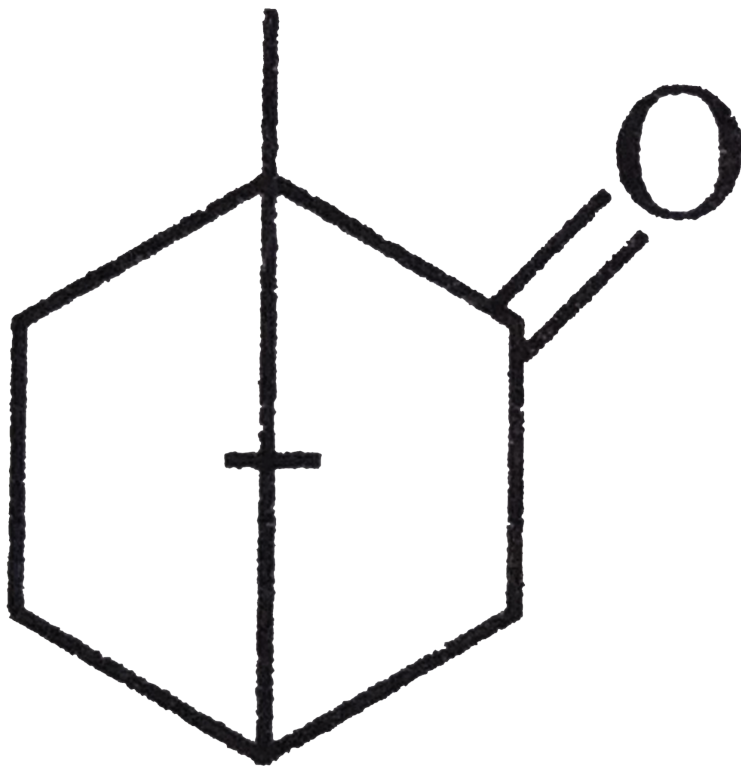


- A. 4-Ethyl-5,6,7,9-tetramethyldeca-2,9-diene
- B. 7-Ethyl-2,4,5,6-tetramethyldeca-1,8-diene
- C. 7-Ethyl-2,4,5,6-tetretethyldeca-1,7-diene
- D. 27-(1-Propenyl)-2,3,4,5-tetramethyl-non-1-ene.

Answer: B

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17. The *IUPAC* name of the well known terpene camphor having the structure



is

A. 6-Oxo-1,2,2-trimethylbicyclo[2.2.1]heptane

B. 1,7,7-Trimethylbicyclo[2.2.1]heptan-2-one

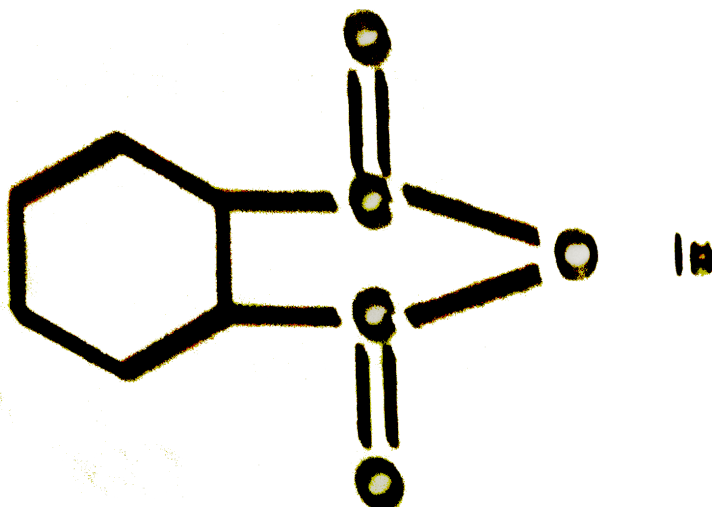
C. 1,5,5-Trimethylbicyclo[2.1.1]hexan-2-one

D. 1,7,7-Trimethylbicyclo[2.1.2]heptan-2-one.

Answer: B

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18. The correct IUPAC name of the compound



- A. Cyclohexane ethanoic anhydride
- B. Cyclohexane dicarboxylic anhydride
- C. Tetrahydrophthalic anhydride
- D. Cyclohexane carboxylic-1, 2-anhydride.

Answer: D



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19. The correct IUPAC name of



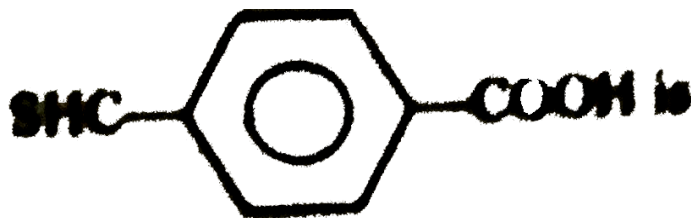
- A. cyclohexenone
- B. cycloheptenone
- C. cyclohexylidene methanone
- D. cycloketene.

Answer: C



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20. The IUPAC name of compound

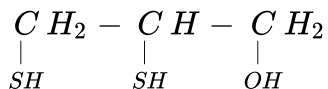


- A. 1-carboxybenzene-4-thiol
- B. 4-thioly benzoic acid
- C. 4-(Thioformyl)benzoic acid
- D. 4-Carboxylic benzene thioaldehyde.

Answer: C

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21. What is the IUPAC name of the compound



- A. 1-Hydroxyethane-2, 3-dithiol

B. 3-Hydroxyethane-2, 3-dithiol

C. 2, 3-Disulphanyl propan-1-ol

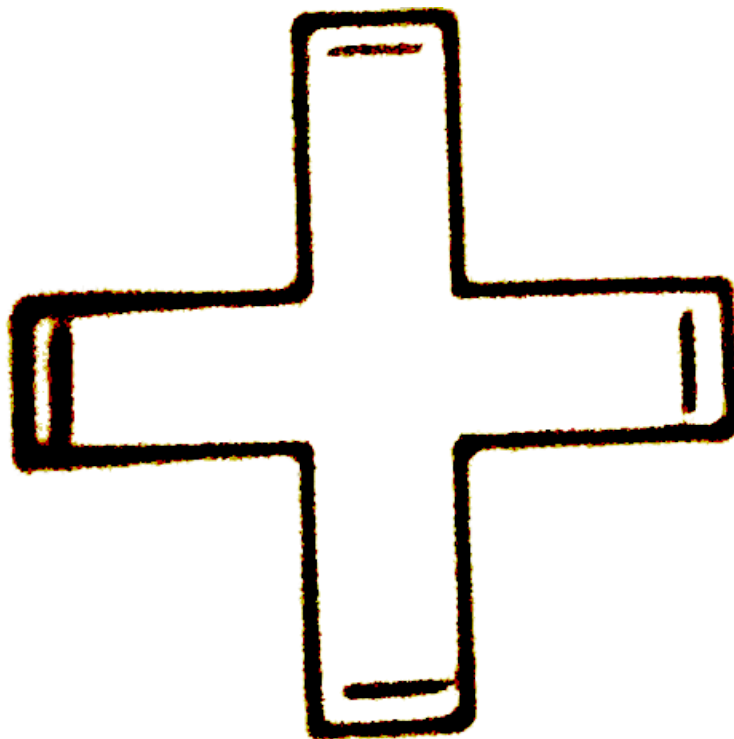
D. 2, 3-hydrosulphidopropan-1-ol.

Answer: C



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22. The correct IUPAC name of



is

A. Cyclo-dodeca-1, 4, 7, 10-tetraene

B. [4] Annulene

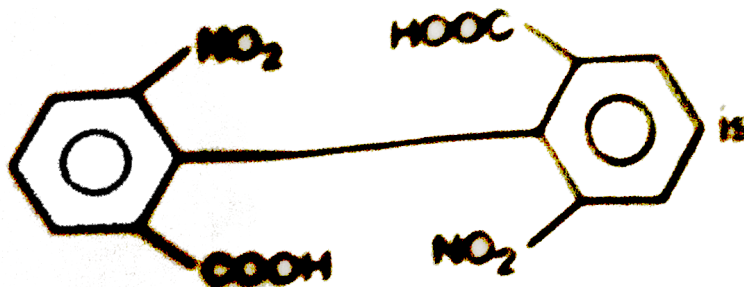
C. Tetracyclobutene

D. None of these.

Answer: A



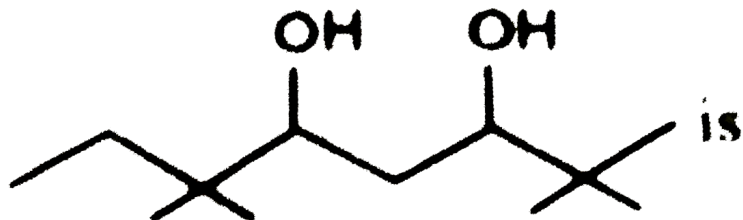
23. The IUPAC name of



- A. 6,6'- Dinitrodiphenic acid
- B. 6,6'-Dinitrodiphenyl-2, 2'-dicarboxylic acid
- C. 2,2'-Dinitrodiphenyl-6, 6'-dicarboxylic acid
- D. 2, 2'-Dinitrodiphenic acid.

Answer: B

24. The IUPAC name of the alkane

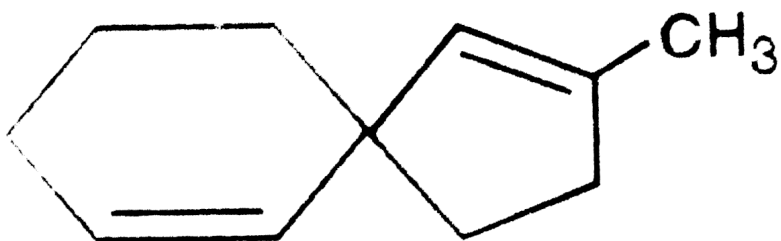


- A. 2, 2, 6, 6, 7-Pentamethyloctane-3, 5-diol
- B. 2, 3, 3, 7, 7-Pentamethyloctane-4, 6-diol
- C. 5-tert-butyl-2-isopropyl-2-methylpentane -3, 5-diol
- D. 2-isopropyl-2,6,6-trimethylheptane-3, 5- diol.

Answer: A

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25. The IUPAC name of the spiro compound,



is

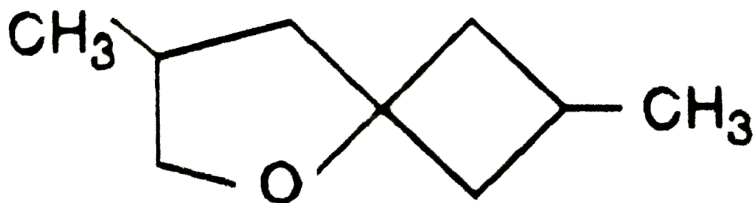
- A. 2-Methylspiro(5. 4] deca-1, 6-diene
- B. 2-Methylspiro(4. 5]deca-1, 6-diene
- C. 8-Methylspiro (4. 5]deca-1, 7-diene
- D. 3-Methylspiro (5. 4]deca-3, 7-diene.

Answer: B



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26. The correct IUPAC name of the spiro compound,

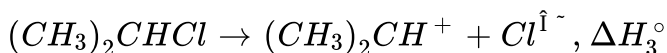
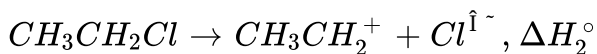
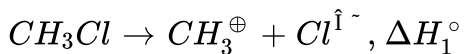


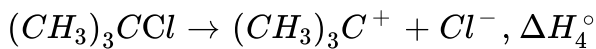
- A. 2, 7-dimethyl-5-Oxospiro[3. 4] octane
- B. 3,7-dimethyl-1-Oxospiro[4. 3] octane
- C. 3 7-dimethyl-5-Oxospiro[3. 4] octane
- D. 2, 7-dimethyl-1-Oxospiro [3. 4] octane.

Answer: A

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27. For the following reaction





The correct order of enthalpies of ionization is

A. $\Delta H_1^\circ > \Delta_2^\circ > \Delta H_3^\circ > \Delta H_4^\circ$

B. $\Delta H_1^\circ < \Delta_2^\circ < \Delta H_3^\circ < \Delta H_4^\circ$

C. $\Delta H_1^\circ > \Delta_2^\circ > \Delta H_3^\circ < \Delta H_4^\circ$

D. $\Delta H_1^\circ < \Delta_2^\circ < \Delta H_3^\circ < \Delta H_4^\circ$

Answer: A



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28. Which of the following compound will form free radical very readily ?

A. Ethane

B. Ethanol

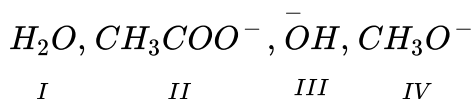
C. Ethanoic acid

D. Ethyl chloride.

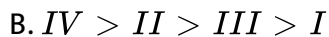
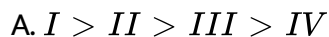
Answer: A

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29. Consider the following nucleophiles



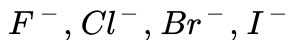
The correct order of decreasing nucleophilicity is



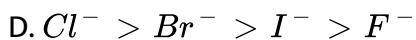
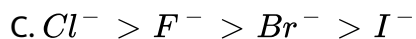
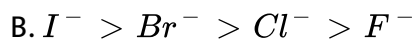
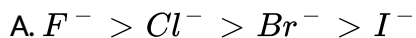
Answer: D

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30. Consider the following nucleophiles



The correct decreasing order of nucleophilicity is,



Answer: B



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31. Which of the following is not planar ?

A. tert-Butyl free radical

B. tert-Butyl carbocation

C. tert-Butyl carbanion

D. Allyl carbanion.

Answer: C

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32. Which of the following can act both as an electrophile and a nucleophile ?

A. Water

B. Methyl alcohol

C. Dimethyl ether

D. Formaldehyde.

Answer: D

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33. In Hoffmann bromamide reaction, the reactive intermediate involved is

a

A. Carbocation

B. Carbanion

C. Carbene

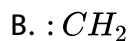
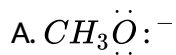
D. Nitrine.

Answer: D



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34. Which of the following can act as an electrophile ?



D. None of these.

Answer: B

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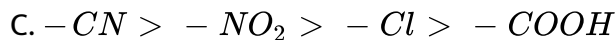
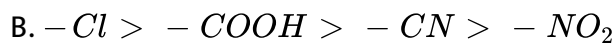
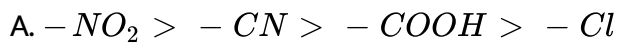
35. Which of the following statements is correct ?

- A. Allyl carbonium ion $\left(CH_2 = CH - \overset{+}{C}H_2 \right)$ is more stable than propyl carbonium ion
- B. Propyl carbonium ion is more stable than the allyl carbanion
- C. Both are equally stable
- D. None of the above.

Answer: B

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36. The - I effect of $-NO_2$, $-CN$, $-COOH$, $-Cl$ decreases in the order

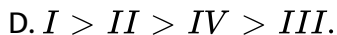
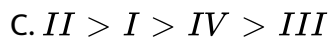
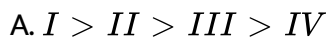


Answer: A



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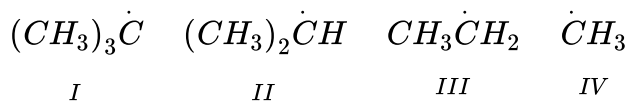
37. The + I effect of $(CH_3)_3C - (I)$, $(CH_3)_2CH - (II)$, $CH_3CH_2 - (III)$ and $CH_3 - (IV)$ decreases in the order



Answer: A

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38. Arrange the following free radicals in order of stability



A. $I > II > III > IV$

B. $IV > III > II > I$

C. $II > III > I > IV$

D. $IV > II > III > I$.

Answer: A

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39. Arrange the following free radicals in order of stability

Benzyl, Allyl, Methyl, Vinyl,

I *II* *III* *IV*

A. *IV* > *III* > *II* > *I*

B. *I* > *II* > *III* > *IV*

C. *II* > *IV* > *III* > *I*

D. *III* > *II* > *I* > *IV*

Answer: D



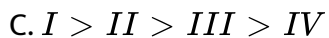
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40. Arrange the following carbonium ions in order of decreasing stability

:

$(CH_3)_3\overset{+}{C}$ $(CH_3)_2\overset{+}{C}H$ $CH_3\overset{+}{C}H_2$ $\overset{+}{H}_3C$
I *II* *III* *IV*

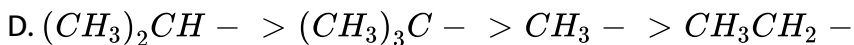
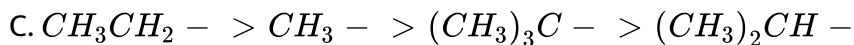
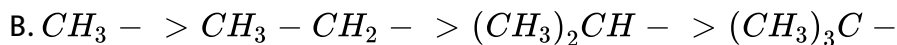
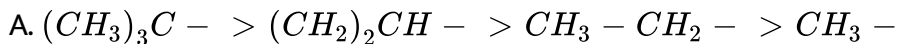
A. *II* > *III* > *I* > *IV*



Answer: C

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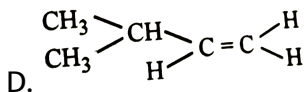
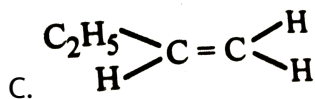
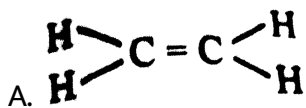
41. The inductive effect of the alkyl groups on a saturated carbon chain follows the order



Answer: A

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42. Which of the following is most stable alkene ?

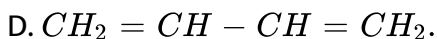
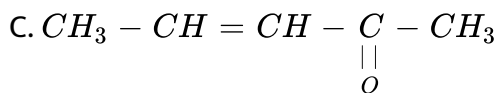
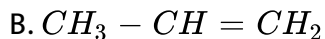


Answer: B

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43. Which one of the following has inductive, mesomeric and hyperconjugation effect?

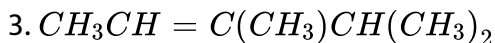
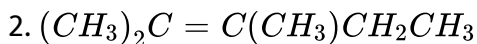
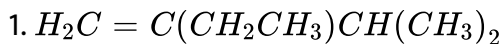




Answer: C

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44. Consider the following alkenes :



The correct sequence of increasing order of stability of these alkenes is :

A. 1,2,3

B. 3,2,1

C. 2,1,3

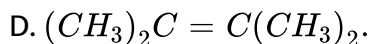
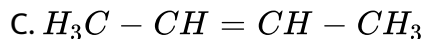
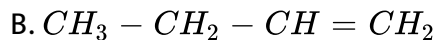
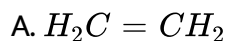
D. 1,3,2.

Answer: D



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45. Which one of the following compounds would have the highest heat of hydrogenation ?

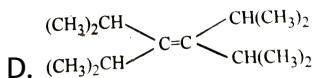
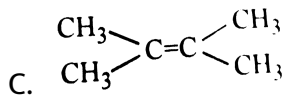
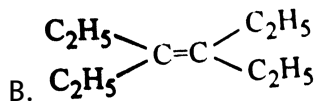
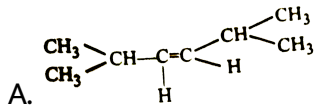


Answer: A



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46. Which of the following is most stable alkene ?



Answer: C

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47. The less stable carbocation rearranges to more stable carbocation ion. During this rearrangement, the migrating atom or group leaves as a

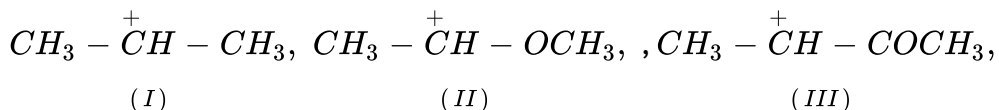
- A. free radical
- B. carbene
- C. positively charged ion
- D. negatively charged ion.

Answer: D



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48. The decreasing order of the stability of the ions



A. $I > II > III$

B. $III > II > I$

C. $II > III > I$

D. $II > I > III$.

Answer: D



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49. In but-1, 3-diene the $C_2 - C_3$ bond length is

A. 135 pm

B. 120 pm

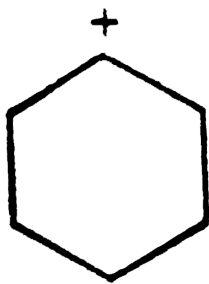
C. 146 pm

D. 154 pm.

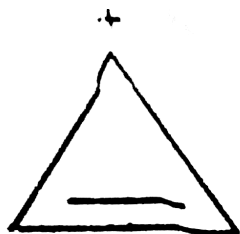
Answer: C

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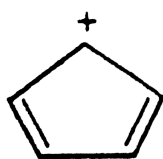
50. The most stable carbocation is



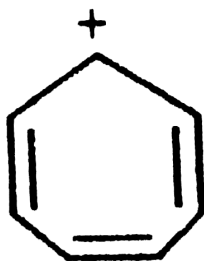
A.



B.



C.



D.

Answer: B



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51. A solution of (+)-1-chloro-1-phenylethane in toluene racemises slowly in the presence of a small amount of $SbCl_5$ due to the formation of

- A. a carbene
- B. a carbocation
- C. a free radical
- D. a carbanion.

Answer: B

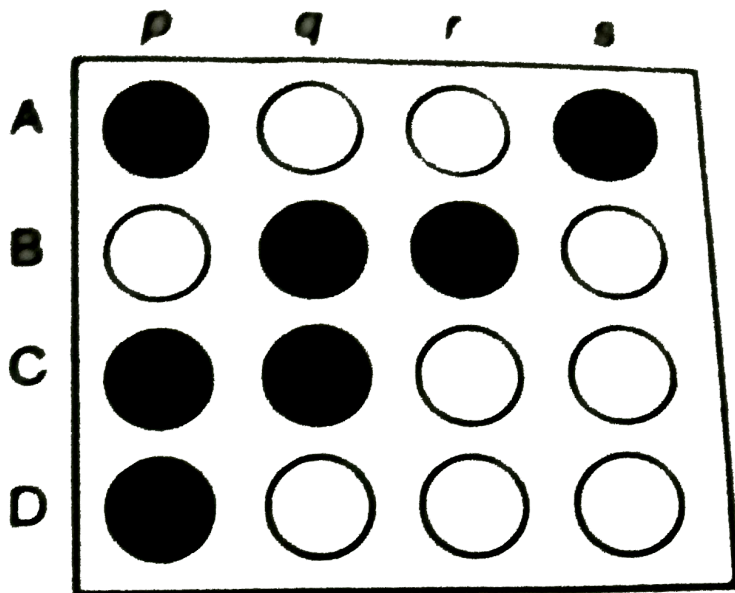


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Matrix Type Questions

1. Here each question contains statements given in two columns which have to be matched.

Statements in column I are labelled as A, B, C and D whereas statements in column II are labelled as p, q, r and s. The answers to these questions have to be appropriately bubbled as illustrated. If the correct matches are A-p, A-s, B-q, B-r, C-p, C-q and D-p, then a correctly labelled 4×4 matrix should look like following:



Column I

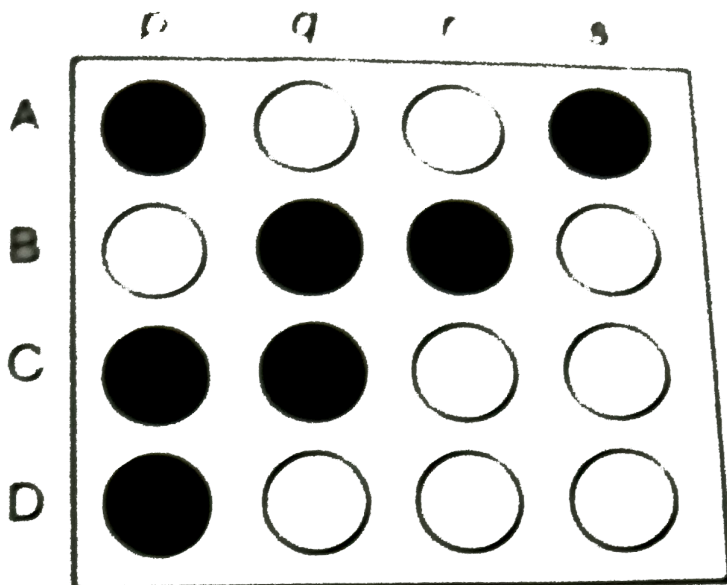
Column II

- | | | | |
|----|--|----------|------------------|
| A | $\text{---CH}_3\text{C} \equiv \text{N}$ | <i>p</i> | Resonance |
| B. | $\text{CH}_2 = \text{C} = \text{CH}_2$ | <i>q</i> | Planar |
| C. | C_6H_6 | <i>r</i> | Inductive effect |
| D. | $(\text{CH}_3)_3\overset{\bullet}{\text{C}}$ | <i>s</i> | Non-planar. |

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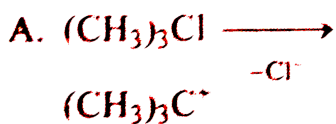
2. Here each question contains statements given in two columns which have to be matched.

Statements in column I are labelled as A, B, C and D whereas statements in column II are labelled as p, q, r and s. The answers to these questions have to be appropriately bubbled as illustrated. If the correct matches are A-p, A-s, B-q, B-r, C-p, C-q and D-p, then a correctly labelled 4×4 matrix should look like following:

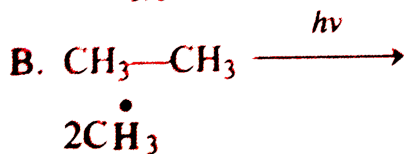


Column I

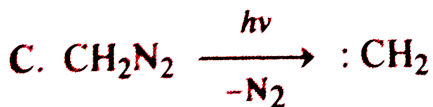
Column II



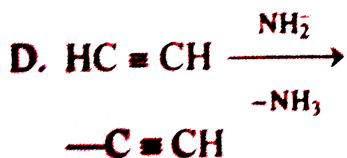
p Electrophile



q Heterolytic



r Nucleophile



s Homolytic



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