CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

BASIC PRINCIPLES AND TECHNIQUES IN ORGANIC CHEMISTRY

Mcqs

1. A crystalline substance is that

A. In which unit particles are arranged in an orderly and systematic manner

B. Which is insoluble in water

C. Which does not have specific shape

D. Which does not have sharp melting point

Answer: A

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2. The study of organic compounds even at present is done separate from other compounds because

A. The formation of organic compounds is not based on chemical combination

B. Organic compounds are covalent

C. Catenation is the main characteristics

D. It is the easiest method of study

Answer: B

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3. The purity of an organic solid is determined by :

A. Melting point

B. Boiling point

C. Solubility

D. Density

Answer: A

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4. Organic compound are non-conductors of electricity because

A. are insoluble in water

B. do not form ions

C. have low melting point

D. form free radicals

Answer: B

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5. Which of the following is not the criterion of purity of a substance ?

A. Solubility

B. Melting point

C. Boiling point

D. Density

Answer: A

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6. Which of the following is an amorphous substance ?

A. Glucose

B. Glass

C. Alum

D. Common salt

Answer: B

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7. Sodiun chloride crystals are

A. Cubical

B. Octahedral

C. Needle shaped

D. Triangle shaped

Answer: A

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8. Alum crystals are

A. Cubical

B. Octahedral

C. Needle shaped

D. Prismatic

Answer: B

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9. Quartz crystals are

A. Prismatic

B. Hexagonal

C. Cubical

D. Needle shaped

Answer: B

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10. In paper chromatography:

A. Mobile phase is liquid and stationary phase is solid

B. Mobile phase is solid and stationary phase is liquid

C. Both phases are solids

D. Both phases are liquids

Answer: D

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11. The most stisfactory method to separate sugars is to use

A. Fractional crystallization

B. Sublimation

C. Chromatography

D. Benedict solution

Answer: C

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12. An organic substance from its aqueous solution can be separated by

A. Solvent extraction

B. Steam distillation

C. Distillation

D. Fractional distillation

Answer: A

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13. Simple distillation can be used to separate

A. A mixture of benzene (boiling point 80° C) and toluene (boiling point $110^\circ c$)

B. A mixture of ether (boiling point $35^\circ C$ and toluene (boiling point 110° C

C. A mixture of ethanol (boiling point 78° C) and water (boiling point $100^\circ C$)

D. None of these

Answer: B

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14. Glycerol is separated in soap industries by :

A. Vacuum distillation

B. Steam distillation

C. Sublimation

D. Crystallization

Answer: A

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15. A bottle containing two immiscible liquids is given to you . They may be separated by using a

A. Fractionating column

B. Separating funnel

C. Vacuum distillation

D. Steam distillation

Answer: B

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16. Some organic compounds are purified by distillation at low pressure because the compounds are :

A. Low boiling liquids

B. High boiling liquids

C. Highly volatile

D. Decomposed before reaching their boiling points

Answer: D

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17. In steam distillation the vapour pressure of the volatalie organic compound is

A. Equal to atmospheric pressure

B. Less than atmospheric pressure

C. More than atmospheric pressure

D. None of these

Answer: B

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18. Liquids with decompose below their normal boiling ponit can be distilled at lower temperature by

A. Increasing the pressure

B. Decreasing the pressure

C. Heating in water bath

D. Heating in sand bath

Answer: B

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19. Separation of organic compounds by column chromatography is due to:

A. Selective adsorption

B. Selective absorption

C. Solubilities

D. Selective adsorption and selective absorption

Answer: A

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20. Which process is suitable for the purifucation of aniline ?

A. Vacuum distillation

B. Steam distillation

C. Fractional distillation

D. Fractional crystallization

Answer: B

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21. The best and latest technique for isolation, purification and separation of organic compound is

A. Chromatography

B. Distillation under reduced pressure

C. Differential extraction

D. Fractional crystallization

Answer: A

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22. Which of the follom'ng technique is most suitable for purification of cyclohexanone from a mixture containing benzoic acid, isoamylalcohol, cyclohexane and cyclohexanone ?

A. Crystallisation

B. IR spectroscopy

C. Sublimation

D. Gas chromatography

Answer: C

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23. The process of obaining a solid in its pure crystalline form , from its solution is known as _____.

A. Crystallization

B. Distillation

C. Extraction with solvents

D. Chromatograph

Answer: A

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24. Which of the following method of separation can be applied to the mixture of liquids having different boiling points ?

A. Simple distillation

B. Fractional distillation

C. Crystallization

D. Fractional crystallization

Answer: A

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25. Separation of binary mixture of acetone and benzene is done by _____.

A. Flasks

B. Fractionatingcolumns

C. Round bottom flasks

D. None of these

Answer: B

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26. To determine the melting point, powdered substance is filled in

A. Fusion tube

B. Boiling tube

C. Beaker

D. Capillary tube

Answer: D

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27. To determine the boiling point, liquid is filled in

A. Capillary tube

B. Boiling tube

C. Fusion tube

D. Thiele's tube

Answer: C

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28. The two solids of variable solubilites are sepatated by the process of _____.

A. Crystallization

B. Filtration

C. Distillation

D. Fractional distillation

Answer: A

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29. In Lassaigne's test for N, S and halogens, organic compound is

A. Fused with sodium

B. Dissolved with sodamide

C. Extracted with sodamide

D. Fused with calcium

Answer: A

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30. The sodium extract on acidification with acetric acid and then adding lead acetate solution gives a black precipitate. The organic compound contains.

A. Nitrogen

B. Halogen

C. Sulphur

D. Phosphorous

Answer: C

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31. During Lassaigne's test N and S present in an organic compound changes into

A. $NaCN$ and Na_2S

B. NaSCN

C. Na_2SO_4 and NaCN

D. Na_2S and NaCNO

Answer: A

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32. In an organic compound phosphorus is estimated as

A. $Mg_2P_2O_7$

B. H_3PO_4

C. $Mg_3(PO_4)_2$

D. P_2O_5

Answer: A

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33. Simple distillation (or distillation) is used to separate liquids which differ in their boiling point by

A. 5°

B. 10°

C. $30^\circ C - 50^\circ C$

D. $20^\circ C$

Answer: C

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34. In Lassaigne's test, the organic compound is fused with a piece of sodium metal in order to

A. Increase ionization of the compound

B. Decrease melting point of the compound

C. Increase reactivity of the compound

D. Convert covalent compound into a mixture of ionic compounds

Answer: D

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35. 0.20 g of hydrocarbon on combustion gave 0.66 g CO_2. The percentage of hydrogen in the hydrocarbon is about

A. 33

B. 45

C. 10

D. 90

Answer: C

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36. Kjeldahl's method cannot be used for the estimation of nitrogen in

A. Pyridine

B. Nitro compounds

C. Azo compounds

D. All the above

Answer: D

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37. Halogens can be estimated by

A. Duma's method

B. Carius method

C. Leibig's method

D. Kjeldahl's method

Answer: B

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38. In organic compound sulphur is estimated as

A. H_2SO_4

B. $BaSO_4$

C. SO_2

D. $BaCl_2$

Answer: B

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39. 0.58 g of hydrocarbon on combustion gave 0.9 g water. The percentage of carbon is about

A. 75.8

B. 82.7

C. 27.85

D. 68.8

Answer: B

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40. If 0.32 g of an organic compound containing sulphur produces 0.233 g of $BaSO_4$ Then the percentage of sulphur in it is

A. 10

B. 15

C. 20

D. 25

Answer: A

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41. Dumas method is used for the estimation of _____.

A. Carbon

B. Nitrogen

C. Oxygen

D. Sulphur

Answer: B

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42. If we want to study the relative arrangement of atoms in a molecule, we study

A. Empirical formula

B. Molecular formula

C. Structural formula

D. None of these

Answer: C

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43. In Duma's method,the gas which is collected in Nitromer is

A. N_2

B. NO

C. NH_3

D. H_2

Answer: A

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44. In Duma's method,the gas which is collected in Nitromer is

A. N_2

B. NH_3

C. NO_2

D. N_2O_3

Answer: B

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45. In Kjeldahl's method, the nitrogen present in the organics compund is coverted into

A. Ammonia

B. Ammonium phosphate

C. Ammonium sulphate

D. Ammonium hydroxide

Answer: C

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46. 0.4 g of an organic compound gave 0.188 g of silver bromide by halogen estimation maethod The percentage of bromine in the compound is ___.(At .Mass of $Ag = 108, Br = 80$)

A. 0.398

B. 0.46

C. 0.2

D. 0.4

Answer: C

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47. Lassaigne's test for the detection of nitrogen will fail in case of :

A. NH_2CONH_2

B. $H_2NCONHNH_2.HCl$

C. $H_2N.\ NH_2.\ 2HCl$

D. $C_6H_5NHNH_2.\ 2HCl$

Answer: C

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48. 0.5 g of an organic compound cantaining N on Kjeldahlising required 29 ml of N/5 H_2SO_4 for complete neutralization of NH3 . The percentage of N in the compound is

A. 34.3

B. 16.2

C. 21.6

D. 14.8

Answer: B

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49. 2.79 g of an organic compound when heated in Carius tube with cone. HNO_3 and H_3PO_4 formed converted into $MgNH_4.PO_4$ ppt. The ppt. on heating gave 1.332 g of $Mg_2P_2O_7$.The percentage of P in the compound is

A. 23.33

B. 13.33

C. 33.33

D. 26.66

Answer: B

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50. In the estimation of sulphur organic compound on treating with conc. HNO_3 is converted to

A. SO_2

B. H_2S

C. H_2SO_4

D. SO_3

Answer: C

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51. In Carius method, $0.099g$ organic compound gave $0.287gAgCl$. The percentage of chlorine in the compound will be

A. 28.6

B. 71.7

C. 35.4

D. 64.2

Answer: B

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52. $0.24g$of an organic compound gave $0.22gO_2$ on complete combustion. If it contains 1.66% hydrogen, then the percentage of C and O will be

A. 12.5 and 36.6

B. 25 and 73.4

C. 25 and 36.6

D. 25 and 80

Answer: B

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53. Which of the following is the best scientific method to test the presence of water in liquid ?

A. Use of anhydrous copper sulphate

B. Use of litmus paper

C. Taste

D. Smell

Answer: A

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54. ____ is filled in U-tube to absorb water from the organic mixture.

A. KOH

B. NaOH

C. Anhydrous $CaCl_2$

D. NaCl

Answer: C

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55. Empirical formula of an organic compound having molecular weight 60 is CH_2O. What is its molecular formula?

A. $C_6H_{12}O_6$

B. $C_4H_8O_4$

C. $C_3H_6O_3$

D. $C_2H_4O_2$

Answer: D

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56. In the dumas method , for the the estimation of nitrogen , 0.84 g of an oranic compound gave 448 mL of nitrogen at S. T .P the percentage of nitrogen in the compound is _____.

A. 33.3

B. 66.7

C. 50

D. 60

Answer: B

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57. 0.395 g of an organic compound by Carius method for the estimation of S gave 0.582 g of $BaSO_4$ The percentage of S in the

compound is

A. 20.24

B. 35.62

C. 12.24

D. 40.65

Answer: A

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58. In sulphur estimation, 0.157 g of an organic compound gave 0.4813 g of barium sulphate. What is the percentage of sulphur in the compound?

A. 46

B. 56

C. 42.1

D. 32

Answer: C

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59. 0.40g of an organic compound containing phosphorus gave 0.555 g of $Mg_2P_2O_7$ by usual analysis calculate the % of phosphorus in the organic compound

A. 35

B. 40

C. 38.75

D. 45

Answer: C

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60. 0.4 g of an organic compound in Dumas method, gave 50 ml of nitrogen collected at 300 K and 745 mn pressure Calculate the percentage composition of nitrogen in the compound. Aqueous tension at 300 K is 15 mm.

A. 0.4332

B. 0.6439

C. 0.2242

D. 0.1367

Answer: D

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61. In Dumas' method for estimation of nitrogen, 0.3g of an organic compound gave 50mL of nitrogen collected at 300K temperature and

715mm pressure. Calculate the percentage composition of nitrogen in the compound. (Aqueous tension at 300K=15 mm)

A. 0.228

B. 0.378

C. 0.428

D. 0.578

Answer: A

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62. 15 mL of 1M H_2SO_4 is completely neutralized by ammonia liberated from 0.6 g of compound in Kjeldahl's method. Find out the percentage of nitrogen in the compound

A. 30

B. 50

C. 70

D. 85

Answer: C

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63. 0.16 g of an organic compound gave 0.5 g of barium sulphate in Carius method of estimation of sulphur. Calculate the percentage of sulphur in the compound.

A. 42.91

B. 52.91

C. 62.91

D. 72.91

Answer: A

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64. A sample of 0.50 gm of an organic compound was treated according to Kjeldahl's method the smmonia evolved was absorbed in 50 ml of $0.5MH_2SO_4$. The residual acid required 60 cm of 0.5M solution of $NaOH$ for neutralisation. Find the percentage composition of nitrogen in the compound.

A. 36

B. 56

C. 76

D. 86

Answer: B

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65. In Lassaigne's test for nitrogen the blue colour is due to the formation of

A. Potassium ferrocyanide

B. Sodium cyanide

C. Sodium ferrocyanide

D. Ferriferrocyanide

Answer: D

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66. The compound formed in the positive test for nitrogen with Lassaigne's solution of an organic compound is

A. $Na_4\left[Fe(CN)_5NOS\right]$

B. $Na_4\left[Fe(CN)_6\right]$

C. $Fe(CN)_3$

D. $Fe_4\left[Fe(CN)_6\right]_3$

Answer: D

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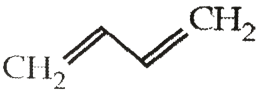
67. Which of the following represent the given mode of hybridisation $sp^2 - sp^2 - sp - sp$ from left to right?

A. $H_2C = CH - C \equiv N$

B. $CH \equiv C - C \equiv CH$

C. $H_2C = C = C = CH_2$

D. 

Answer: A

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

A. $CH_2 = C = CH_2$

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

C. $CH_3 - C \equiv C - CH_2^+$

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

Answer: C

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69. In which of the following compound sp^2-hybridisation is absent

A. $CH \equiv C - CH = CH_2$

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

C. $CH_3 - CH = CH_2$

D. $Ch_2 = CH - CH_2 - CH_3$

Answer: B

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70. Basic strength of

H_2CCH_3

$H_2C = CH_2$

$H - C \equiv C - H$

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

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

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

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

Answer: B

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71. The compound in which all carbon atoms use only sp^3-hybrid orbitals for bond formation is:

A. HCOOH

B. $(NH_2)_2CO$

C. $(CH_3)_3COH$

D. $(CH_3)_3CHO$

Answer: C

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72. 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 hybridized

D. sp^3 hybridized

Answer: B

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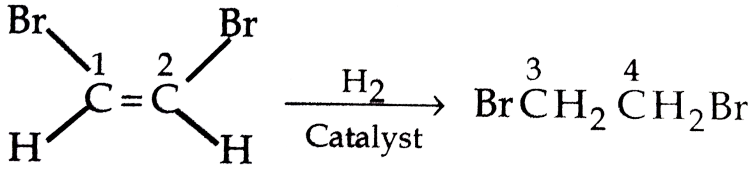
73. In the reaction



$$\xrightarrow[\text{Catalyst}]{H_2} BrCH_2CH_2CH_2Br$$

The hybridization states of carbon atoms 1, 2, 3, 4 are

A. 1 and $2sp^2$, 3 and $4sp^3$

B. 1 and $2sp^2$, 3 and $4sp$

C. 1, 2, 3 and 4 sp

D. $1, 2sp^3, 3, 4sp^2$

Answer: A

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74. In the hydrocarbon

$$\underset{6}{C}H_3 - \underset{5}{C}H = \underset{4}{C}H - \underset{3}{C}H_2 - \underset{2}{C} \equiv \underset{1}{C}H$$

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

C. sp^2, sp, sp^3

D. sp, sp^3, sp^2

Answer: D

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75. Example of sp^2 hybridization is

A. CH_3^+

B. CH_3

C. $C_2H_5^+$

D. C_2H_5

Answer: A

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76. Acetylene molecule contain

A. 5σ bond

B. 4σ bond and 1π bond

C. 3σ and 2π

D. 3σ and 3π

Answer: C

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77. The compound 1,3-butadiene has

A. sp and sp^2 hybridized C-atoms

B. sp, sp^2 and sp^3 hybridized C-atoms

C. Only sp^2 hybridized C-atoms

D. Only sp hybridized C-atoms

Answer: C

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78. The number of sigma and pi-bonds in 1-butene 3-yne are:

A. $7\sigma, 3\pi$

B. $5\sigma, 2\pi$

C. $8\sigma, 3\pi$

D. $6\sigma, 2\pi$

Answer: A

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79. Which is an acid hydrocarbon ?

A. $CH_3CH_2CH_2CH_3$

B. $CH_3C \equiv CCH_3$

C. $CH_3C \equiv CH$

D. $CH_2 = CH - CH = CH_2$

Answer: C

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80. Which carbon-atoms has tetrahedral geometry

$\overset{1}{C}H_2 = \overset{2}{C}H - \overset{3}{C}H_2 - \overset{4}{C}OOH$

A. 1

B. 2

C. 3

D. 4

Answer: C

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81. The hybridisation of carbon atoms in C - C single bond is $HC \equiv C - CH = CH_2$ is

A. $sp^3 - sp^3$

B. $sp - sp^2$

C. $sp^3 - sp$

D. $sp^2 - sp^3$

Answer: B

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82. Hybridisation $\overset{+}{C}H_3$ and $\overset{-}{C}H_3$ are

A. sp and sp^2 respectively

B. sp^2 and sp^2 respectively

C. sp^2 and sp^3 respectively

D. sp^3 and sp^3 respectively

Answer: C

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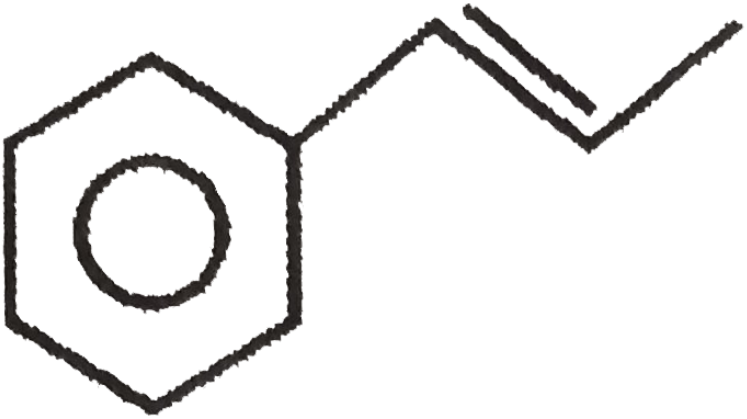
83. How many bonds are there in



A. $14\sigma, 8\pi$

B. $19\sigma, 4\pi$

C. $9\alpha, 4\pi$

D. $14\alpha, 2\pi$

Answer: B

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84. The number of $\sigma -$ and π bonds present in pent-4en-1-yne is :

A. 10, 3

B. 3, 10

C. 4, 9

D. 9, 4

Answer: A

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85. Hybridization of 1 and 2 carbon atoms in $\overset{1}{C}H_2 = \overset{2}{C} = CH_2$

A. sp,sp

B. sp^2, sp^2

C. sp^2, sp

D. sp^3, sp^2

Answer: C

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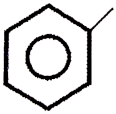
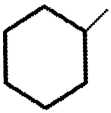
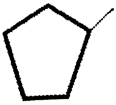
86. Examine the following common chemical structures to which simple functional groups are often attached

(i) 

(ii) 

(iii) 

(iv) $CH_3CH_2CH_2CH_3$

(v) $H_2C = CH_2$

$CH_3CH_2CH_2CH_2^-$

$H_2C = CH_2$

Which of these have essentially planar geometry :

A. IV

B. I and V

C. II and III

D. II,III and IV

Answer: B

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87. Only two isomeric monochloro derivatives are possible for

A. n-butane

B. 2,4-dimethyl pentane

C. Benzene

D. 1-methyl propane

Answer: A

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88. The isomer of diethyl ether is

A. $(CH_3)_2CHOH$

B. $(CH_3)_3C - OH$

C. C_3H_7OH

D. $(C_2H_5)_2CHOH$

Answer: B

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89. The isomerism exhibits by alkyl cyanide and alkyl isocyanide is

A. Functional

B. Positional

C. Tautomerism

D. Metamerism

Answer: A

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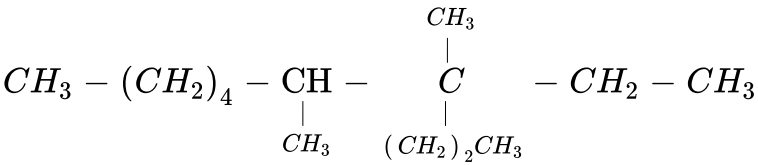
90. IUP AC name of the compound



A. 3, 4-Dimethyl-3-n-propylnonane

B. 4-Ethyl-4, 5-dimethyldecane

C. 6, 7-Dimethyl-7-n-propylnonane

D. 6, 7-Dimethyl-7-ethyldecane

Answer: B

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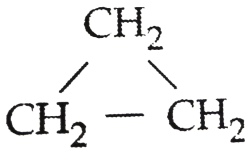
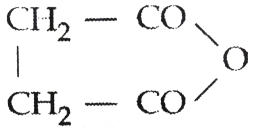
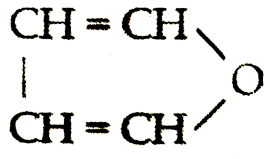
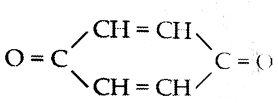
91. The structure representing a hetrocyclic compound is :

A. 

B. 

C. 

D. 

Answer: C

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92. Neo-heptyl alcohol is correctly represented as

A. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - \underset{\underset{OH}{|}}{CH}CH_2CH_3$

B. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2CH_2CH_2CH_3$

C. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2CH_2CH_2OH$

D. $C_2H_5 - \underset{\underset{C_2H_5}{|}}{\overset{\overset{C_2H_5}{|}}{C}} - OH$

Answer: C

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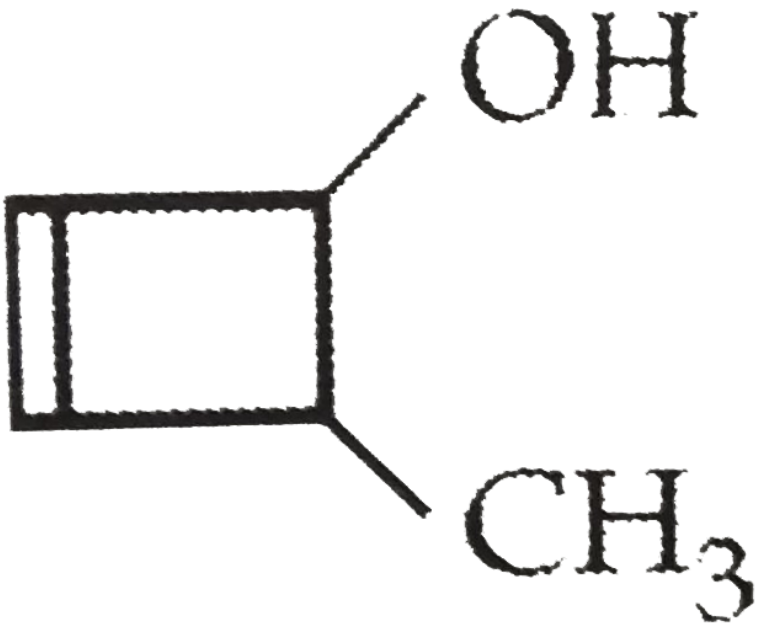
93. The IUPAC name of



A. 3-Methylcyclo-1-buten-2-ol

B. 4-Methylcyclo-2-buten-1-ol

C. 4-Methylcyclo-1-buten-3-ol

D. 2-methylcyclo-3-buten-1-ol

Answer: B

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94. When potassium cyanate is heated, it gives

A. Urea

B. Methanamide

C. Ethanamide

D. Ethanamine

Answer: A

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95. $CH_3CH_2CH_2CH(CH=CH_2)CH_2CH_2CH_3$ is

A. 4-Ethenylheptane

B. 3-n-propyl-1-hexene

C. 4-Ethenylhexane

D. 3-Ethenylheptane

Answer: B

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96. The IUPAC name of

$$CH_3 - \underset{\underset{Cl}{|}}{C} = \underset{\underset{CH_3}{|}}{C} - \underset{\underset{C_2H_5}{|}}{CH} - CH_2 - C \equiv CH$$ is

A. 6-Chloro-4-ethyl-5-methylhept-5-en-1-yne

B. 6-Chloro-4-ethyl-5-methylhept-1-yn-5-ene

C. 2-Chloro-4-ethyl-3-methylhept-2-en-6-yne

D. 2-Chloro-4-ethyl-3-methylhept-6-yn-2-ene

Answer: D

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97. The $IUPAC$ name of

$$CH_3 - \underset{\underset{OH}{|}}{CH} - CH = \underset{\underset{CH_3}{|}}{C} - CHO$$

is

A. 4-Hydroxy-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-2-en-5-al

Answer: B

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98. The IUPAC name of the compound

$CH_3CH = CHCH_2\underset{\underset{NH_2}{|}}{CH}CH_2COOH$ is

A. 5-Amino-2-heptenoic acid

B. 3-Amino-5-heptanoic acid

C. 5-Aminohex-2-enecarboxylic acid

D. 3-Amino-5-heptenoic acid

Answer: D

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99. The IUPAC name of

$$OHC - CH = CH - \underset{\underset{CH_2CH_2CH_2CH_3}{|}}{CH} - CH = CH_2$$

A. 5-Vinyloct-3-en-1-al

B. 4-Butyl-2, 5-hexadien-1-al

C. 5-Vinyloct-5-en-8-al

D. 3-Butyl-1, 4-hexandien-8-al

Answer: B

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100. The IUPAC name of

$$\underset{5}{CH_3} - \underset{4}{\overset{\overset{O}{||}}{C}} - \underset{3}{CH_2} - \underset{2}{\overset{\overset{OH}{|}}{C}}H - \underset{1}{CHO}$$ is

A. 5-Oxo-4-hydroxy-2-pentanone

B. 4-Hydroxy-5-al-2-pentanone

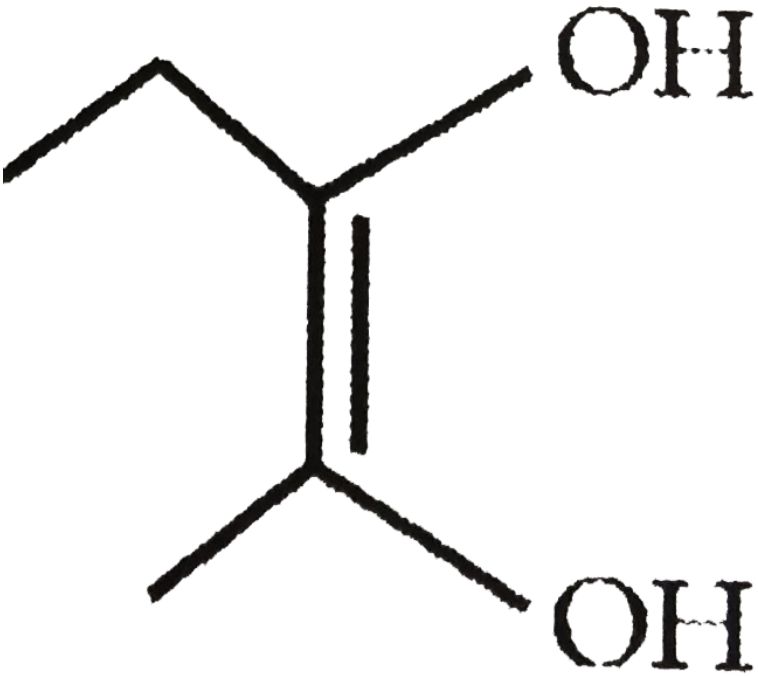
C. 2-Hydroxy-4-oxopentanal

D. 1-al-4-oxo-2-pentanol

Answer: C

Watch Video Solution

101. The IUPAC name of



A. But-2-ene-2, 3-diol

B. Pent-2-ene-2, 3-diol

C. 2-Methylbut-2-ene-2, 3-diol

D. Hex-2-ene-2, 3-diol

Answer: B

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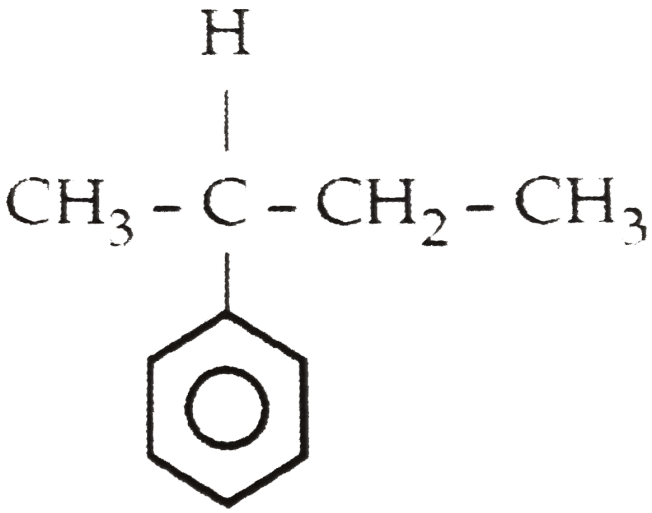
102. IUPAC name of following compound is



A. 2-Cyclohexylbutane

B. 2-Phenylbutane

C. 3-Cyclohexylbutane

D. 3-Phenylbutane

Answer: B

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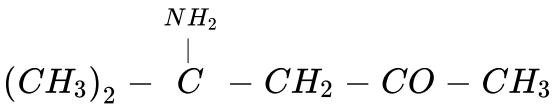
103. The given compound in IUPAC may be called,



A. Diacetone

B. Acetoneamine

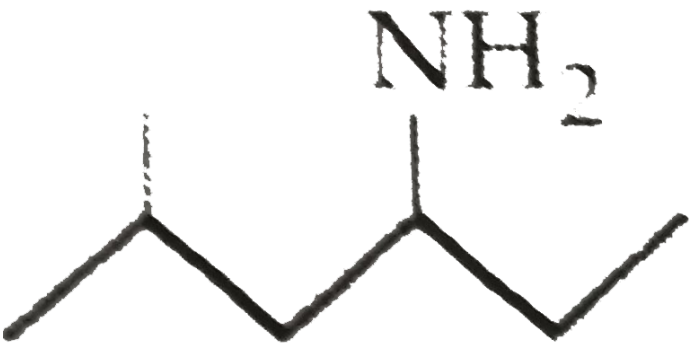
C. Diacetoneamine

D. 4-Amino-4-methylpentan-2-one

Answer: D

Watch Video Solution

104. What is the IUPAC name of the following compound?



A. 2-Methyl-4-hexanamine

B. 5-Methyl-3-hexanamine

C. 2-Methyl-4-amino hexane

D. 5-Methyl-3-amino hexane

Answer: B

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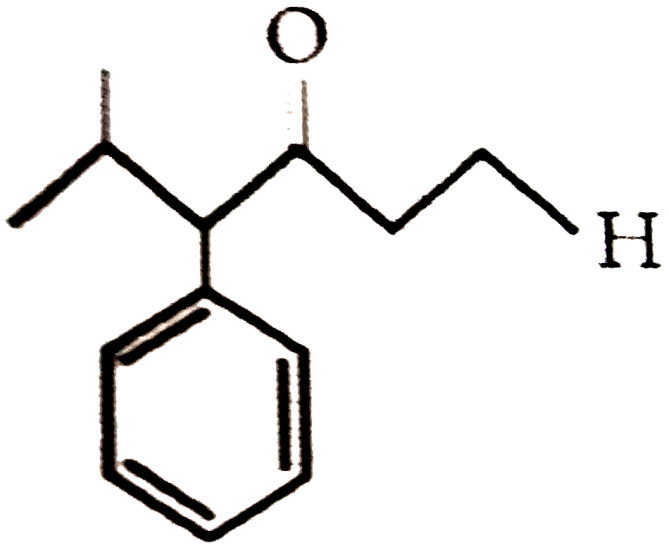
105. The IUPAC name of the compound given below :



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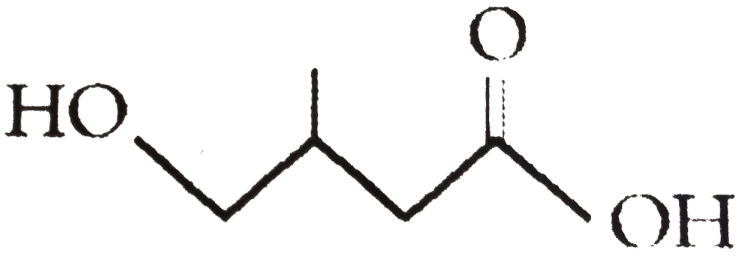
106. The IUP AC name of the following compound.



A. 4-Hydroxy-3-methyl butanoic acid

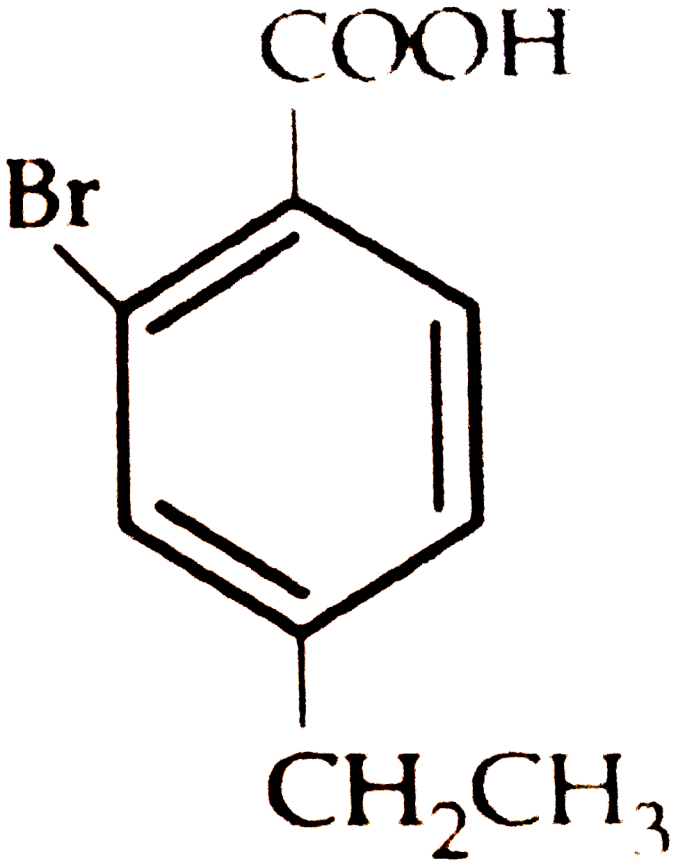
B. 1-Hydroxy-2-methyl butanoic acid

C. 3-Hydroxy-2-methyl butanoic acid

D. 3-(Hydroxymethyl) butanoic acid

Answer: A

107. What is the IUPA C name of the following compound?



A. 6-Bromo-4-ethylbenzene carboxylic acid

B. 2-Bromo ethyl benzene carboxylic acid

C. Ortho-bromo-paraethyl benzoic acid

D. 2-Bromo-4-ethyl benzoic acid

Answer: B

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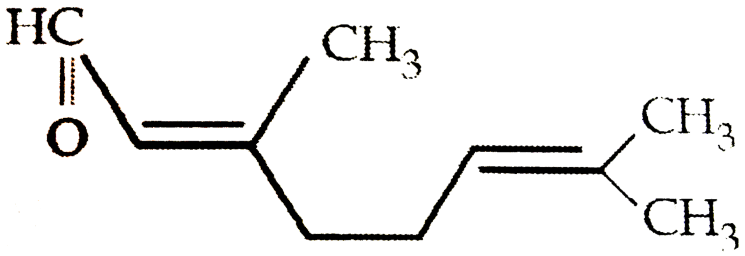
108. The correct IUPAC name of the compound



A. 2, 6-dimethyl octa-2, 6-dien-1-al

B. 3, 7-dimethyl hepta-2, 6-dien-1-al

C. 3, 7-dimethyl octa-2, 6-dien-1-al

D. 2, 6-dimethyl-2, 6-dien-8-al

Answer: C

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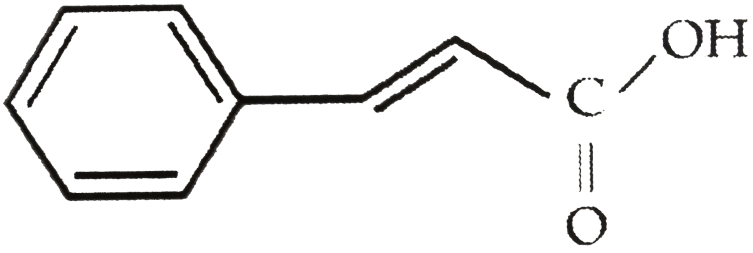
109. The IUPAC name of



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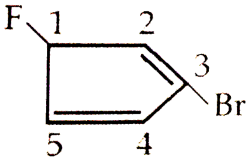
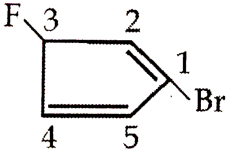
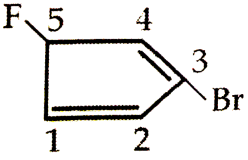
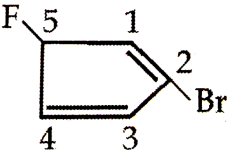
110. Which of the following numbering is correct?

(A) 

(B) 

(C) 

(D) 

A. A

B. B

C. C

D. D

Answer: B

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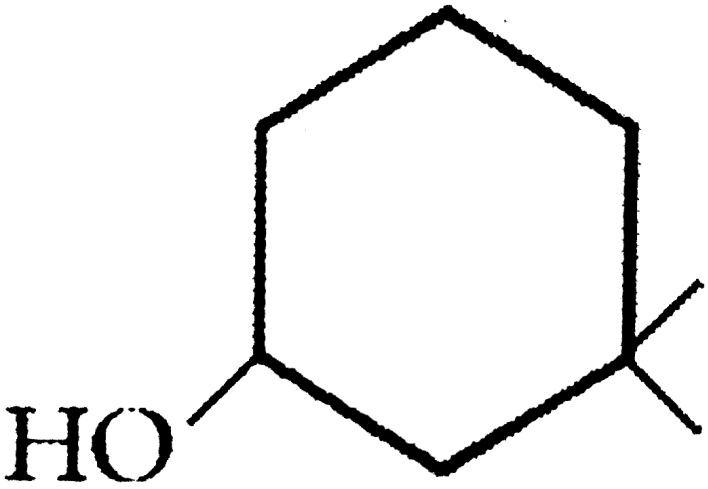
111. The IUPAC name of the compound is



A. 3, 3-Dimethyl-1-cyclohexanol

B. 1, 1-Dimethyl-3-hydroxy cyclohexane

C. 3, 3-Dimethyl-1-hydroxy cyclohexane

D. 1, 1-Dimethyl-3-cyclohexanol

Answer: A

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112. The systematic name of $CH_3 - CHBr - CH_2OH$ is

A. 3-Hydroxy-2-bromopropane

B. 2-Brornopropanol-l

C. 2-Brorno-3-propanol

D. 3-Hydroxy isopropyl bromide

Answer: B

Watch Video Solution

113. The correct IUPAC name of $CH_3CH(OH)CH_2CH_2COOH$ is

A. 4-Hydroxy pentanoic acid

B. 1-Carboxy-3-butanoic acid

C. 1-Carboxy-4-butanol

D. 4-Carboxy-2-butanol

Answer: A

Watch Video Solution

114. IUPAC name of the compound is

$CH_3 - \underset{\underset{\underset{CH_3}{|}}{CH_2}}{\overset{|}{CH}} - CH_2CH(OH) - CH_3$ is

A. 4-Ethyl-2-pentanol

B. 4-Methyl-2-hexanol

C. 2-Ethyl-2-pentanol

D. 3-Methyl-2-hexanol

Answer: B

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115. IUPAC name of the compound is $CH_3 - CH = \underset{\underset{CH_2 - CH_3}{|}}{C} - CH_3$

A. 2-Ethyl-2-butene

B. 3-Ethyl-2-butene

C. 3-Methyl-3-pentene

D. 3-Methyl-2-pentene

Answer: C

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116. IUPAC name of $(CH_3)_2CH - CH = CH - CH_3$ is

A. 2-Methyl-3-pentene

B. 4-Methyl-2-pentene

C. 1, 2-Isopropyl-1-propene

D. 3-Isopropyl-2-propene

Answer: A

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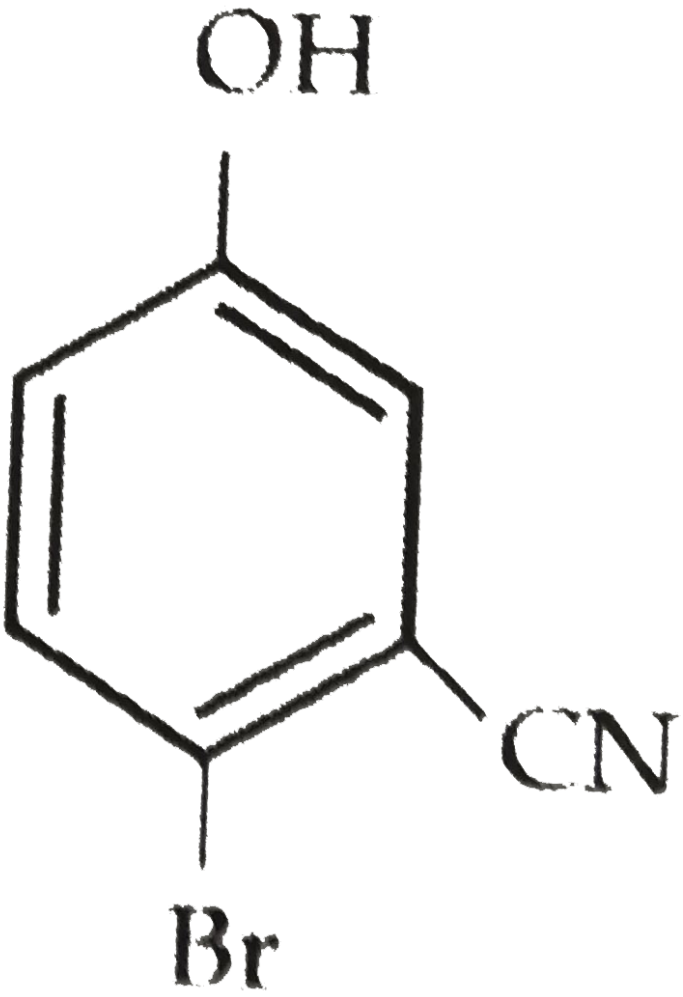
117. The IUPAC name of the following compound is



A. 4-Bromo-3-cyanophenol

B. 2-Bromo-5-hydroxybenzonitrile

C. 2-Cyano-4-hydroxybromobenzene

D. 6-Bromo-3-hydroxybenzonitrile

Answer: A

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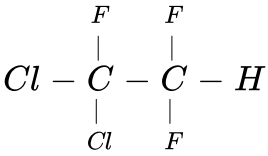
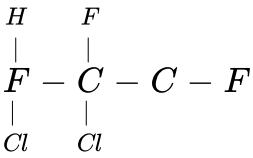
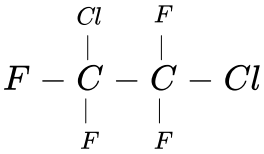
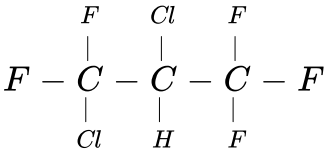
118. Freon-114 used in refrigerator and air conditioners is 1, 2-dichlorotetrafluoroethane. Its structural formula is

A. 

B. 

C. 

D. 

Answer: C

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119. IUPAC name of $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - NH_2$ is

A. 1-Methyl-1-aminopropane

B. 2-aminobutane

C. 2-Methyl-3-aminopropane

D. None of the above

Answer: B

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120. IUPAC name of $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CH_2 - CH = CH_2$ is

A. 2-Methyl pentene

B. 4-Methyl pentene-1

C. 1-Hexene

D. 2-Methyl pentene-1

Answer: B

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121. The IUPAC name of $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{C} = CH_2$ is

A. 2-Methylbutene-1

B. 3-Methylbutene-1

C. Vinyl methylethane

D. Propylethene-1

Answer: A

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122. The IUPAC name of $CH_3C \equiv CCH(CH_3)_2$ is

A. 4-Methyl-2-pentyne

B. 4, 4-dimethyl-2-butyne

C. Methyl isopropyl acetylene

D. 2-Methyl-4-pentyne

Answer: A

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123. The IUPAC name of the compound

$$CH_3 - \underset{\underset{CH_3}{|}}{C}H - \underset{\underset{CH_2}{||}}{C} - CH_2CH_3$$ is

A. 3-Methyl-2-ethyl but-1-ene

B. 2-Ethyl-3-methyl but-1-ene

C. 3-Ethyl-3-methyl but-1-ene

D. Ethyl isopropyl ethene

Answer: B

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124. The I.U.P.A.C. name of $(C_2H_5)_2CH.CH_2OH$ is

A. 2-Ethyl butanol-1

B. 2-Methyl pentanol-1

C. 2-Ethyl pentanol-1

D. 3-Ethyl butanol-1

Answer: A

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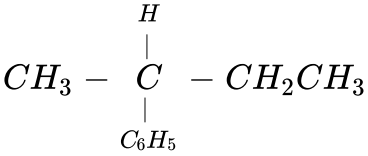
125. IUPAC name of the following compound is



A. 2-Cyclohexylbutane

B. 2-Phenylbutane

C. 3-Cyclohexylbutane

D. 3-Phenylbutane

Answer: B

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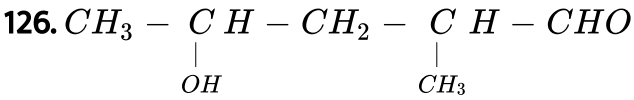
126. 

A. 4-Hydroxy-1-methylpentanal

B. 4-Hydroxy-2-methylpentanal

C. 3-Hydroxy-2-methylpentanal

D. 3-H ydroxy-3-methy 1 pentanal

Answer: B

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127. What is the correct IUP AC name for

$$CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{H}{|}}{C}} - CH = CH - CH_2 - \overset{\overset{O}{||}}{C} - OH\ ?$$

A. 5-Methyl-3-hexenoic acid

B. 5-Carboxyl-2-methylpentene

C. 4-Isopropyl-3-butenoic acid

D. None of above

Answer: A

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128. The IUPAC name of

$CH_3 - CH_2CH = \underset{\underset{CH_3}{|}}{C}CH_2OH$ will be

A. 2-Methyl pentyl alcohol

B. 4-Methyl-3-pentene-ol

C. 2-Methyl pent-2-ene-1-ol

D. 4-Methyl pentyl alcohol

Answer: B

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129. The structure of 4-methyl pent-2-ene is

A. $(CH_3)_2CH - CH_2CH = CH_2$

B. $(CH_3)_2CH - CH = CH - CH_3$

C. $(CH_3)_2CH - CH_2CH = CH - CH_3$

D. $(CH_3)_2C = CHCH_2CH_3$

Answer: B

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130. 2-Methyl-2-butene will be represented as

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

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

C. $CH_3 - CH_2 - \overset{\overset{CH_3}{|}}{C} = CH_2$

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

Answer: B

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131. The IUPAC of $CH_2 = CH - CH_2Cl$ is

A. Ally] chloride

B. l-Chloro-3-propene

C. Vinyl chloride

D. 3-Chloro-1-propene

Answer: D

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132. IUPAC name of the compound

$CH_2 = CH - CH_2 - CH_2OH$ is

A. 1-Buten-4-ol

B. 3-Buten-1-ol

C. 4-Hydroxy-1-butene

D. 1-Butenol-4

Answer: A

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133. Which is the correct structure of the compound 3- hexyn-1-oic acid ?

A. $CH_3 - CH_2 - CH_2 - C \equiv C - COOH$

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

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

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

Answer: B

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134. The IUPAC name of the compound having the formula CCl_3CH_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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135. IUPAC name of the following compound will be

$$\begin{array}{l} CH_3-CH=\underset{|}{C}-CH_2-CH_3 \\ \qquad\qquad\quad CH_2-CH_2-CH_3 \end{array}$$

A. 3-Ethyl-2-hexene

B. 3-Propyl-2-hexene

C. 3-Propyl-3-hexene

D. 4-Ethy-4-hexene

Answer: A

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136. The IUPAC name of the following compound is

$$\begin{array}{l} CH_3-\underset{|}{CH}-CH_2CH_2CH_3 \\ \qquad\quad CH(CH_3)_2 \end{array}$$

A. 2-Isopropylpentane

B. 2, 3-Dimethylhexane

C. Isononane

D. 2, 4-Dimethylhexane

Answer: B

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137. The IUPAC nameof $CH_3 - \overset{\overset{Cl}{|}}{\underset{\underset{OH}{|}}{C}} - CH_2 - CH = CH - CH_3$ is :

A. 5-Chloro-5-hydroxyhex-2-ene

B. 2-Chloro-5-hydroxyhexene

C. 2-Chloro-2-hydroxy-5-hexene

D. 2-Chloro-4-hexenol -2

Answer: A

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138. The IUPAC name of

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

A. Pent-2-en-4-yne

B. Pent-3-en-1-yne

C. Pent-3-yne-1-en

D. Pent-2-yne-1-en

Answer: A

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139. IUPAC name of $CH_3 - \overset{\overset{H}{|}}{\underset{\underset{C_2H_5}{|}}{C}} - \overset{\overset{C_4H_9}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_3$ is

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

Watch Video Solution

140. Which is the IUPAC name of $CH_3 - \overset{\overset{C_2H_5}{|}}{\underset{\underset{C_2H_5}{|}}{C}} - CH_2Cl$?

A. 1-Chloro-2, 2-diethylpropane

B. 3-Chloro-2, 2-diethylpropane

C. 1-Chloro-2-ethyl-2-methylbutane

D. 1-Chloro-2, 2-diethyl-2-methylethane

Answer: C

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141. The IUPAc name of the compound $CHO-(CH_2)_4-COOH$

A. Hexan-1-al-6-oic acid

B. 6-Formyl-hexanoic acid

C. Hexanal-1-carboxylic acid

D. Hexanoic acid -5-al-1

Answer: B

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142. The IUPAC name of $CH_3-CH=CH-COOH$ is:

A. 2-Butenoic acid

B. 1-Butenoic acid

C. 3-Butenoic acid

D. 1-Carboxy-1-propene

Answer: A

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143. The correct IUPAC name of

$$H_2C = CH - \underset{\displaystyle CH_3}{\underset{|}{\text{CH}}} - CH_2C \equiv CH$$

A. 3-Methyl-1-hexen-5-yne

B. 4-Methyl-5-hexen-1-yne

C. 4-(Ethenyl)-1-pentyne

D. 3-(2-propenyl) butene-1

Answer: A

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144. The IUPAC name of

$(CH_3)_2CH - CH_2 - CH_2Br$ is

A. 1-Bromo pentane

B. 2-Methyl-4-bromo butane

C. 1-Bromo-3-methyl butane

D. 2-Methyl-3-bromo butane

Answer: C

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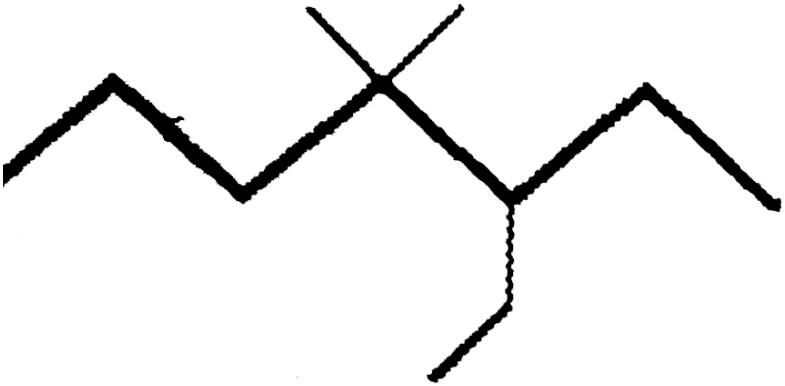
145. The IUPAC name of



is

A. 1, 1-Diethyl-2, 2-dimethylpentane

B. 4, 4-Dimethyl-5, 5-diethylpentane

C. 5, 5-Diethyl-4, 4-dimethylpentane

D. 3-Ethyl-4, 4-dimethylheptane

Answer: D

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146. The $IUPAC$ name of compound $CH_3 - C(CH_3)_2 - CH_2 - CH = CH_2$ is

A. 2, 2-Dimethyl pent-4-ene

B. 2, 2-Dimethyl-2-pentene

C. 1, 1, 1-Trimethyl but-3-ene

D. 4, 4-Dimethyl pent-1-ene

Answer: D

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147. Which of the following alkanes contain primary, secondary, tertiary and quaternary carbon atoms together

A. $(CH_3)_3CH$

B. $(C_2H_5)_3CH$

C. $(CH_3)_3CCH_2CH(CH_3)_2$

D. $(CH_3)_4C$

Answer: C

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148. The number of tetirary carbon atoms in the compound $(CH_3)_2CHCH_2C(CH_3)_3$ is

A. 2

B. 3

C. 1

D. 4

Answer: C

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149. The compound which has one isopropyl group is

A. 2, 2, 3, 3-Tetramethyl pentane

B. 3, 3-Dimethyl pentane

C. 2, 2, 3-Trimethyl pentane

D. 2-Methyl pentane

Answer: D

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150. The $IUPAC$ name of

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

A. 6, 6-Dibromoheptane-2-ol

B. 2, 2-Dibromoheptane-6-ol

C. 6, 6-Dibromoheptan-2-ol

D. None of these

Answer: C

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151. The IUPAC name of $CH_3 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_2 - \overset{\overset{OH}{|}}{CH} - CH_3$ is

A. 4-Methyl-2, 4, pentanediol

B. 1, 1-Dimethyl 1, 1, 3-butanediol

C. 2-Methyl-2, 4-pentanediol

D. 1, 2, 3-Trimethyl-1, 3-propanediol

Answer: C

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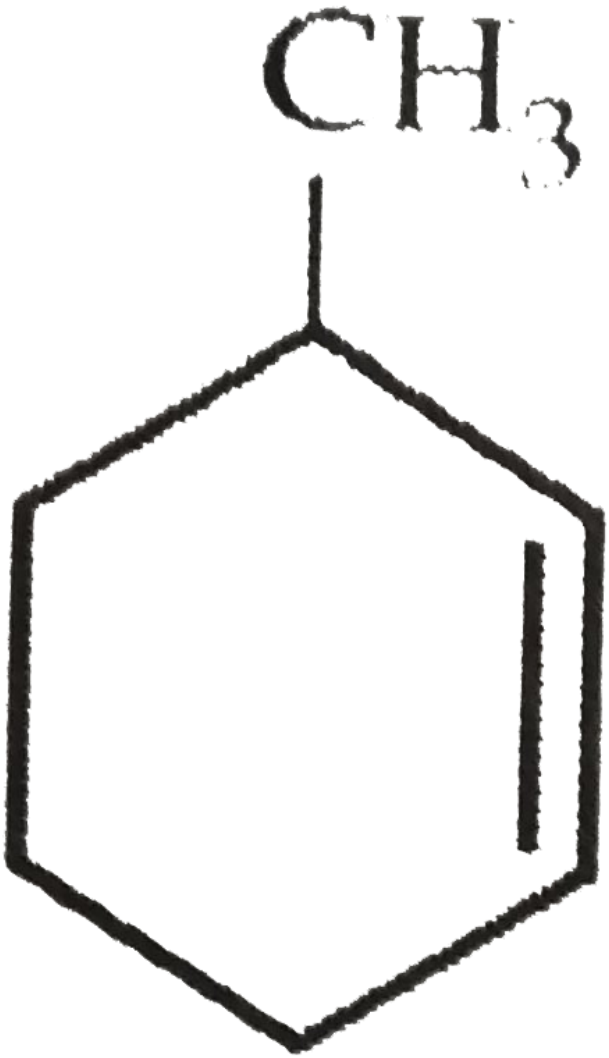
152. IUPAC name of the following compound is



A. 3-Methyl cyclohexene

B. 1-Methyl cyclohex-2-ene

C. 6-Methyl cyclohexene

D. 1-Methyl cyclohex-5-ene

Answer: A

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153. The IUPAC name of $CH_3C \equiv CCH(CH_3)_2$ is

A. 4-Methyl-2-pentyne

B. 4, 4-Dimethyl-2-butyne

C. Methyl isopropyl acetylene

D. 2-Methyl-4-pentyne

Answer: A

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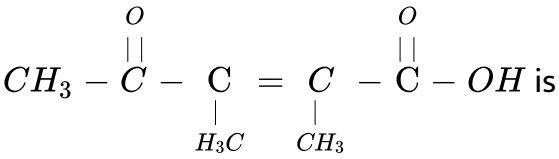
154. The IUPAC name of the molecule



is

A. 4-Oxo-2, 3-dimethylpent-2-en-1-oic acid

B. 2-Carboxy-3-methylpent-2-en-3-one

C. 4-Carboxy-3-methylpent-3-en-2-one

D. 2, 3-Dimethyl--4-oxo-pent-2-en-1-oic acid

Answer: D

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155. The name of $Cl - CH_2 - \underset{\underset{Br}{|}}{C} = \underset{\underset{Br}{|}}{C} - CH_2 - Cl$ according to the $IUPAC$ nomenclature system is

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

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

C. 1, 4-Dichloro-2,3-bromobutene-2

D. Dichlorodibromobutane

Answer: B

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

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

3-Methyl-2-butanol

B. $CH_3 - C \equiv C - CH(CH_3)_2$

4-Methyl-2-pentyne

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

2-Ethyl-3-methyl-but-1-ene

D. $CH_3 - CH_2 - CH_2 - \underset{\underset{CH_2CH_3}{|}}{CH} - \overset{\overset{CH_3}{|}}{CH} - CH_2CH_3$

3-Methyl-4-ethyl heptane

Answer: D

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157. The IUPAC name of the compound

$CH_3 - CH_2 - \overset{\overset{OCH_3}{|}}{CH} - CH_2 - OH$

A. 2-Methoxy-1-butanol

B. 3-Methoxy-1-butanol

C. 2-Methoxy-1-butanal

D. 1,2-Methoxy-butanol

Answer: A

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158. IUPAC name of $CH_3CH_2C(Br) = CH - Cl$ is

A. 2-Bromo-1-chloro butene

B. 1-Chloro-2-bromo butene

C. 3-Chloro-2-bromo butene

D. None of the above

Answer: A

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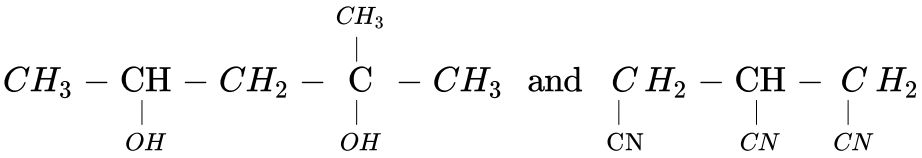
159. The IUP AC name of



A. 1, 1-Dimethyl-1, 3-butanediol and propanetricarbyl amine

B. 4-Methyl-2, 4-pentanediol and 1, 2, 3- propanetrinitrile

C. 2-Methyl-2, 4-pentanediol and propane 1, 2, 3- tricarboni trile

D. 1, 3, 3-Trirnethyl-1, 3-propanediol and 1, 2, 3- tricyano propane

Answer: C

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160. Hexa-2-ene-4-yne is

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

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

C. $CH_3CH_2 - CH = CH - C \equiv CH$

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

Answer: B

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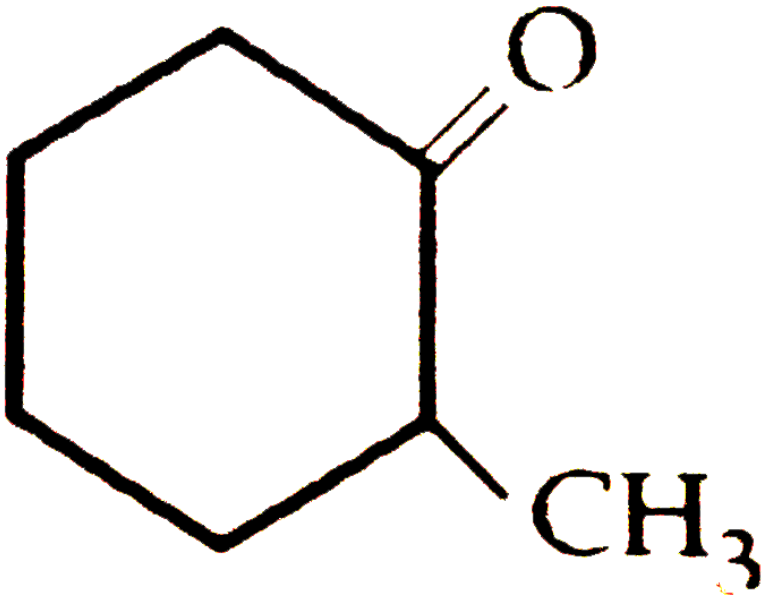
161. IUPAC name of the compound



A. α-Methyl cyclohexanone

B. 2-Methyl cyclohexanone

C. Heptanone-2

D. Methyl cyclohexanone

Answer: B

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162. IUPAC name of $CH_2 = CH - CH(CH_3CH_2)\underset{\underset{Br}{|}}{C} = CH_2$ is

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 these

Answer: B

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163. $IUPAC$ name of

$$H_3C - \underset{\underset{C_2H_5}{|}}{C}H - CH_2 - \underset{\underset{OH}{|}}{C}H - CH_2CL$$

A. 1-Chloro-4-methyl-2-hexanal

B. 2-Chloro-4-ethyl-2-pentanol

C. 1-Chloro-4-methyl-2-hexanol

D. 1-Chloro-2-hydroxy-4-methyl hexane

Answer: C

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164. The IUPAC name of

$(CH_3)_2C - CH = CH_2$ is

A. 3, 3, 3-Trirnethyl-1-propene

B. 1, 1, l-Trimethyl-2-propene

C. 3, 3-Dimethyl-1-butene

D. 2, 2-Dimethyl-3-butene

Answer: C

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

A. Isopropylmethyl ketone

B. 2-Methyl-3-butanone

C. 4-Methylisopropyl ketone

D. 3-Methyl-2-butanone·

Answer: D

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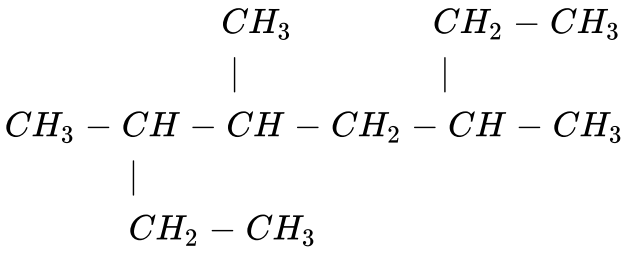
166. What will be the IUPAC name of given compound?



A. 2, 5-Diethyl-4-methylhexane

B. 3, 4-, 6-Trimethyloctane

C. 2, 5, 6-Trimethyloctane

D. 3, 5-Dimethyl-6-ethylheptane

Answer: B

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167. The IUPAC name of this compound

$$CH_3 - \underset{\underset{C_2H_5}{|}}{CH} - CH_2 - \underset{\underset{CH_3}{|}}{CH} - COOH$$

A. 2, 2-Diethyl pentanoic acid

B. 2, 4-Dimethyl hexanoic acid

C. 2-Methyl-4-ethyl pentanoic acid

D. 4-Ethyl-2-methyl pentanoic acid

Answer: B

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168. The IUPAC name of

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

A. 3-Propyl pentene-1

B. 3-Ethyl pentene-1

C. 4-Ethyl hexene-1

D. 3-Ethyl hexene-1

Answer: D

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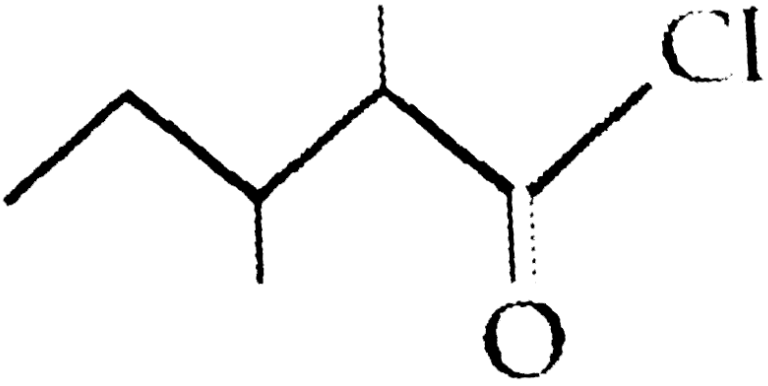
169. The IUPAC name of



is

A. 2-Ethyl-3-methylbutanoyl chloride

B. 2, 3-Dimethylpentanoyl chloride

C. 3, 4-Dimethylpentanoyl chloride

D. 1-Chloro-1-oxo-2, 3-dimethylpentane

Answer: B

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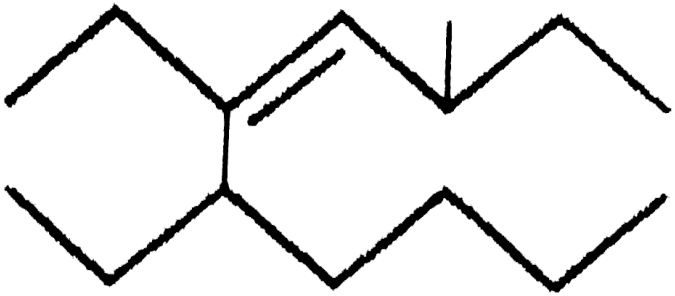
170. Consider the following compound



The IUP AC name of this compound is

A. 5, 6-Diethyl-3-methyl decane

B. 5, 6-Diethyl-3-methyl dec-4-ene

C. 3, 5, 6-Trimethyl-dec-6-ene

D. 3, 5, 6-Triethyl-dec-4-ene

Answer: B

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

A. $-SO_3H,\ -COOH,\ -CONH_2,\ -CHO$

B. $-CHO,\ -COOH, SO_3H,\ -CONH_2$

C. $-CONH_2,\ -CHO,\ -SO_3H,\ -COOH$

D. $-COOH,\ -SO_3H,\ -CONH_2,\ -CHO$

Answer: A

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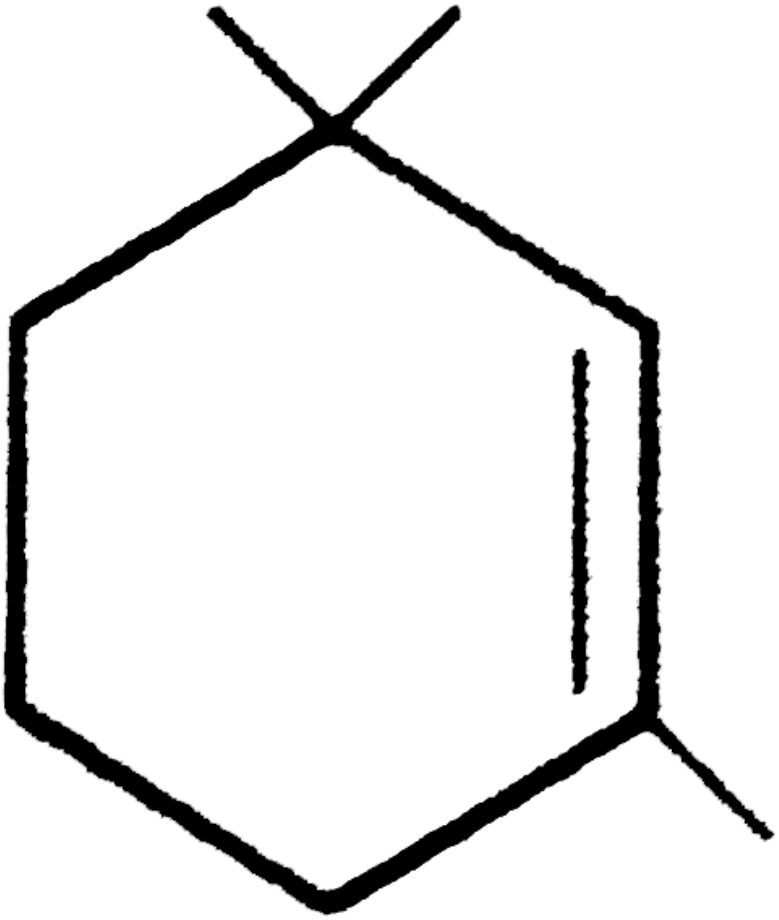
172. Give the IUPAC name of the compound



A. 1, 1, 3-Trimethylclohex -2-ene

B. 1, 3, 3-Trimethylcyclohex-1-ene

C. 1, 1, 5-Trimethylcyclohex-5-ene

D. 2, 6, 6-Trimethylcyclohex-1-ene

Answer: B

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173. The correct structure of 4 - bromo - 3 - methyl but - 1 - ene is

A. $Br - CH = C(CH_3)_2$

B. $CH_2 = CH - CH(CH_3) - CH_2Br$

C. $CH_2 = C(CH_3)CH_2CH_2Br$

D. $CH_3 - C(CH_3) = CHCH_2 - Br$

Answer: B

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174. The $IUPAC$ name of $CH_3 - \overset{CH_3}{\underset{|}{C}}H - \overset{O}{\underset{||}{C}} - CH_2CH_2OH$ is

A. 1-Hydroxy-4-methyl pentan-3-one

B. 2-Methyl-5-hydroxy pentan-3-one

C. 4-Methyl-3-oxopentan-1-ol

D. Hexan-1-ol-3-one

Answer: A

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175. Given the correct IUPAC namefor

$CH_3 - CH_2 - O - \overset{CH_3}{\underset{|}{C}}H - CH_2 - CH_2CH_2 - Cl$

A. 2-Ethoxy-5-chloropentane

B. 1-Chloro-4-ethoxy-4-methylbutane

C. 5-Chloro-2-ethoxypentane

D. Ethyl-1-chloropentylether

Answer: C

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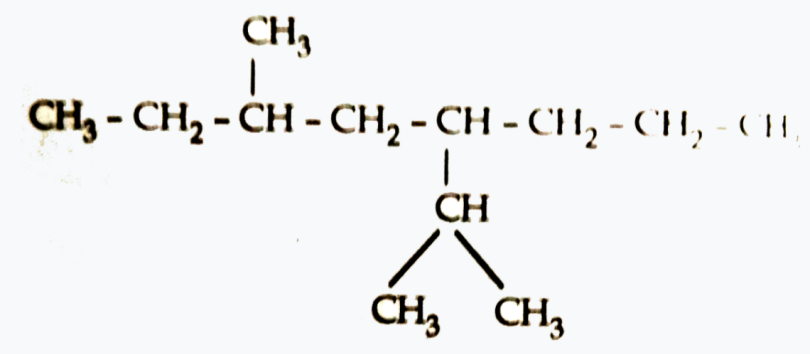
176. IUPAC name of the compound



A. 4-Isopropyl-1, 6-methyl octane

B. 3-Methyl-5-(1'-methylethyl)octane

C. 3-Methyl-5-isopropyl octane

D. 6-Methyl-4-(1 '-methylethyl) octane

Answer: B

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177. The correct IUP AC name of the following compound is

A. 4-Methoxy-2-nitrobenzaldehyde

B. 4-Formyl-3-nitro anisole

C. 4-Methoxy-6-nitrobenzaldehyde

D. 2-Formyl-5-methoxy nitrobenzene

Answer: A

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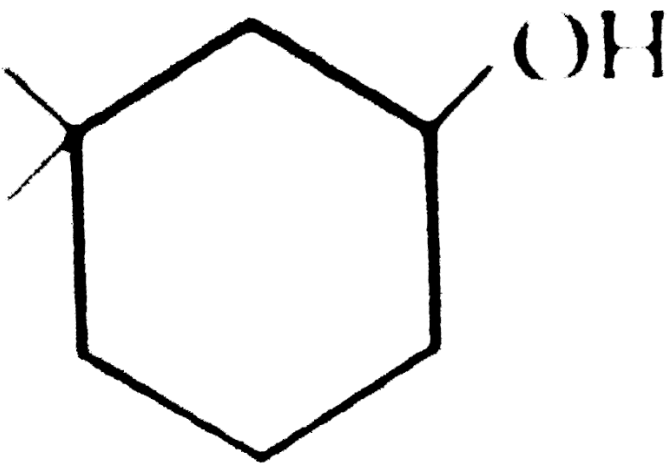
178. The IUPAC name of the compound is



A. 3, 3-Dimethyl-1-cyclohexanol

B. 1, 1-Dimethyl-3-hydroxy cyclohexane

C. 3, 3-Dimethyl-1-hydroxy cyclohexane

D. 1, 1-Dimethyl-3-cyclohexanol

Answer: A

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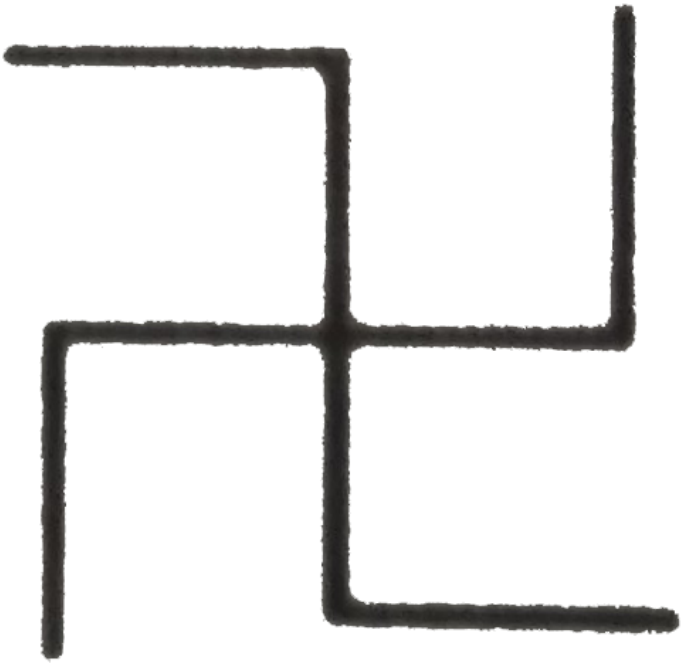
179. The correct IUPAC name for



is

A. Neononane

B. Tetraethylmethane

C. 3-Ethyl pentane

D. 3, 3-Diethyl pentane

Answer: D

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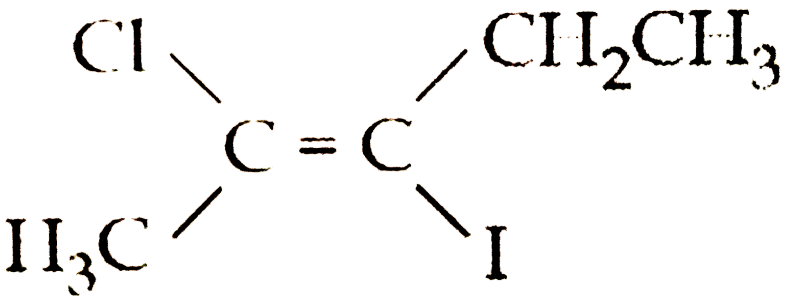
180. IUPAC name for the compound



A. Trans-3-iodo-4-chloro-3-pentene

B. Cis-3-chloro-3-iodo-2-pentene

C. Trans-2-chloro-3-iodo-2-pentene

D. Cis-3-iodo-4-chloro-3-pentene

Answer: D

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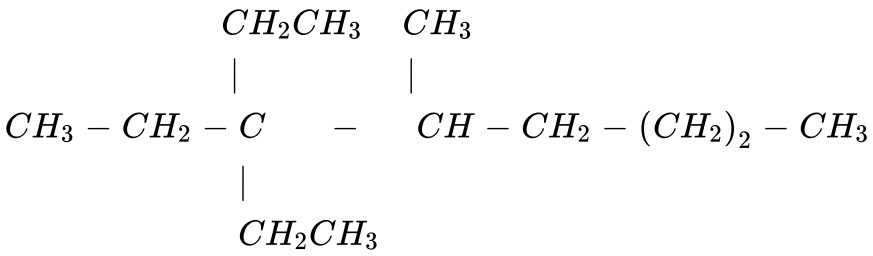
181. The IUPAC name of



A. 2, 2-Diethyl-5-methyldecane

B. 3, 3-Ethyl-5-methyldecane

C. 3, 3-Diethyl-5-methylhexane

D. 3, 3-Diethyl-4-methyl octane

Answer: D

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182. $CH_3CHOHCH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - OH$

A. 1, 1-Dimethyl-1, 3-butanediol

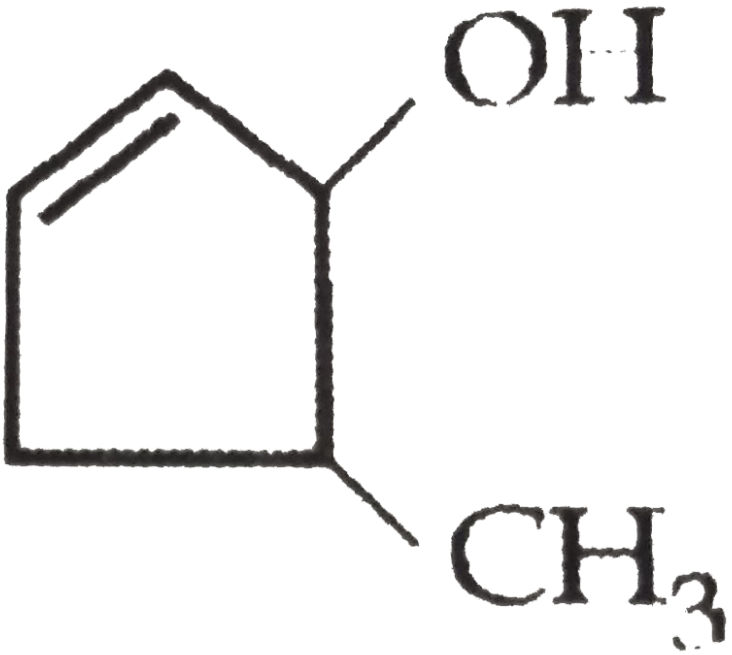
B. 2-Methyl-2, 4-pentanediol

C. 4-Methyl-2, 4-pentanediol

D. 1, 3, 3-trimethyl-1, 3-propanediol

Answer: B

183. The IUPAC name of the compound



is

A. 4-Methylcyclopent-1-en-3-ol

B. 2-Methylcyclopent-4-en-1-ol

C. 3-Methylcyclopent-1-en-2-ol

D. 5-Methylcyclopent-2-en-ol

Answer: A

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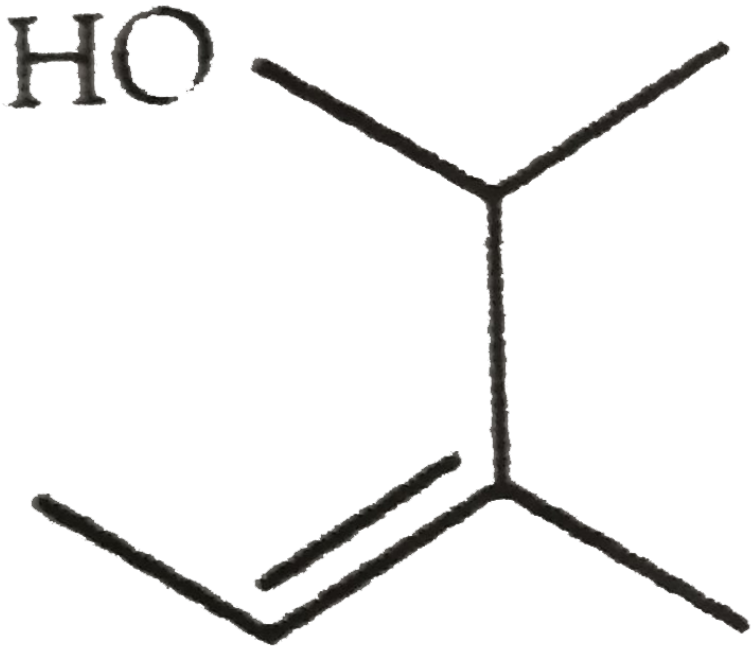
184. The IUPAC name of the following compound is



A. 1, 2-Dimethylbut-2-en-1-ol

B. 3-Methylpent-3-en-2-ol

C. 3, 4-Dimethylbut-2-en-4-ol

D. 2, 3-Dimethylpent-3-en-1-ol

Answer: B

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

A. $CH_3 - CH_2 - HC = CH - CH_2OH$

B. $CH_3 - \overset{\overset{CH_3}{|}}{CH} - HC = CH - CH_2OH$

C. $CH_3 - \overset{\overset{OH}{|}}{CH} - CH_2 - CH = \overset{\overset{CH_3}{|}}{C} - CH_3$

D. $CH_3 - \overset{\overset{CH_3}{|}}{C} = CH - CH_2CH_2OH$

Answer: B

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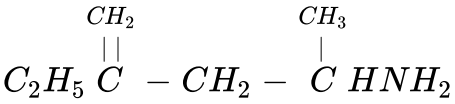
186. The IUPAC name of is



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: B

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187. The compound which is not isomeric with diethyl ether is :

A. n-propylmethyl ether

B. Butane-1-ol

C. 2-methylpropane-2-ol

D. Butanone

Answer: D

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188. Functional isomerism is exhibited by the following pair of compounds

A. Acetone, propionaldehyde

B. Diethyl ether, methyl propyl ether

C. Butane, isobutane

D. 1-butene, 2-butene

Answer: A

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189. Methyl acetate and propionic acid are

A. Functional isomer

B. Structural isomer

C. Stereoisomer

D. Geometrical isomer

Answer: A

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190. Isomers of propionic acid are

A. $HCOOC_2H_5$ and CH_3COOCH_3

B. $HCOOC_2H_5$ and $C_3H_7COOCH_3$

C. CH_3COOCH_3 and C_3H_70H

D. C_3H_70H and CH_3COCH_3

Answer: A

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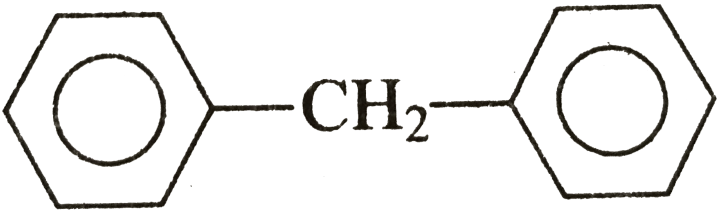
191. How many structural isomers are possible when one of the hydrogen in compound given below is replaced by chlorine atom



A. 8

B. 7

C. 6

D. 4

Answer: D

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192. Number of isomers of C_4H_{10} is

A. 2

B. 3

C. 4

D. Isomerism not exist

Answer: A

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193. Which of the following compounds will show metamerism ?

A. $CH_3COOC_2H_5$

B. $C_2H_5 - O - C_2H_5$

C. $CH_3 - O - CH_3$

D. $CH_3 - O - C_2H_5$

Answer: D

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194. Which of the following is an example of acid anhydride?

A. HCHO

B. HCOOH

C. $HCONH_2$

D. $(HCO)_2O$

Answer: D

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195. In hyperconjugation, the atom involved is

A. $\beta - H$ atom

B. $\alpha - H$ atom

C. $\gamma - H$ atom

D. All the above

Answer: B

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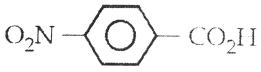
196. Which one of the following compounds is most acidic?

A. CH_3CO_2H

B. $C_6H_5CO_2H$

C. C_6H_5OH

D. 

Answer: D

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197. The - I effect is shown by

A. $-COOH$

B. $-CH_3$

C. $-CH_2CH_3$

D. $-CHR_2$

Answer: A

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198. Shifting of electron of a multiple bond under the influence of a reagent is called :

A. I-effect

B. E-effect

C. M-effect

D. T-effect

Answer: B

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

A. Contributing 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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200. Point out the incorrect statement about resonance.

A. Resonance structures should have nearly equal energy

B. n 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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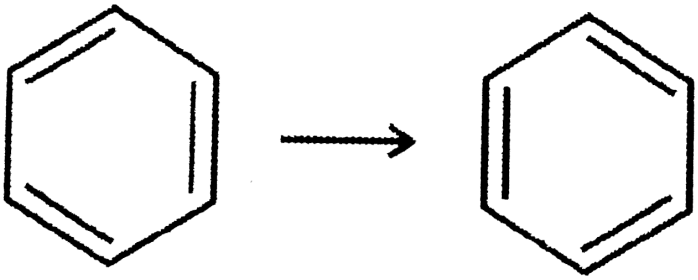
201. Arrangement of $(CH_3)_3 - C -$, $(CH_3)_2CH -$, $CH_3CH_2 -$



when attached to benzyl or an unsaturated group in increasing order of inductive effect is

A. $(CH_3)_3 - C - < (CH_3)_2 - CH - < CH_3 - CH_2$

B. $CH_3 - CH_2 - < (CH_3)_2 - CH - < (CH_3)_3 - C -$

C. $(CH_3)_2 - CH - < (CH_3)_3 - C - < CH_3 - CH_2 -$

D. $(CH_3)_3 - C - < CH_3 - CH_2 - < (CH_3)_2 - CH -$

Answer: B

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202. C-Cl bond in $CH_2 = CH - Cl$ is difficult to cleave due to

A. Resonance

B. Electromeric effect

C. Inductive effect

D. Hyperconjugation

Answer: A

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203. Hyperconjugation involves overlap of the following orbitals :

A. $\sigma - \sigma$

B. $\sigma - p$

C. $p - p$

D. $\pi - \pi$

Answer: B

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204. A permanent effect in carbon chain compounds in which electrons forming a bond between a carbon atom and another atom are partially displaced towards the atom with greatest electronegatively , is called_____.

A. inert pair effect

B. mesomeric effect

C. inductive effect

D. electromeric effect

Answer: C

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205. The phenomenon in which atoms or groups in a compound can attract electrons, is called

A. mesomeric effect

B. $+$ ve inductive effect

C. $-$ ve inductive effect

D. inert pair effect

Answer: C

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206. Chlorine atom in chloromethane is linked by a

A. co-ordinate bond

B. double bond

C. covalent bond

D. electrovalent bond

Answer: C

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207. The effect in which atoms or groups in a compounds can push away the electrons is called _____ effect.

A. – ve inductive effect

B. $+$ ve inductive effect

C. mesomeric effect

D. electromeric effect

Answer: B

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208. In the following chemical effect, the bonded pair of electron leaves the octet

A. Inductive

B. Saytezeff's

C. Electromeric

D. Electronic

Answer: C

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209. The +I (inductive effect) is shown by

A. F^-

B. $-OH$

C. $-CH_3$

D. $C_6H_5^-$

Answer: C

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210. Which of the following exhibit electromeric effect ?

A. alkyl halides

B. alkyl amines

C. aldehydes

D. alkanes

Answer: C

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211. The negative inductive effect is shown by

A. $-CH_3$

B. $-COOH$

C. $_-CH_2CH_3$

D. $-CHR_2$

Answer: B

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212. Displacement of electron in C-Cl bond towards Cl atom is called

A. Inductive effect

B. Electromeric effect

C. Mesomeric effect

D. Resonance effect

Answer: A

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213. Carbon tetrachloride has no net dipole moment because of

A. Its planar structure

B. Its regular tetrahedral structure

C. Similar size of carbon and chlorine atoms

D. Similar electron affinities of carbon and chlorine

Answer: B

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214. The order of bond strength among C-F, C-Cl, C-Br, C-1 is

A. $C-F>C-CL>C-Br>C-I$

B. $C-F<C-Cl<C-Br<C-I$

C. $C-F>C-Cl<C-Br<C-I$

D. $C-F>C-I<C-Br<C-I$

Answer: A

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215. There is an increase of bond length of the carbon- halogen bond from $CH_3F\text{to}CH_3$ I because

A. the size of halogens increases from F to I.

B. the size of the overlapping orbital increases fromF to I

C. sp^3 orbital of carbon, penetrate in increasing extents into the halogens orbital.

D. electronegativity increases from F to I

Answer: A

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216. Which of the following is non-polar ?

A. CH_3Cl

B. CH_2Cl_2

C. $CHCl_3$

D. CCl_4

Answer: D

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217. Electromeric effect can be relayed in

A. carbon chain joined by single bond

B. carbon chain joined by double bond

C. carbon chain joined by triple bond

D. conjugated system

Answer: D

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218. Slight shift of e- towards one of the atom in covalent bond produces effect called

A. Inductive

B. Electromeric

C. Zeeman

D. Peroxide effect

Answer: A

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219. In electromeric effect only_____are shifted.

A. α pair of e^-

B. π pair of e^-

C. α and π pair of e^-

D. α or π Pair of

Answer: B

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220. Methyl group (CH_3) shows the following effect:

A. Electromeric effect

B. $-ve$ inductive effect

C. $+ve$ inductive effect

D. Mesomeric effect

Answer: C

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221. The positive inductive effect (+I) is found to be maximum in the following groups:

A. $(CH_3)_3C-$

B. $(CH_3)_2CH-$

C. CH_3CH_2-

D. CH_3-

Answer: A

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222. Which of the following groups shows negative inductive effect?

A. $-COO^-$

B. $-COOH$

C. RS^-

D. $-CH_3$

Answer: B

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223. Which of the following molecule contains a bond having highest polarity ?

A. $CH_3 - SH$

B. $CH_3 - OH$

C. $CH_3 - NH_2$

D. $CH_3 - Cl$

Answer: B

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224. Homolysis of propane gives:

A. Methyl and ethyl free radicals

B. Methylium cation and ethyl anion

C. Methyl anion and ethylium cation $\left(C_2H_5^+\right)$

D. Methylium and ethylium cations

Answer: C

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225. Reactions involving heterolytic fission are said to be produced via

A. Ionic mechanism

B. Polar mechanism

C. Both (a) and (b)

D. None of these

Answer: C

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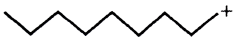
226. Select the most stable carbocation from amongst the following

A. 

B. 

C. 

D. 

Answer: B

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227. Consider the following carbocations

(I)$C_6H_5\overset{+}{C}H_2$, (II)$C_6H_5CH_2\overset{+}{C}H_2$

(III)$C_6H_5\overset{+}{C}HCH_3$, (IV) $C_6H_5\overset{+}{C}(CH_3)_2$

The correct sequence for the stability of these is

A. $II < IIII < IV$

B. $II < III < I < IV$

C. $III < II < IV$

D. $IV < III < I < II$

Answer: A

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228. Which of the following contains three pairs of electron?

A. Carbocation

B. Carbanion

C. Free radical

D. None of these

Answer: A

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229. Among the given cation,s the most stable carbonium ions is ?

A. Sec-butyl

B. Tert-butyl

C. n-butyl

D. None of these

Answer: B

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230. 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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231. Which of the following intermediates have the complete octet around the carbon atom?

A. Carbonium ion

B. Carbanion ion

C. Free radical

D. Carbene

Answer: B

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232. Which kind of fission is favoured by sunlight

A. Heterolytic fission

B. Homolytic fission

C. Both (a) and (b)

D. None of these

Answer: B

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233. The most stable carbonium ion among the following is

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

B. $C_6H_5CH_2\overset{+}{C}H_2$

C. $CH_3\overset{+}{C}H_2$

D. $C_6H_5CH_2\overset{+}{C}H_2$

Answer: A

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234. The stability of 2,3-dimethyl-but-2-ene is more than 2-butene. This can be explained in terms of

A. Resonance

B. Hyperconjugation

C. Electromeric effect

D. Inductive effect

Answer: B

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235. In which of the following species, the central carbon atom is negatively charged?

A. carbanion

B. carbonium ion

C. carbocation

D. free radicals

Answer: A

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236. The shape of the carbonium ion is

A. planar

B. linear

C. pyramidal

D. distorted tetrahedral

Answer: A

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237. The heterolytic cleavage of a C-Cl 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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238. The species containing carbon with three bonds and an electron are called

A. carbene

B. carbanion

C. carbonium ion

D. free radical

Answer: D

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239. The shape of carbanion is

A. linear

B. planar

C. pyramidal

D. distorted tetrahedral

Answer: D

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240. In Homolytic fission of covalent bond ___ is formed

A. cation

B. anion

C. ion

D. free radical

Answer: D

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241. Cation and anions are formed in

A. heterolysis

B. homolysis

C. S_N2 reaction

D. E_2 reaction

Answer: A

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242. Carbon atom holding halogen in alkyl halide is

A. sp^2-hybridised

B. sp^3-hydbridised

C. sp-hybridised

D. sp^3d hybridised

Answer: B

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243. Which of the following statement is correct?

A. Carbanion is formed by homolysis

B. Free radical are formed by homolysis

C. Carbocation is formed by homolysis

D. Free radical are formed by heterolysis

Answer: B

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244. Negatively charged carbon species having eight electrons in its outermost orbit is called as

A. carbonium ion

B. carbanion

C. carbocation

D. both(a) and (c)

Answer: B

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245. Carbonium ion of tert. butyl bromide is

A. Planar

B. Linear

C. Tetrahedral

D. Octahedral

Answer: A

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246. Carbanion ion is formed when outgoing group is _____electropositive than central carbon atom.

A. Less

B. more

C. equally

D. very less

Answer: B

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247. When 2-chloro-2-methyl propane undergoes heterolytic fission, the cation formed is:

A. tert-Butylcarbocation

B. tert-Butyl carbanion

C. sec-Butyl carbonium ion

D. sec-Butyl carbocation

Answer: A

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248. Carbanion contains _____ electrons in valence shell

A. 8

B. 6

C. 4

D. 2

Answer: A

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249. The compounds which gives the most stable carboniurn ions on dehydrohalogenation is

A. CH_3I

B. C_2H_5I

C. $(CH_3)_3Cl$

D. $(CH_3)_2CHI$

Answer: C

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250. Heterolytic fission of C - Br bond results in the formation of

A. Free radicals

B. Carbanion

C. Carbocation

D. Carbanion and Carbocation

Answer: C

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251. The total number of electrons in the carbon atom of methyl free radical is

A. Six

B. Seven

C. Eight

D. Nine

Answer: D

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252. Unpaired electron $\overset{C}{H_3}$ occupies

A. sp-Hybrid orbital

B. sp^3-Hybrid orbital

C. p-Orbital

D. sp^3-Hybrid orbital

Answer: B

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253. Which of the following is an electrophile ?

A. H_2O

B. SO_3

C. NH_3

D. ROR

Answer: B

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254. Which is a nucleophile

A. Carboniurnion

B. Carbanion

C. Both (a) and (b)

D. None of these

Answer: B

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255. Which among the following is a set of nucleophiles ?

A. BF_3, H_2O, NH_2^-

B. $AlCl_3, BF_3, NH_3$

C. CN^-, RCH_2^-, ROH

D. $H^+, RNH_3^+, :CCl_2$

Answer: C

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256. Which of the following species acts as electrophile ?

A. OH^-

B. H_3O^+

C. Cl^-

D. NH_3

Answer: B

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257. Which of the following species does not acts as a nucleophile ?

A. ROH

B. ROR

C. PCl_3

D. BF_3

Answer: D

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258. The electron-rich species which attack a carbocation or positively charged centers or at the points of low electron density, are called

A. mesophiles

B. nucleophiles

C. electrophiles

D. free radicals

Answer: B

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259. The electrophiles are

A. Lewis bases

B. Lewis acids

C. amphoteric

D. electron rich

Answer: B

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260. The electron deficient reagents, which attract the negatively charged carbanions are called

A. mesophiles

B. electrophiles

C. nucleophiles

D. free radicals

Answer: B

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261. Boron trifluoride is

A. an electrophile

B. a nucleophile

C. a homolytic reagent

D. a heterolytic reagent

Answer: A

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262. The electrophile in the sulphonation of arenes is

A. H_2SO_4

B. HSO_4^-

C. SO_3

D. SO_3H^+

Answer: D

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263. Which of the following is free radical?

A. NO_2

B. Cl^-

C. Cl

D. Cl^+

Answer: C

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264. Which of the following species is an electrophile ?

A. H_2O

B. NH_3

C. $R-O-H$

D. CO_2

Answer: D

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265. Which of the following species is a nucleophile ?

A. NO_2^+

B. CCl_2

C. CH_3

D. CN^-

Answer: D

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

A. H_2O, SO_3, NO_2^+

B. NH_3, H_2O, BI_3

C. $AlCl_3, SO_3, Cl^+$

D. ROH, NH_3, NO_2^+

Answer: C

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267. Which of the following series contains nucleophiles only ?

A. $BF_3, AlCl_3, NH_3$

B. $RCH_2^-, CN^-, CH_3CH_2OH$

C. BF_3, NH_2^-, H_2O

D. RNH_2, CCl_2, H^-

Answer: B

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268. Which of the following is not Lewis acid?

A. $AlCl_3$

B. $BeCl_2$

C. BF_3

D. NCl_3

Answer: D

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269. Of the five isomeric hexanes, the isomer which can give two monochlorinated compounds is

A. 2-methylpentane

B. 2,2-dimethylbutane

C. 2,3-dimethylbutane

D. n-hexane

Answer: C

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270. In the reaction $CH_3 - Br + 2Na + Br - CH_3 \rightarrow$, the reaction is called

A. Substitution

B. Addition

C. Elimination

D. Rearrangement

Answer: A

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271. $CH_2 = CHOH \rightarrow CH_3 - \overset{\overset{O}{||}}{C} - H$

The above reaction is classified as _____ reaction.

A. Substitution

B. Addition

C. Elimination

D. Rearrangement

Answer: D

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272. Alkyl halide on reaction with aq. KOH forms

A. Alcohol

B. Alkene

C. Aldehyde

D. Alkyne

Answer: A

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273. Addition reaction takes place in

A. Alkane

B. Alkene

C. Alkyl halide

D. Cycloalkane

Answer: B

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274. $CH_3 - CH_3 + Cl_2 \xrightarrow{\text{U.V.Light}} CH_3 - CH_2Cl + HCl$

Above reaction involves

A. Formation of Cl - Cl bond

B. Breaking of Cl - Cl bond

C. Breaking of C - C bond

D. Formation of C - Cl bot1d

Answer: D

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275. In which of the following reaction modification of carbon skeleton takes place ?

A. Substitution

B. Addition

C. Rearrangement

D. Elimination

Answer: C

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276. Hydrogenation of alkyne is

A. Addition reaction

B. Elimination reaction

C. Rearrangement reaction

D. Substitution reaction

Answer: A

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277. Dehydrohalogenation of alkyl halide is

A. Addition reaction

B. Elimination reaction

C. Rearrangement reaction

D. Substitution reaction

Answer: B

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278. Aliphatic saturated hydrocarbon can give

A. Addition reaction

B. Elimination reaction

C. Both (a) and (b)

D. Substitution reaction

Answer: D

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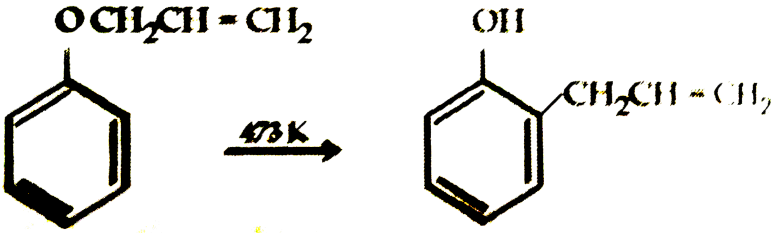
279.



The reaction is

A. Elimination reaction

B. Addition reaction

C. Rearrangement reaction

D. Substitution reaction

Answer: C

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280. Isobutyl alcohol in acidic medium gives tert-butyl alcohol, the reaction is

A. Addition reaction

B. Substitution reaction

C. Elimination reaction

D. Rearrangement reaction

Answer: D

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281. Which of the following statement is not correct?

A. Primary carbonium ions are more stable than secondary ones

B. Secondary free radicals are more stable than primary free radicals

C. Tertiary free radicals are more stable than secondary ones

D. Tertiary carbonium ions are more stable than primary ones

Answer: A

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282. Which one of the following does not show resonance?

A. Carbon dioxide

B. Benzene

C. Nitromethane

D. Propane

Answer: D

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283. Resonance structures of a molecule do not 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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284. Which one of the following behaves both as a nucleophile and an electrophile ?

A. $CH_3C \equiv N$

B. CH_3OH

C. $CH_2 = CHCH_3$

D. CH_3NH_2

Answer: A

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285. All bonds in benzene are equal due to

A. Tautomerism

B. Inductive effect

C. Resonance

D. Isomerism

Answer: C

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286. C-C' bond length in benzene lies between single and double bond. The reason is

A. Resonance

B. Isomerism

C. Metamerism

D. Inductive effect

Answer: A

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287. Which of the following is the most stable?

A. $Ph_3\overset{+}{C}$

B. $Ph_2\overset{+}{C}H$

C. $Ph_3\underset{+}{C}CH_2$

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

Answer: A

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288. Which of the following resonating structures of 1-methoxy-1,3-butadiene is least stable ?

A. $\overset{\ominus}{C}H_2 - CH = CH - CH = \overset{\oplus}{O} - CH_3$

B. $CH_2 = CH_2 - \overset{\ominus}{C}H - CH = \overset{\oplus}{O} - CH_3$

C. $\overset{\ominus}{C}H_2 - \overset{\oplus}{C}H_2 - CH = CH - O - CH_3$

D. $\overset{\ominus}{C}H_2 - \overset{\oplus}{C}H_2 - CH = CH - O - CH_3$

Answer: A

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289. Which of the following free radicals is most stable?

A. Primary

B. Methyl

C. Secondary

D. Tertiary

Answer: D

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

A. Iso-propyl

B. Triphenylmethyl cation

C. Ethyl cation

D. n-propyl cation

Answer: B

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

A. $(CH_3)_2\dot{C}H < (CH_3)_3\dot{C} < (C_6H_5)_2\dot{C}H < (C_6H_5)_3\dot{C}$

B. $(C_6H_5)_2\dot{C} < (C_6H_5)_2\dot{C}H < (CH_3)_3\dot{C} < (CH_3)_2\dot{C}H$

C. $(C_6H_5)_2\dot{C}H < (CH_3)_2\dot{C} < (CH_3)_3\dot{C} < (CH_3)_2\dot{C}H$

D. $(CH_3)_2\dot{C}H < (CH_3)_3\dot{C} < (C_6H_5)_3\dot{C} < (C_6H_5)_2\dot{C}H$

Answer: A

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

A. $CH_3CH_2^-$

B. $(C_6H_5)_3C^-$

C. CH_3^-

D. $(CH_3)_3C^-$

Answer: D

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293. Mesomeric effect involves delocalization of :

A. Protons

B. Sigma electrons

C. π-electrons

D. None of these

Answer: C

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294. Hyperconjugation is also known as

A. Baker-Nathan effect

B. No bond resonance

C. Both (a) and (b)

D. None of these

Answer: A

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295. The compound $C_4H_{10}O$ can show

A. Metamerism

B. Functional isomerism

C. Positional isomerism

D. All types

Answer: D

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296. n-Propyl alcohol and isopropyl alcohol are examples of

A. Position isomerism

B. Chain isomerism

C. Tautomerism

D. Geometrical isomerism

Answer: A

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297. Geometrical isomerism

$CH_3-(CH_2)_3-O-CH_3,$

$CH_3-CH_2-O-CH_2-CH_2-CH_3$

$CH_3-\underset{|}{CH_3CH}-OCH_2-CH_3$ is

A. Position isomerism

B. Chain isomerism

C. Metamerism

D. Optical isomerism

Answer: C

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298. Which of the following statement is wrong ?

A. Diethyl ketone and methyl propyl ketone are position isomers

B. 2-Chloro pentane and 1-Chloro pentane are position isomers

C. n-butane and 2-methyl propane are chain isomers

D. Acetone and propionaldehyde are functional isomers

Answer: A

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299. $CH_3CH_2CH=CH_2$ and $CH_3CH=CH-CH_3$ show

A. Chain isomerism

B. Position isomerism

C. Functional isomerism

D. Metamerism

Answer: B

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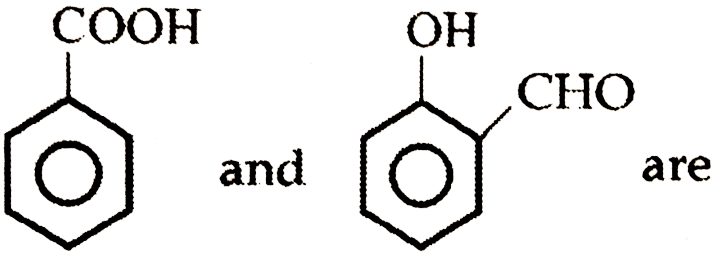
300.  are

A. Position isomer

B. Chain isomer

C. Functional isomer

D. Stereoisomer

Answer: C

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301. Benzoic acid can be purified by

A. Sublimation

B. Crystallization

C. Distillation

D. Chromatography

Answer: B

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302. Acetone and water is purified by _____ methods.

A. Crystallization

B. Simple distillation

C. Chromatography

D. distillation

Answer: D

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303. Technique of distribution of mixture between two phases, one stationary phase and other mobile phase is

A. Distillation

B. Filtration

C. Crystallisation

D. Chromatography

Answer: D

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304. Separation of substance of a mixture over adsorbent coated on glass tube is ___ chromatography.

A. Column

B. TLC

C. Paper

D. Gas

Answer: B

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305. 0.2325 g of organic compound was analysed for nitrogen by Dumas method . 31.7 mL of moist nitrogen was colleted at 25° C and 755.8 mm of Hg pressure , Calculate the percentage of nitrogen in the sample (Aqueous tension of water at $25^\circ C$ is 23.8 mm of Hg)

A. 0.18

B. 0.197

C. 0.151

D. 0.202

Answer: C

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306. 0.2585g of an organic compound contaning iodine was heated with excess of strong nitric acid and silver nitrate in a carius tube. The precipitate of silver iodide was fiterred, washed and dried its weight was found to be 0.3894g . Calculate the % of iodine in the compound.

A. 0.814

B. 0.78

C. 0.9

D. 0.8624

Answer: A

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307. 0.12 gm of an organic compound containing phosphorus gave 0.22 gm of $Mg_2P_2O_7$ by the usual analysis. Calculate the percentage of phosphorus in the compound.

A. 0.65

B. 0.61

C. 0.58

D. 0.512

Answer: D

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308. During estimation of nitrogen present in an organic compound by Kjeldahl's method, the ammonia evolved from 0.5 g of the

compound in Kjeldahl's estimation of nitrogen, neutralized 10 mL of 1 M H_2SO_4. Find out the percentage of nitrogen in the compound.

A. 0.56

B. 0.46

C. 0.6

D. 0.36

Answer: A

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309. 0.1 g of an organic compound gave 0.222g of $Mg_2P_2O_7$. What is the percentage of phosphorus in the compound ?

A. 0.32

B. 0.42

C. 0.52

D. 0.62

Answer: D

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310. 0.35 g of an organic susbtance was Kjeldahilsed and the ammonia obtained was passed into 100ml of M/10H_2SO_4 The excess acid required 154 ml of $M/10NaOH$ for neurtralisation, calculate the % of nitrogen in the compound.

A. 18.4

B. 28.4

C. 38.4

D. 48.4

Answer: A

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311. If on adding $FeCl_3$ solution to acidifies Lassaigne's solution a blood red coloration is produced, it indicates the presence of

A. S

B. N

C. N and S

D. Sand Cl

Answer: C

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312. Separation of petroleum into its components is mostly done by

A. Chromatography

B. Sublimation

C. Distillation under reduced pressure

D. Fractional distillation

Answer: D

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313. How will you separate a solution (miscible) of benzene + $CHCl_3$?

A. Sublimation

B. Filtration

C. Distillation

D. Crystallization

Answer: C

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314. The purpose of boiling sodium extract with conc. HNO_3 before testing for halogen is :

A. To make solution clear

B. To destroy CN^- and S^{2-} ions which will otherwise give precipitate

C. To make the solution acidic

D. To convert Fe^{2+} to Fe^{3+}

Answer: B

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315. The Prussian blue colour obtained in the Lassaigne' s test for nitrogen is due to the formation of

A. Iron (II) hexacyanoferrate (III)

B. Iron (III) hexacyanoferrate (II)

C. Iron (III) hexacyanoferrate (III)

D. Sodium hexacyanoferrate (III)

Answer: B

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316. 0.2 g of an organic compound gave 0.15 g of silver chloride in Carius method for estimation of chlorine. Find the percentage of chlorine in the compound. [Ag= 108, Cl= 35.5]

A. 48.56

B. 38.56

C. 28.56

D. 18.56

Answer: D

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317. The state of hybridization of C_2, C_3, C_5 and C_6 of the hydrocarbon,

$$\underset{7}{CH_3} - \underset{\substack{6| \\ CH_3}}{\overset{CH_3}{\overset{|}{C}}} - \underset{5}{CH} = \underset{4}{CH} - \underset{3}{\overset{CH_3}{\overset{|}{C}}} H - \underset{2}{C} \equiv \underset{1}{CH}$$ is:

A. sp, sp^3, sp^2 and sp^3

B. sp, sp^3, sp^2 and sp^2

C. sp, sp^2, sp^2 and sp^3

D. sp, sp^2, sp^3 and sp^2

Answer: A

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318. The number of π-bonds in 3-Hexyne-1-ene is

A. 1

B. 2

C. 3

D. 4

Answer: C

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319. Which one of the following is more acidic ?

A. Butane

B. 1-Butene

C. 1-Butyne

D. 2-Butyne

Answer: C

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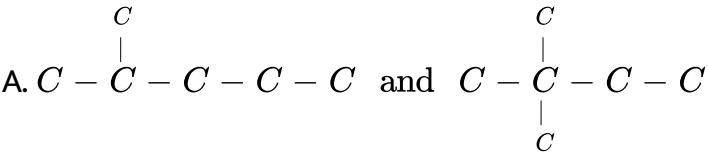
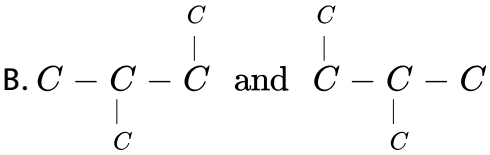
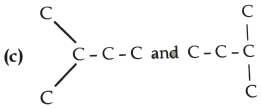
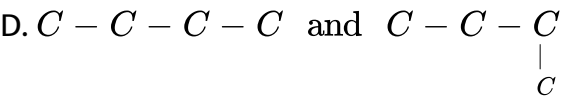
320. Which is the example of branch isomerization

A. 

B. 

C. 

D. 

Answer: A

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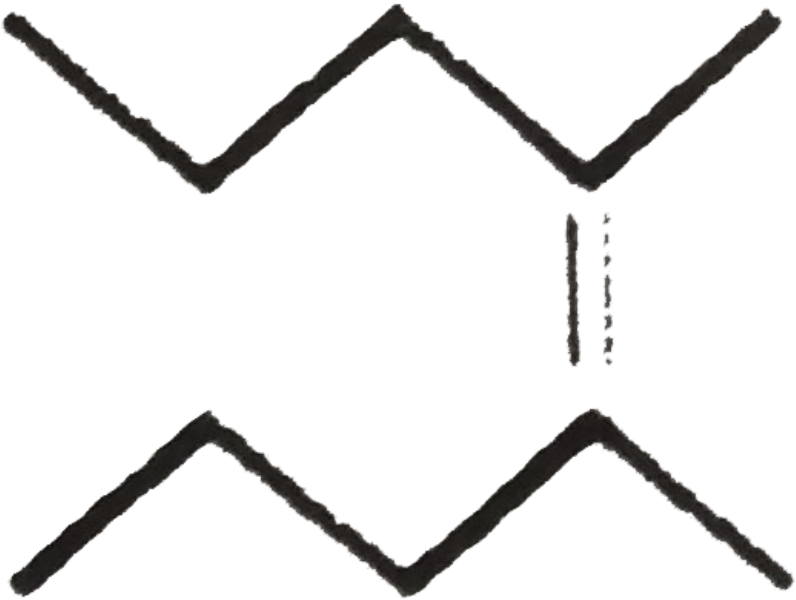
321. IUPAC name of



is

A. 4, 5-Dimethyloct-4-ene

B. 3, 4-Dimethyloct-5-ene

C. 4, 5-Dimethyloct-5-ene

D. None of these

Answer: A

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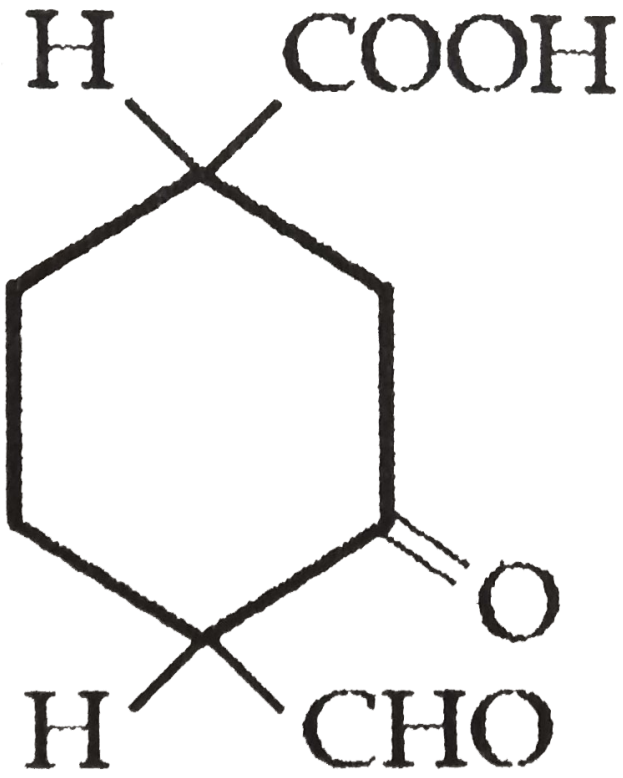
322. The IUPAC name of the compound



A. 4-Formyl-3-oxo cyclohexane-1-carboxylic acid

B. 2, 4-dioxo cyclohexanoic acid

C. 2, 4-dioxo heptanoic acid

D. None of these

Answer: A

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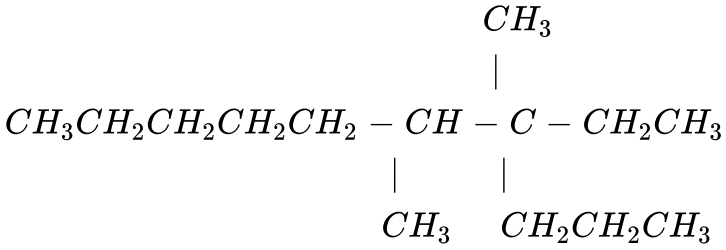
323. IUP AC name of the compound is



A. 3, 4-Dimethyl-3-n-propyl nonane

B. 5, 7-Dimethyl-7-n-propyl nonane

C. 4-Ethyl-4, 5-dimethyl decane

D. 6, 7-dimethyl-7-ethyl decane

Answer: C

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324. The IUPAC name of

$$CH_3 - \underset{\underset{Cl}{|}}{C} = \underset{\underset{CH_3}{|}}{C} - \underset{\underset{C_2H_5}{|}}{C}\ H - CH_2 - C \equiv CH$$

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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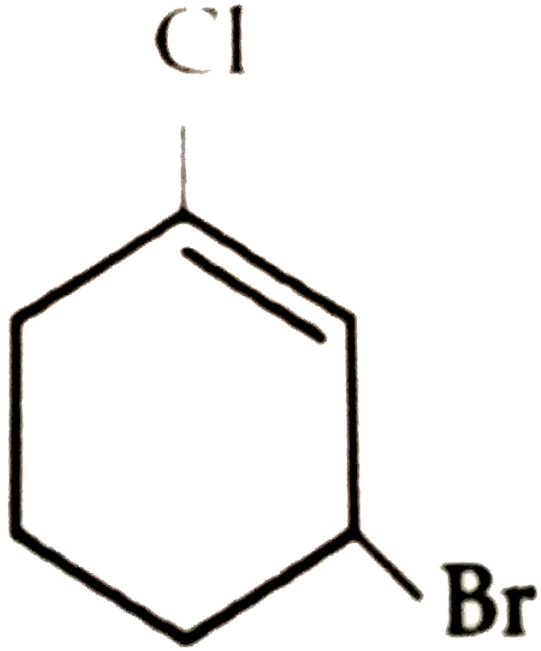
325. The IUPAC name of the compound shown below is



A. 2-Bromo-6-chlorocyclohex-1-ene

B. 6-Bromo-2-chlorocyclohexene

C. 3-Bromo-1-chlorocyclohexene

D. 1-Bromo-3-chlorocyclohexene

Answer: D

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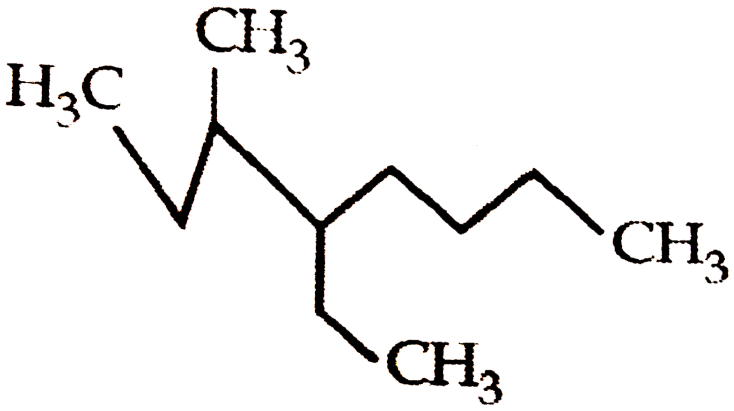
326. Name of the compound given below is



A. 5-Ethyl-6-methyloctane

B. 4-Ethyl-3-methyloctane

C. 3-Methyl-4-ethyloctane

D. 2, 3-Diethylheptane

Answer: C

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327. Hyperconjugation

A. $\sigma - \pi$ conjugation

B. Noticed due to delocalization ofσ and $\pi -$ bonds

C. No bond resonance

D. All the above

Answer: D

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328. $C - C$ bond length in benzene is

A. 1.39Å

B. 1.54Å

C. 1.34Å

D. Different in different bonds

Answer: C

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

A. Free radical

B. Carbonium ion

C. Carbanion

D. All the above

Answer: A

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330. The ascending order of stability of the carbanion $\bar{C}H_3(P), C_6H_5\bar{C}H_2(Q), (CH_3)_2\bar{C}H(R)$ and $H_2\bar{C}-CH=CH_2$ is

A. $P < R < S < Q$

B. $R < P < S < Q$

C. $R < P < Q < S$

D. $P < R < Q < S$

Answer: B

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331. Which of the following has vacant orbitals, that can accept a lone pair of electron?

A. electrophiles

B. nucleophiles

C. mesophiles

D. free radicals

Answer: A

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332. In which of the following reaction modification of carbon skeleton takes place ?

A. Substitution

B. Addition

C. Rearrangement

D. Elimination

Answer: C

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333. C-F is the strongest among C-F, C-Cl, C-Br, C-I because

A. the strongest bonds are formed by the overlap of orbitals of the same principle quantum number. In C-F the overlap involves orbitals of the same principle quantum number (second)

B. Fis the most electronegative among F, Cl, Br, I

C. F has the smallest size among the halides

D. 'F' is the least electronegative

Answer: B

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334. 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. Homologues

C. Allotropes

D. Polymers

Answer: B

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335. Which of the following compounds has only secondary carbon atoms ?

A. Cyclohexane

B. Methylcyclopentane

C. 2-Methylpentane

D. Pentane

Answer: A

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336. The IUPAC name for the compound

$HC \equiv C - CH_2 - CH_2 - COOH$ is

A. 4-Pentyn-1-oic acid

B. 1-Pentyn-4-oic acid

C. Pentyn-1-oic acid

D. None of the above

Answer: A

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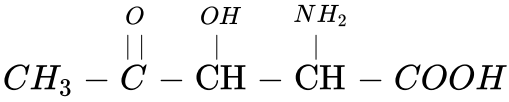
337. The IUPAC name for the given compound is



A. 2-Amino-3-hydroxy-4-pentanon-1-oic acid

B. 4-Amino-3-hydroxy-2-oxopentanoic acid

C. 2-Amino-3-hydroxy-4-oxopentanoic acid

D. None of the above

Answer: C

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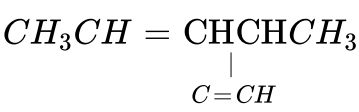
338. The IUPAC name for the given compound is



A. 4-Ethyl pent-2-ene

B. 1-Ethyl-3-methyl but-2-ene

C. 3-Methyl hex-4-en-1-yne

D. 4-Methyl hex-2-en-5-yne

Answer: D

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339. The structure of Hex-2,4-dien-1 ,6-dioic acid is

A. $HOOC - CH = CH - CH = CH - COOH$

B. $HOOC - CH_2 - CH = C = CH - COOH$

C. Both of the above

D. None of the above

Answer: A

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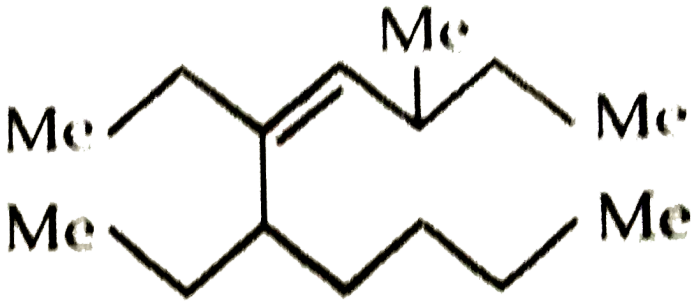
340. The correct IUPAC name of the compound



A. 5,6-Diethyl-8-methyl-6-decene

B. 5,6-Dimethyl-3-ethyl-4-decene

C. 5,6-Methylethyl-4-decene

D. 5,6-Diethyl-3-methyl-4-decene

Answer: D

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341. The correct IUPAC name of

$$N \equiv C - CH = CH - C \equiv N$$

A. 1,2-Dicyanoethene

B. But-2-en-1,4-dintrile

C. Dibut-2-en-1,4-nitrile

D. None of the above

Answer: B

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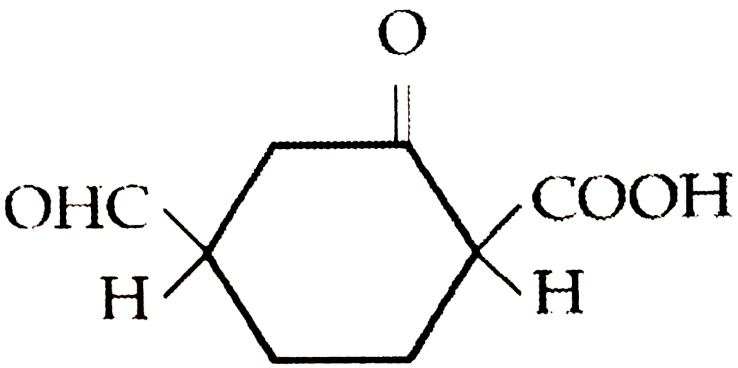
342. Write the IUPAC of the following compound



A. 2,4-dioxocyclohexanoic acid

B. 2,4-dioxocycloheptanoic acid

C. 4-formy-2-oxocyclohexane-1-carboxylic acid

D. 2,4-dioxocyclohexane-1-carboxylic acid

Answer: C

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343. Resonance energy per benzene ring is maximum for

A. Benzene

B. Naphthalene

C. Phenanthrene

D. Anthracene

Answer: A

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344. Which of the following correctly represents the +I-effect of the substiuents ?

A. $O^- > COO^- > CR_3$

B. $COO^- > O^- > CR_3$

C. $O^- < COO^- < CR_3$

D. $COO^- < O^- < CR_3$

Answer: A

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345. Which one of the following has the smalJes, heat of hydrogenation per mole of the compound ?

A. 1-Butene

B. trans-2-Butene

C. cis-2-Butene

D. 1,3-Butacliene

Answer: B

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346. The increasing order of hyperconjugative effect of CH_3-, C_2H_5-, $(CH_3)_2CH-$ and $(CH_3)_3C-$ when one of these is attached to benzene ring is

A. $CH_3, C_2H_5, (CH_3)_2CH$ and $(CH_3)_3C$

B. $(CH_3)_3C, (CH_2)CH, CH_3, C_2H_5$

C. $(CH_2)_2CH, (CH_3), CH_3C_2H_5$

D. None of the above

Answer: A

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347. 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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348. The number of possible structural isomers f~r a compound with the molecular formula C_7H_{16} is

A. 8

B. 9

C. 10

D. 12

Answer: B

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349. C_7H_7Cl has number of structural isomers

A. 2

B. 5

C. 3

D. 4

Answer: D

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350. The number of structural isomers for an aromatic compound C_7H_8O is

A. 2

B. 3

C. 4

D. 5

Answer: D

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351. Zero inductive effect is exerted by:

A. $C_6H_5^-$

B. H

C. CH_3^-

D. Cl

Answer: B

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352. Functional isomers are

A. Alcohols and ethers

B. Aldehydes and ketones

C. Cyanide and isocyanide

D. All of the above

Answer: D

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353. The type of isomerism due to different types on alkyl groups on either side of the functional group of compounds $CH_3CH_2COCH_2CH_3$ and $CH_3COC_3C_7$ is referred as

A. Metamerism

B. Chain isomerism

C. Functional isomerism

D. Tautomerism

Answer: A

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354. Resonance in benzene is accompanied by delocalisation of π electrons. Each π electron is attached with

A. Four carbon electrons

B. Two carbon electrons

C. Three carbon electrons

D. None of the above

Answer: D

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355. It is very difficult to esterify $R_3C - COOH$ because of

A. Steric inhibition

B. Delocalisation

C. Inductive effect

D. Hyper conjugation

Answer: A

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356. Which of the following statement is false about resonance?

A. It increases the stability of a molecule

B. It leads to similar type of bonds

C. It increases reactivity of the molecule

D. It decreases reactivity of the molecule

Answer: C

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357. In geometrical isomerism, boiling points are more for

A. Cis isomer

B. Trans isomer

C. Both have equal boiling

D. None of the above

Answer: A

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358. Amongst the following the compound having the most acidic alpha hydrogen is

A. H_3CCCHO

B. $H_3CCCOCH_3$

C. CH_3COCH_2CHO

D. $H_3CCCCOH_2CO_2CH_3$

Answer: C

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359. Correct order of nucleophilicity is

A. $CH_3^- < NH_2^- < OH^- < F^-$

B. $F^- < OH^- < CH_3^- < NH_2^-$

C. $OH^- < NH_2^- < F^- < CH_3^-$

D. $F^- < OH^- < NH_2^- < CH_3^-$

Answer: D

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360. The most stable free radical is

A. $C_6H_5 - \overset{\overset{C_6H_5}{|}}{\underset{\underset{C_6H_5}{|}}{C^\circ}}$

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

C. $CH_3CH_2CH^\circ CH_3$

D. $CH_3CH_2CH_2C^\circ H_2$

Answer: A

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361. Photolysis of diazomethane gives

A. Methyl free radical

B. Methylene carbene

C. Methyl carbanion

D. Methyl carbonium ion

Answer: B

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362. Match List-I with List-2 and select the correct answer using the codes given below the lists

List I	List II
(A) $C_6H_5\overset{+}{C}H_2$	(1) Carbene
(B) $\ddot{\overset{-}{C}}H_2 - CHO$	(2) Free radical
(C) $C_2H_5^{\circ}$	(3) Carbanion
(D) $:CH_2$	(4) Carbonium ion

A. $\begin{matrix} A & B & C & D \\ 1 & 2 & 4 & 3 \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ 2 & 3 & 4 & 1 \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ 1 & 3 & 4 & 2 \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ 4 & 3 & 2 & 1 \end{matrix}$

Answer: D

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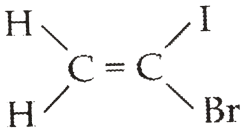
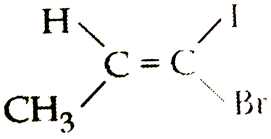
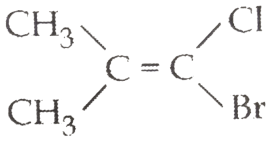
363. Geometrical isomerism is shown by

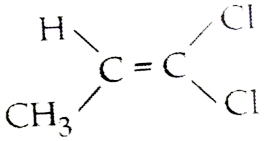
A. 

B. 

C.



D.



Answer: B

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364. Which of the following pairs are tautomers ?

A. CH_3CH_2CHO and CH_3COCH_3

B. CH_3CHO and $CH_2 = CHOH$

C. $C_2H_5COC_2H_5$ and $CH_3COC_3H_7$

D. $CH_3 - CH = CH - CH_3$ and $CH - 3CH_2CH = CH_2$

Answer: B

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365. Stability is more for the intermediate

A. $C_6H_5\ddot{\dot{C}}H_2$

B. $C_6H_{11}\overline{\dot{C}}H_2$

C. $\overline{\dot{C}}H_3$

D. $CH_3\overline{\dot{C}}H_2$

Answer: A

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366. Ring nitration is more in

A. $C_6H_5(CH_3)_3$

B. $C_6H_5CH_3$

C. $C_6H_5CH_2CH_3$

D. $C_6H_5CH(CH_3)_2$

Answer: B

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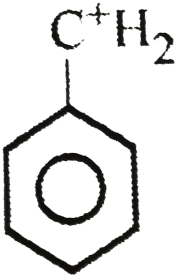
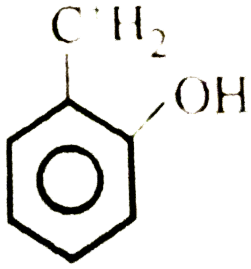
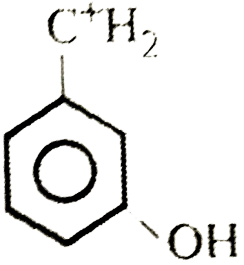
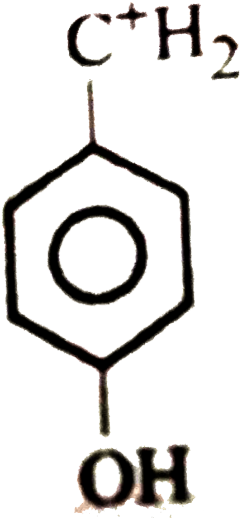
367. The least stable carbonium ion is

A. 

B. 



C.



D.

Answer: C

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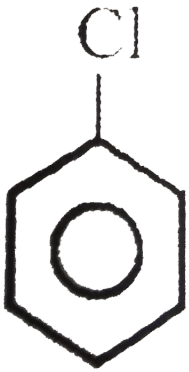
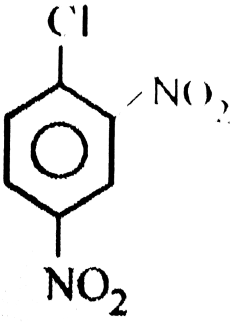
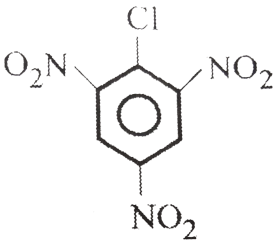
368. The carbon atom carrying halogen atom is more electron deficient in

A. 

B.

C. 

D. 

Answer: D

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369. Generally it is more difficult to purify organic compounds than inorganic compounds because

A. They are quite unstable

B. They are more volatile

C. Organic compounds have low solubility

D. Physical constants for organic compounds and the impurities associated with them are very close to each other

Answer: D

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370. The processes commonly used for the separation and purification of organic substances are crystallisation, sublimation and

A. Stearn distillation

B. Fractional distillation

C. Extraction with solvents

D. All of the above

Answer: D

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371. In Lassaigne's test for the detection of nitrogen, the blue colouration is due to the formation of

A. Ferric ferrocyanide

B. Potassium ferrocyanide

C. Sodium ferrocyanide

D. Sodium cyanide

Answer: A

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372. When an organic compound containing 1 phosphorus is fused with fusion mixture, it gives is

A. Na_2HPO_4

B. Na_3PO_4

C. NaH_2PO_4

D. Na_3PO_3

Answer: B

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373. A compound of carbon, hydrogen and nitrogen contains three elements in the respective ratio of 9 : 1 : 3.5 grams. The empirical formula of the compound is

A. C_2H_4N

B. C_3H_4N

C. C_3H_6N

D. C_2H_6N

Answer: B

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374. In the estimation of sulphur organic compound on treating with conc. HNO_3 is converted to

A. SO_2

B. H_2S

C. H_2SO_3

D. H_2SO_4

Answer: D

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375. The catalyst used in Kjeldahl's method for the estimation of nitrogen is:

A. Sodium

B. Magnesium

C. Mercury

D. Copper

Answer: C

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376. Kjeldahl's method is used in the estimation of

A. $\text{percentage of N} = \frac{1.4 \times V \times W}{N}$

B. $\text{percentage of N} = \frac{1.4 \times N \times W}{V}$

C. $\text{percentage of N} = \frac{V \times N \times W}{1.4}$

D. $\text{percentage of N} = \frac{1.4 \times N \times V}{W}$

Answer: D

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377. 0.24 gm of an organic substance gave 45.6 c.c. of nitrogen at N.T.P. The percentage of nitrogen is

A. $63.6\ \%$

B. 23.8%

C. 53.6%

D. 53.6%

Answer: B

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378. There are several criteria for purity of organic compounds. Out of these which one is considered best?

A. Melting point

B. Mixed melting point

C. Microscopic examination

D. Colour

Answer: B

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379. A mixture of o-nitrophenol and p- nitrophenol can be separated by

A. Sublimation

B. Steam distillation

C. Fractional crystallisation

D. Distillation

Answer: B

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380. 59 g of an amide obtained from a carboxylic cid, RCOOH, upon heating with alkali liberated, 17 g of ammonia. The acid is '

A. Formic acid

B. Acetic acid

C. Propionic acid

D. Benzoic acid

Answer: B

Watch Video Solution

381. In the estimation of nitrogen by Duma's method 1.18 g of an organic compound gave 224 ml of N_2 at NTP. The percentage of nitrogen in the compound is about

A. 20

B. 11.8

C. 47.5

D. 23.7

Answer: D

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382. A pure crystallic substance , on being heated gradually first a hurbit looking liquid and then the furbidly completely disppears .This behaviour is the characteristic of substances forming

A. Liquid crystals

B. Isomeric crystals

C. Allotrophic crystals

D. Isomorphous crystals

Answer: A

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383. When 10 gm of $BaCl_2 \times H_2O$ are heated, the residue of anhydrous $BaCl_2$ weighs 8.53 gm. The value of x is

A. 1

B. 2

C. 3

D. 4

Answer: B

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384. A gaseous compound is composed of $85.7\,\%$ by mass carbon and $14.3\,\%$ by mass hydrogen. Its density is 2.28 g/litre at $300K$ and 1.0 atm pressure. Determine the molecular formula of the compound.

A. CH_4

B. C_2H_6

C. C_6H_6

D. C_4H_8

Answer: D

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385. A hydrocarbon contains, C = 82.66%, H = 17.34%. The density of the vapour is 0.2308 g/litre at $30^\circ C$ and 75 torr. The molecular formula of the compound is

A. C_4H_{10}

B. C_6H_6

C. C_2H_2

D. CH_4

Answer: A

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386. The volume of acetylene gas produced at $25^{\circ}C$ and 0.950 atm. pressure from calcium carbide by the reaction 128 g of calcium carbide with 45 g of water is

A. 3.22 litre

B. 32.2 litre

C. 16.1 litre

D. None of these

Answer: B

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387. A 20 mL mixture of CO, CH_4, and Helium (He) gases is exploded by an electric discharge at room temperature with excess of oxygen. The volume contraction is found to be 13 mL. A further contraction of 14 mL occurs when the residual gas is treated wityh KOH solution. Find out the composition of the gaseous mixture in terms of volume percentage.

A. $\text{CO} = 10\ \ cm^3, CH_4 = \ \ 6\ \ cm^3\ \ \text{and}\ \ \ He = \ \ 4\ \ cm^3$

B. $\text{CO} = 10\ \ cm^3, CH_4 = \ \ 4\ \ cm^3\ \ \text{and}\ \ \ He = \ \ 6\ \ cm^3$

C. $\text{CO} = 6\ \ cm^3, CH_4 = \ \ 10\ \ cm^3\ \ \text{and}\ \ \ He = \ \ 4\ \ cm^3$

D. $\text{CO} = 4\ \ cm^3, CH_4 = \ \ 6\ \ cm^3\ \ \text{and}\ \ \ He = \ \ 10\ \ cm^3$

Answer: B

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388. The desiccants used for absorbing water during Liebig's method for estimation of carbon and hydrogen are

A. Anhyd. $CaC1_2$

B. Anhyd Na_2SO_4

C. $MgSO_47H_2O$

D. $Mg(ClO_4)_2$

Answer: B

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

A. $-SO_3H,\ -COOH,\ -CONH_2,\ -CHO$

B. $-CHO,\ -COOH,\ -SO_3H,\ -CONH_2$

C. $-CONH_2, \ -CHO, SO_3H, \ -COOH$

D. $-COOH, \ -SO_3H, \ -CONH_2, \ -CHO$

Answer: D

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390. Which one of the following IUPAC name is incorrect ?

A. 2-methyle-3-ethy1 pentane

B. 2-ethyle-3-methy1 pentane

C. 3-ethyle-3-methy1 pentane

D. 3-methyle-2-ethy1 pentane

Answer: C

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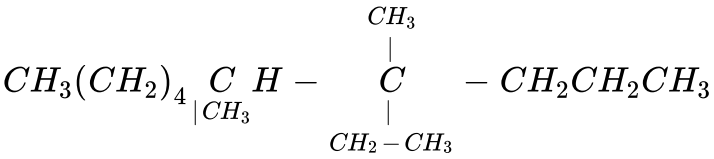
391. What is the correct IUPAC name for the following compound?



A. 3, 4-Dimethyl-3-n-propyl nonane

B. 6, 7-Dimethyl-2-n-propyl nonane

C. 6, 7-Dimethyl-7-ethyl decane

D. 4-Ethyl-4,5-dimethyl decane

Answer: D

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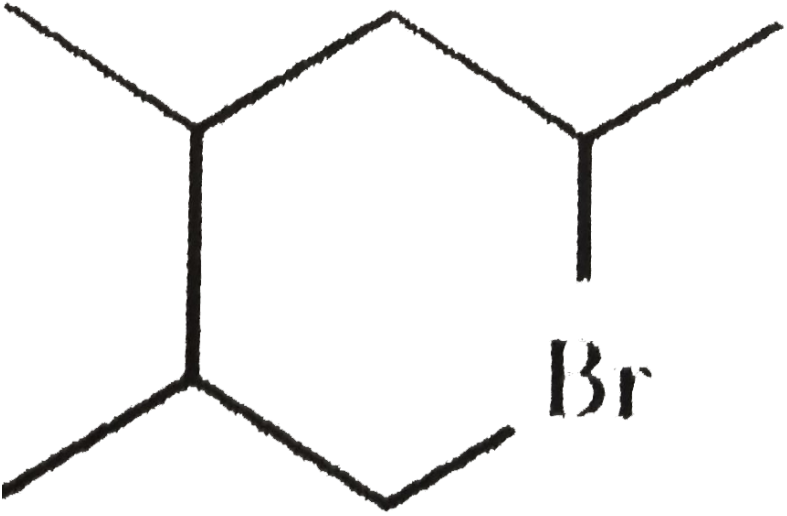
392. The IUP AC name of



A. 2-bromo-4-isopropylpentane

B. 2, 3-dimethyl-5-bromohexane

C. 2-bromo-4, 5-dimethylhexane

D. 5-bromo-2, 3-dimethylhexane

Answer: B

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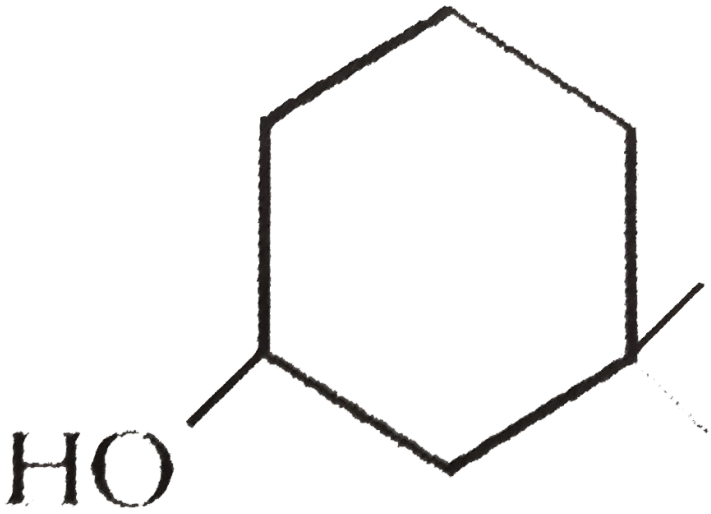
393. The IUPAC name of the compound ,



A. 3,3-dimethyl-1-hydroxy cyclohexane

B. 1, 1-dimethyl-3-hydroxy cyclohexane

C. 3,3-dimethyl-1-cyclohexanol

D. 1,1-dimethyl-3-cyclohexanol

Answer: C

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394. How many σ and π bonds are present in $HC \equiv C - CH = CH - CH_3$?

A. $9\sigma, 4\pi$

B. $10\sigma, 3\pi$

C. $6\sigma, 6\pi$

D. $5\sigma, 5\pi$

Answer: B

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395. Which type of hybridisation of each carbon is there in the compound ?

$CH_3 - CH = CH - CN$

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

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

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

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

Answer: A

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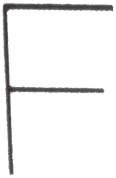
396. IUPAC names of the given structures are

(i) 

(ii) 

A. (i) hexane, (ii) 3 - methylbutane

B. (i) isopentane, (ii) 2,2-dimethylbutane

C. (i) 3 - ethylbutane, (ii) isopentane

D. (i) 3 - methylpentane, (ii) 2-methylbutane

Answer: D

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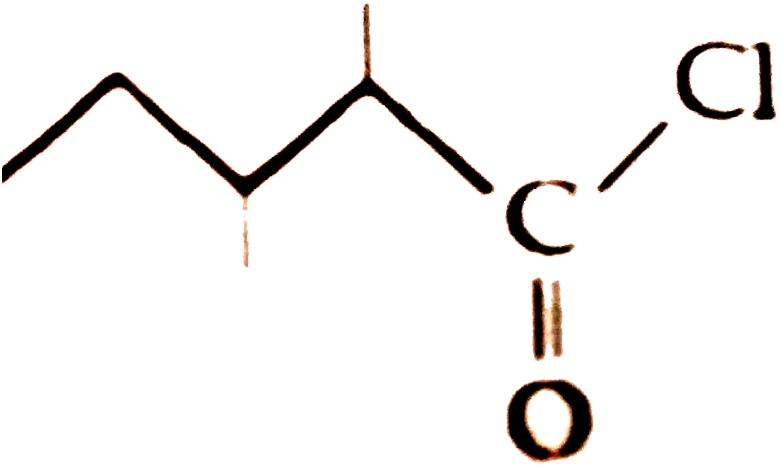
397. The IUPAC name of



is

A. 1-chloro-1-oxo-2,3-dimethylpentane

B. 2-ethyl-3-methylbutanoyl chloride

C. 2, 3-dimethylpentanoyl chloride

D. 3,4-dimethylpentanoyl chloride

Answer: C

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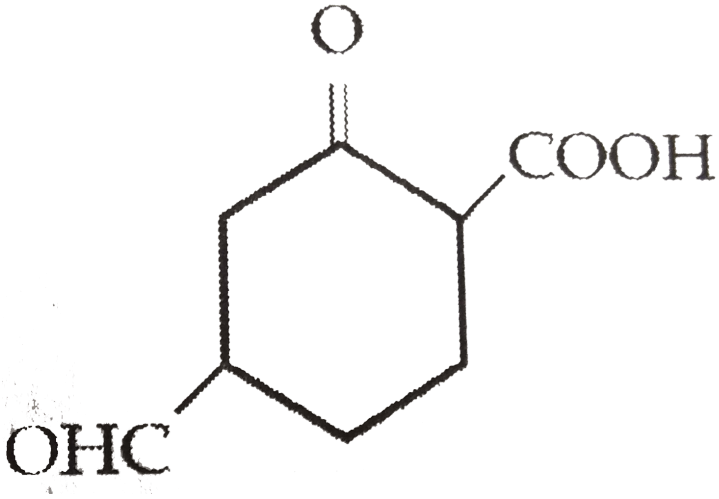
398. The correct IUPAC name of the compound



is

is

A. 4-formyl-2-oxocyclohexanecarboxylic acid

B. 4-carboxy-2-oxocyclohexanal

C. 4-carboxy-1-formylcyclohexanone

D. 2-carboxy-5-formyl-1-oxocyclohexane

Answer: A

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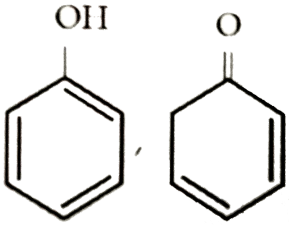
399. Match the constants given in column I with their values given in column II and mark the appropriate choice.

Column I	Column II
(A) CH_3CH_2OH, $H_3C-O-CH_3$	(i) Position isomers
(B) $C_2H_5COC_2H_5$, $C_3H_7COCH_3$	(ii) Tautomers
(C) 	(iii) Functional isomers
(D) $CH_3CH_2CH_2OH$, $CH_3-\underset{\displaystyle OH}{\underset{\vert}{CH}}-CH_3$	(iv) Metamers

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400. The number of hyperconjugating structures shown by the carbocations are given below. Which one is not correctly matched?

A. $CH_3 - \overset{+}{\underset{\underset{CH_3}{|}}{C}} - CH_3 - 9$ hyperconjugating structures

B. $CH_3 - \overset{+}{C}H - CH_3 - 8$ hyperconjugating structures

C. $CH_3 - \overset{+}{C}H_2 - 3$ hyperconjugating structures

D. $\overset{+}{C}H_3 -$ No hyperconjugating structures

Answer: B

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401. Few pairs of molecules are given below. Which bond of the molecule of the pairs is more polar ?

(i) $H_3C - H, H_3C -$ Br

(ii) $H_3C - NH_2, H_3C - OH$

(iii) $H_3C - OH, H_3C - SH$

(iv) $H_3C - CI, H_3C -$ Br

A. C - Br, C - N, C - O , C - Br

B. C - Br, C - O , C - O , C - Cl

C. C - Br, C - N, C - S, C - Cl

D. C - Br, C - O , C - S, C- Br

Answer: B

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402. Which of the following sets of groups contains only electrophiles ?

A. $NH_2^-, NO_2^+, H_2O, NH_3$

B. F^-, OH^-, NH_3, SO_3

C. $NO_2^+, AlCl_3, SO_3, CH_3\overset{+}{C}=O$

D. $NH_3, BF_3, AlCl_3, H_2O$

Answer: C

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403. In the given reaction two products are expected.

A. the carbocation $CH_3-\overset{+}{C}H-CH_3$ is formed which is more stable

B. the carbocation $CH_3-CH_2-\overset{+}{C}H_2$ is formed which is more stable

C. both carbocations are equally stable but the nucleophile attacks on central C atom

D. $CH_3-\overset{+}{C}H-CH_3$ can easily give a proton to attach Br^+

Answer: A

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

A. $H_2C = CH - C \equiv H$

B. $HC = C - CH = CH_2$

C. $H_3C - CH = CH - CH_3$

D. $H_2C = CH - CH = CH_2$

Answer: A

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405. Identify the type of reaction.

(i) $HCHO + HCN \rightarrow CH_2(OH)CN$

(ii) $CH_3Cl + KOH_{(aq)} \rightarrow CH_3OH + KCl$

(iii) $CH_3N = NCH_3 \xrightarrow{Heat} CH_3 - CH_3 + N_2$

(iv)

$CH_3CH(Br) - CH(Br) - CH_3Zn \rightarrow CH_3CH = CHCH_3 + ZnBr_2$

A. (i) Substitution, (ii) Addition, (iii) Elimination, (iv) Elimination

B. (i) Addition, (ii) Substitution, (iii) Decomposition, (iv) Elimination

C. (i) Addition, (ii) Addition, (iii) Substitution, (iv) Substitution

D. (i) Substitution, (ii) Elimination, (iii) Addition, (iv) Substitution

Answer: B

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406. The percentage of oxygen in heavy water is

A. 60

B. 50

C. 80

D. 80.9

Answer: C

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407. In the Kjeldahl's method for estimation of nitrogen present in a soil sample, ammonia avolved from 0.75 g of sample neutralized 10 mL of 1 M H_2SO_4. The percentage of nitrogen in the soil is

A. 37.33

B. 45.33

C. 35.33

D. 43.33

Answer: A

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408. For the estimation of nitrogen, 1.4 g of an organic compound was digested by Kjeldahl's method and the evolved ammonia was absorbed in 60 mL of $M/10$ sulphuric acid. The unreacted acid required 20 mL of $M/10$ sodium hydroxide for complete neutralisation. The percentage of nitrogen in the compound is

A. 3%

B. 5%

C. 6%

D. 10%

Answer: D

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409. Match the compounds given in column I with the IUPAC names given in column II and marks the appropriate choice .

A. $(A) \rightarrow (ii), (B) \rightarrow (i), (C) \rightarrow (iii), (D) \rightarrow (iv)$

B. $(A) \rightarrow (iv), (B) \rightarrow (ii), (C) \rightarrow (i), (D) \rightarrow (iii)$

C. $(A) \rightarrow (i), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (iv)$

D. $(A) \rightarrow (iii), (B) \rightarrow (iv), (C) \rightarrow (ii), (D) \rightarrow (i)$

Answer: D

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Test Your Grasp

1. Boiling point of a liquid depends upon

A. Temperature

B. Volume

C. Pressure

D. Moisture

Answer: C

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2. Sodium nitroprusside when added to an alkaline solution of sulphide ions produces

A. Red colouration

B. Blue colouration

C. Violet colouration

D. Brown colouration

Answer: C

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3. In the estimation of nitrogen by Duma's method 1.18 g of an organic compound gave 224 ml of N_2 at NTP. The percentage of nitrogen in the compound is about

A. 20.0

B. 11.8

C. 47.5

D. 23.7

Answer: D

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4. $0.2g$ of organic compound containing carbon, hydrogen and oxygen on combustion yielded $0.147gCO_2$ and $0.12g$ water. What will be the content of oxygen in the substance?

A. $73.29\ \%$

B. $78.45\ \%$

C. $83.23\ \%$

D. $89.50\ \%$

Answer: A

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5. Sodium fusion extract, obtained from aniline, on treatment with iron (II) sulphate and H_2SO_4 in the presence of air gives a Prussian blue precipitate. The blue colour is due to the formation of

A. $Fe_4[Fe(CN)_6]_3$

B. $Fe_3[Fe(CN)_6]_2$

C. $Fe_4[Fe(CN)_6]_2$

D. $Fe_3[Fe(CN)_6]_3$

Answer: A

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6. In the straight-chain hydrocarbon C_8H_{10}, the C atoms beginning from one end have the hybridizations sp^3, sp^2, sp^2, sp^3, sp^2, sp^2, sp, and sp, respectively. The hydrocarbon is

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

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

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

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

Answer: D

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7. In which of the compounds given below is there more than one kind of hybridization $(sp, sp_2, sp_3$ for carbon?

(i) $CH_3CH_2CH_2CH_3$

(ii) $CH_3 - CH = CH - CH_3$

(iii) $CH_2 = CH - CH = CH_2$

(iv) $H - C \equiv C - H$

A. (ii) and (iv)

B. (i) and (iv)

C. (ii) and (iii)

D. (ii)

Answer: D

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8. 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 pairs of electrons

D. 10σ bonds , 2π bond and 2 lone pairs of electrons

Answer: B

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

A. Resonance energy is the energy required to break the C - H bond in benzene

B. Resonance energy is the energy required to break the C - C bond in benzene

C. Resonance energy is a measure of stability of benzene

D. Resonance energy is the energy required to convert

Answer: C

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10. Which of the following is observed in ethylene nw lecule?

A. Electromeric effect

B. Inductive effect

C. Homolytic fission

D. None of these

Answer: A

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11. Orbital interaction (partial overlapping) between the sigma bonds of a substituent group and a neighbouring pi orbital is known as

A. Hyperconjugation

B. Inductive effect

C. Stearic effect

D. Dipole-dipole interactions

Answer: A

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12. Carbocation which is most stable is

A. $CH_3CH_2^+$

B. CH_3^+

C. $C_6H_5CH_2^+$

D. $CH_3CH_2CH_2^+$

Answer: C

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

A. Benzyne

B. Carbanions

C. Free radicals

D. Carbenes

Answer: C

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14. Which of the following pairs is an example of position isomerism?

A. $CH_3 - CH_2 - CH_2 - CH_3$ and $CH_3 - \underset{\displaystyle CH_3}{\overset{|}{\underset{|}{CH}}} - CH_3$

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

C. $CH_3 - CH_2OH$ and $CH_3 - O - CH_3$

D. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}} - CH_3$ and $CH_3 - CH_2 - CH_2 - CH_2 - CH_3$

Answer: B

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15. Diethyl ether and methyl n propyl ether are

A. Position isomers

B. Functional isomers

C. Metamers

D. Chain isomers

Answer: C

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16. 2-Pentanone and 3-methyl-2-butanone are a pair of _____ isomers.

A. Functional

B. Chain

C. Positional

D. Stereo

Answer: B

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17. Sugar is obtained from its saturated solution by

A. Sublimation

B. Simple distillation

C. Crystallisation

D. Chromatograpy

Answer: C

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18. two substances when separated out on the basis of their extent of adsorption, by one material, the phenomenon is called:

A. Chromatography

B. Paper chromatography

C. Sublimation

D. Steam distillation

Answer: A

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19. Isomers have essentially identical :

A. Structural formula

B. Chemical properties

C. Molecular formula

D. Physical properties

Answer: C

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20. IUPAC name of $CH_2 = CH - CH(CH_3CH_2)\underset{\underset{Br}{|}}{C} = CH_2$ is

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 these

Answer: B

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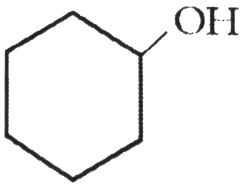
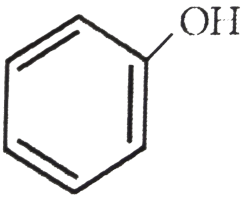
21. The structrual formula of cyclohexyl alcohol is

A. 



B.

C.

D. None of these

Answer: A

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22. What is the IUP AC name of the following compound?

A. 3-Methyl-5-heptanone

B. 5-Methyl-3-heptanone

C. 5-Ethyl-3-hexanone

D. None of these

Answer: B

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23. Alicyclic compounds are

A. Aromatic

B. Aliphatic

C. Heterocyclic

D. Aliphatic cyclic

Answer: C

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24. The IUP AC name of the compound

$CH_3 - \underset{\underset{OH}{|}}{C} = CH - CH_2 - COOH$ is

A. Hydroxypentenoic acid

B. 4-Hydroxy-3-pentenoic acid

C. 4-Hydroxy-4-pentenoic acid

D. 4-Hydroxy-4-methyl-3-butenoic acid

Answer: B

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25. Zero inductive effect is shown by

A. C_6H_5

B. H

C. CH_3

D. Cl

Answer: B

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26. Dehydrohalogenation of alkyl halide is

A. Addition reaction

B. Elimination reaction

C. Rearrangement reaction

D. Substitution reaction

Answer: B

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27. Carboxylic acids are easily ionised. The main reason of this statement

A. Absence of α hydrogen

B. Resonance stabilisation of carboxylate ion

C. Reactivity of α hydrogen

D. Hydrogen bond

Answer: B

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28. The order of decreasing stability of the carbanions

$(CH_3)_3\overline{\dot{\dot{C}}}$

$(CH_3)_2\overline{\dot{\dot{C}}}H$

$CH_3\overline{\dot{\dot{C}}}H_2$

$C_6H_5\left(\overline{\dot{\dot{C}}}H_2\right)_2$ is

A. $1 > 2 > 3 > 4$

B. $4 > 3 > 2 > 1$

C. $4 > 1 > 2 > 3 >$

D. $1 > 2 > 4 > 3$

Answer: B

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29. Which of the following statements is correct?

A. $+\mathrm{I}$ group stabilizes a carbanion

B. $+$ I group stabilizes a carbocation

C. $-\mathrm{I}$ group stabilizes a carbocation

D. - I group destabilizes a carbanion

Answer: B

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30. Which of the following is not a nucleophile ?

A. H_2O

B. CH_3OH

C. H_2

D. NH_3

Answer: C

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31. Resonance is not exhibited by

A. Phenol

B. Aniline

C. Nitrobenzene

D. Cyclohexane

Answer: D

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32. The most unstable carbocation, amongst the following, is

A. $(CH_3)_3C^+$

B. $(CH_3)_2CH^+$

C. $CH_3 - CH_2^+$

D. CH_3^+

Answer: D

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33. Homolytic fission of covalent bond takes place when bonded atoms have

A. same electronegativity

B. different electronegativity

C. same atomic size

D. different atomic size

Answer: A

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34. $CH_3 - CH_3 + Cl_2 \xrightarrow{U.V.Light} CH_3 - CH_2Cl + HCl$

Above reaction involves

A. Formation of Cl - Cl bond

B. Breaking of Cl - Cl bond

C. Breaking of C - C bond

D. Formation of C - Cl bond

Answer: D

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35. The effect involving the complete transfer of a shared pair of electrons to one of the atoms joined by a multiple bond at the requirement of attacking reagent is called

A. $+ve$ inductive effect

B. mesomeric effect

C. electromeric effect

D. $-ve$ inductive effect

Answer: C

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36. Organic compound are non-conductors of electricity because

A. are insoluble in water

B. do not form ions

C. have low melting point

D. form free radicals

Answer: B

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

A. H_2O, SO_3, NO_2^+

B. NH_3, H_2O, BI_3

C. $AlCl_3, SO_3, Cl^+$

D. ROH, NH_3, NO_2^+

Answer: C

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38. $CH_3 - Br + NH_3 \rightarrow CH_3 - NH_2 + HBr$

The above reaction is classified as

A. Substitution

B. Addition

C. Elimination

D. Rearrangement

Answer: A

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39. In which of the following reaction modification of carbon skeleton takes place ?

A. Substitution

B. Addition

C. Rearrangement

D. Elimination

Answer: C

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40. Isobutyl alcohol in acidic medium gives tert-butyl alcohol, the reaction is

A. Addition reaction

B. Substitution reaction

C. Elimination reaction

D. Rearrangement reaction

Answer: C

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