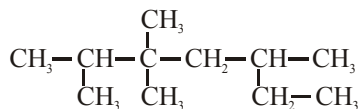


CHEMISTRY FOR JEE MAIN & ADVANCED

SOLVED EXAMPLES

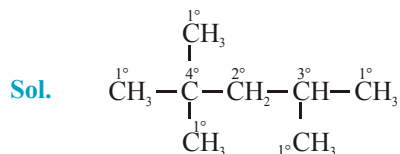
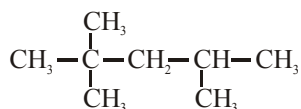
Ex. 1 How many 1° , 2° , 3° and 4° carbon atoms are present in following molecule.



Sol. 1° Carbon atoms = 6, 2° Carbon atoms = 2, 3° Carbon atoms = 2, 4° Carbon atom = 1

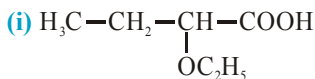
Note: Primary, secondary, tertiary & quaternary carbon atoms in a molecule are denoted by the letters p, s, t and q respectively.

Ex. 2 How many 1° , 2° , 3° and 4° carbon atoms are present in following molecule.

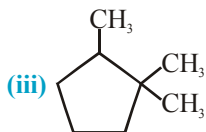


1° Carbon atoms = 5, 2° Carbon atom = 1, 3° Carbon atom = 1, 4° Carbon atom = 1

Ex. 3 Write the IUPAC name of following compounds.

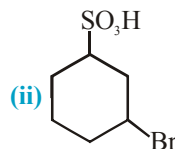


(ii) 3-Bromocyclohexane-1-sulphonic acid

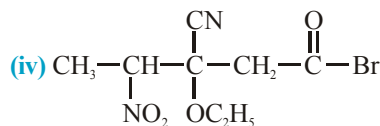


(iv) 3-Cyano-3-ethoxy-4-nitropentanoyl bromide

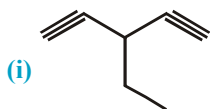
Sol. (i) 2-Ethoxybutanoic acid



(iii) 1,1,2-Trimethylcyclopentane

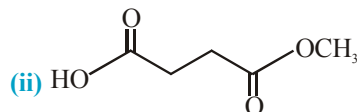


Ex. 4 Draw the structure of following IUPAC name.



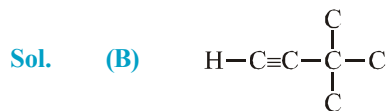
(ii) 3-Methoxycarbonylpropanoic acid

Sol. (i) 3-Ethypenta-1,4-diyne

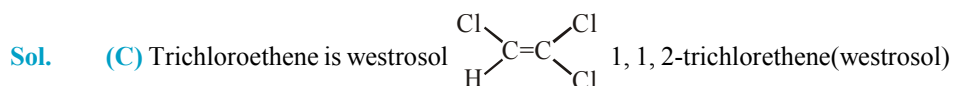


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- Ex. 10** How many carbons are in simplest alkyne having two side chains?
 (A) 5 (B) 6 (C) 7 (D) 8

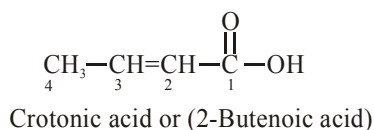


- Ex. 11** The compound name trichloroethane is
 (A) Westron (B) Perclene (C) Westrosol (D) Orlone

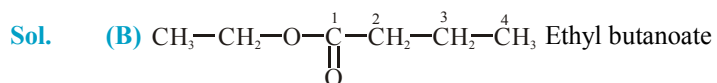


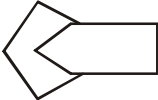
- Ex. 12** The type of unsaturation present in crotonic acid is -
 (A) α, β (B) β, α (C) α, α (D) β, β

- Sol.** (A) The type of unsaturation present in crotonic acid is α, β .



- Ex. 13** IUPAC name of compound $\text{CH}_3\text{CH}_2\text{OC}(=\text{O})\text{CH}_2\text{CH}_2\text{CH}_3$ is
 (A) Propyl propanoate (B) Ethyl butanoate
 (C) Propyl butanoate (D) Ethyl propanoate



- Ex. 14** The IUPAC name of the compound given below is 
 (A) Bicyclo [3,2,1] octane (B) Bicyclo [3,2,2] octane
 (C) Spiro [2, 2] octane (D) None of these

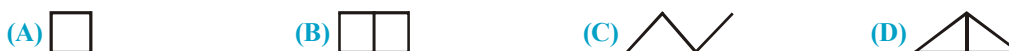
- Sol.** (A)

- Ex. 15** The structure of spiro [3, 3] heptane is



- Sol.** (B)

- Ex. 16** The structure of bicyclo [1.1.0] butane is



- Sol.** (D)

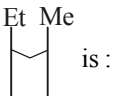
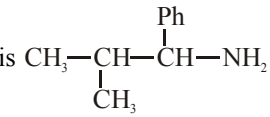
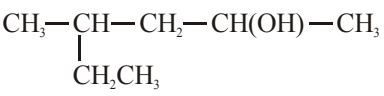
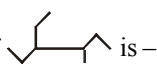
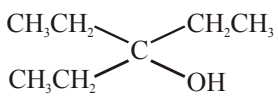
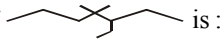
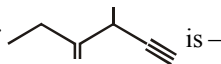
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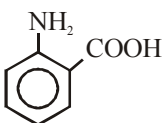
14. The IUPAC name of the following is $[\text{CH}_3\text{CH}(\text{CH}_3)]_2\text{C}(\text{CH}_2\text{CH}_3)\text{C}(\text{CH}_3)\text{C}(\text{CH}_2\text{CH}_3)_2$
 (A) 3,5-Diethyl-4,6-dimethyl-5-[1-methylethyl]hept-3-ene
 (B) 3,5-Diethyl-5-isopropyl-4,6-dimethylhept-2-ene
 (C) 3,5-Diethyl-5-propyl-4,6-dimethylhept-3-ene
 (D) None of these
15. Which of the following is a heterocyclic compound
 (A) $\begin{array}{c} \text{HC}=\text{CH} \\ | \\ \text{HC}=\text{CH} \end{array} \text{S}$ (B) $\begin{array}{c} \text{HC}=\text{COOH} \\ | \\ \text{HC}=\text{COOH} \end{array}$ (C) $\begin{array}{c} \text{HC}=\text{CH} \\ | \\ \text{HC}=\text{CH} \end{array} \text{CH}_2$ (D) $\begin{array}{c} \text{HC}=\text{CH} \\ | \\ \text{HC}=\text{CH} \end{array} \text{C}=\text{O}$
16. Ethyl methyl vinyl amine has the structure –
 (A) $\text{CH}_3\text{CH}_2-\text{N}(\text{CH}_3)-\text{CH}_2\text{CH}=\text{CH}_2$ (B) $\text{CH}_3\text{CH}_2-\text{N}(\text{CH}_3)-\text{CH}=\text{CH}_2$
 (C) $\text{CH}_2=\text{CH}-\text{N}(\text{CH}_3)-\text{CH}=\text{CH}_2$ (D) $\text{CH}_3-\text{N}(\text{CH}_3)-\text{CH}=\text{CH}_2$
17. $\text{CH}_3-\text{CH}=\text{CH}-\text{C}\equiv\text{CH}$, IUPAC name is :
 (A) Pent-2-ene-4-yne (B) Pent-4-yne-2-ene (C) Pent-1-yne-3-ene (D) Pent-3-ene-1-yne
18. The IUPAC name of $\text{CH}_3-\text{C}\equiv\text{C}-\text{C}(\text{CH}_3)_3$ is :
 (A) Methyl tertiarybutyl acetylene (B) t-Butyl propyne
 (C) 4,4-Dimethyl-2-pentyne (D) 1,3,3,3-Tetramethyl ethyne
19. Give the IUPAC name of

$$\begin{array}{c} \text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \\ | \\ \text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}-\text{CH}-\text{CH}_2-\text{CH}_2-\text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{CH} \\ | \\ \text{CH}_3 \end{array}$$

 (A) 4-isopropyl-5-ter. butyl octane (B) 4-ter. butyl-5-isopropyl octane
 (C) 2-methyl-3-propyl-4-ter. butyl heptane (D) 2,2-dimethyl-3-propyl-4-isopropyl heptane
20. As per IUPAC rules, which one of the following groups, will be regarded as the principal functional group ?
 (A) $-\text{C}\equiv\text{C}-$ (B) $-\text{OH}$ (C) $\begin{array}{c} -\text{C}- \\ || \\ \text{O} \end{array}$ (D) $\begin{array}{c} -\text{C}-\text{H} \\ || \\ \text{O} \end{array}$
21. The number of C-atoms in second member of an ester is/are :
 (A) 2 (B) 3 (C) 4 (D) 1
22. The number of primary, secondary and tertiary carbon atom in toluene is given by the set :
 (A) 1, 6, 0 (B) 1, 5, 1 (C) 2, 5, 0 (D) 1, 6, 1
23. $\text{C}_3\text{H}_6\text{Br}_2$ can show :
 (A) Two gem dibromide (B) Three vic dibromide
 (C) Two tert. dibromo alkane (D) Two sec. dibromo alkane

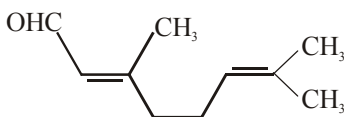
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33. The IUPAC name of  is :
- (A) 2, 3-Dimethyl hexane (B) 2-Ethyl-4-methyl pentane
(C) 3-Ethyl-2-methyl pentane (D) 2, 4-Dimethyl hexane
34. The IUPAC name of the compound is 
- (A) 1-Amino-1-phenyl-2-methyl propane (B) 2-Methyl-1-phenyl propane-1-amine
(C) 2-Methyl-1-amino-1-phenyl propane (D) 2-Chloro-2-Methylpropane
35. The IUPAC name of the compound $\text{Br}(\text{Cl})\text{CH}_2\text{CF}_3$ is :
- (A) haloethane (B) 1, 1, 1-trifluoro-2-bromo-2-chloroethane
(C) 2-bromo-2-chloro-1, 1, 1-trifluoroethane (D) 1-bromo-1-chloro-2, 2, 2-trifluoro ethane
36. IUPAC name of compound is 
- (A) 4-methyl-3-hexanol (B) heptanol (C) 4-methyl-2-hexanol (D) none of these
37. The IUPAC name of tert-butyl chloride is :
- (A) 4-Chlorobutane (B) 2-Ethyl-2-methyl pentane
(C) 3-Ethyl-2-methyl pentane (D) 2-Chloro-2-Methyl propane
38. The IUPAC name of  is -
- (A) 4-ethyl-3-methyl hexane (B) 3-ethyl-4-methyl hexane
(C) 3-methyl-4-ethyl hexane (D) None of these
39. The correct nomenclature (IUPAC) for the following alcohol is :
- 
- (A) 2-Ethyl-2-butanol (B) 1-Ethyl-1-methyl-pentanol-1
(C) 3-Ethyl pentan-3-ol (D) diethyl ethanol
40. The IUPAC name of  is :
- (A) 1, 1-diethyl-2, 2-dimethyl pentane (B) 4, 4-dimethyl-5, 5-diethylpentane
(C) 5, 5-diethyl-4, 4-dimethylpentane (D) 3-ethyl-4, 4-dimethylheptane
41. Underline carbon is sp^3 hybridised in :
- (A) $\text{CH}_3-\underline{\text{C}}\text{H}=\text{CH}_2$ (B) $\text{CH}_3\text{CH}_2-\underline{\text{C}}\text{NH}_2$
(C) CH_3CONH_2 (D) $\text{CH}_3\text{CH}_2\text{CN}$
42. The IUPAC name of  is -
- (A) 2-ethyl-3-methyl-1-penten-4-yne (B) 2-ethyl-3methyl-4-pentyn-1-ene
(C) 4-ethyl-3-methyl-1-pentyn-4-ene (D) 4-ethyl-3-ethyl-4penten-1-yne

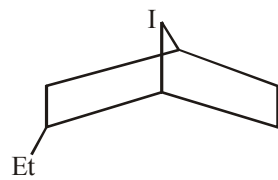
49. The IUPAC name of  is –

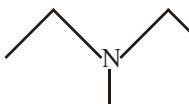
- (A) 1-amino-2-carboxybenzene
 (B) 2-amino-1-carboxy benzene
 (C) 1-amino-2-benzenecarboxylic acid
 (D) 2-aminobenzenecarboxylic acid

50. Which name is correct :

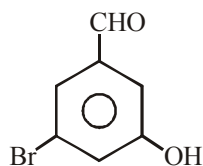
(A) 
 3, 7-Dimethyloct-2, 6-dienal

(B)  Spiro(3,6) decane

(C) 
 3-Ethyl-7-iodobicyclo (2.2.1) heptane

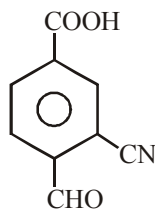
(D)  N-Methyl-Ethylethanamine

51. The IUPAC name of the following compound is :

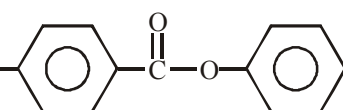


- (A) 5-Bromo-3-hydroxybenzenecarbaldehyde
 (B) 3-Bromo-5-formylphenol
 (C) 3-Bromo-5-hydroxybenzenecarbaldehyde
 (D) 1-Bromo-3-formyl-5-hydroxybenzene

52. The IUPAC name of the compound is :



- (A) 2-Cyano-1-formylbenzene-4-carboxylic acid
 (B) 3-Cyano-4-formylbenzene-1-carboxylic acid
 (C) 4-Carboxy-2-cyanobenzene-1-carbaldehyde
 (D) 2-Formyl-5-carboxybenzene-1-carbonitrile

53. IUPAC name of 

- (A) 4-Chlorophenyl benzoate,
 (B) Phenyl-4-Chlorobenzenecarboxylate.
 (C) Benzyl-4-chlorobenzenecarboxylate
 (D) 4-Chloro diphenylcarboxylate.

Exercise # 2

Part # I

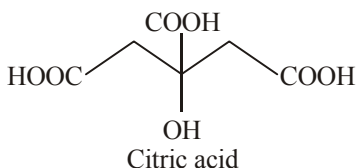
[Multiple Correct Choice Type Questions]

- Which of the following statement is /are wrong ?
 - C_nH_{2n} is the general formula of alkanes
 - In homologous series, all members have the same physical properties
 - IUPAC means International Union of Physics and Chemistry
 - Butane contains two 1° C atoms and 2° C atom
- Which of the following statement is/are correct?
 - Homologous series can be represented by a general formula
 - The chemical properties of an organic compound depend on the functional group
 - Group obtained by the removal of one H atom from the alkane are called alkyl groups
 - Alkynes consist of one double-bond in their molecules
- Which of the following statement is/are correct ?
 - Methane was named as fire damp as it forms explosive mixture with air
 - Primary suffixes are added to the root word to show saturation or unsaturation in a C atom
 - The IUPAC name of the valeric acid is pentanoic acid
 - The common name of hexanoic acid is caproic acid
- Which of the following statement is /are correct?
 - The IUPAC name of amyl alcohol is pentanol
 - The IUPAC name of isoamyl alcohol is 3-methyl butanol
 - Wood spirit is methanol
 - Methyl alcohol is also called carbinol
- Which of the following statement is/are correct?
 - The trivial names of organic compounds are called common names
 - The systematic names of organic compound are obtained from the IUPAC system
 - The systematic name of alkanes are based on the number of C atom in the longest continues chain of C atoms
 - The maximum number of functional groups must be included in the C atom chain selected even if it does not satisfy the longest chain rule
- Which of the following statement is/are wrong?
 - Acetic acid is the systematic of vinegar
 - $Me-\overset{\overset{O}{\parallel}}{C}-OH$ is an unsaturated compound
 - Prefixes like n-, iso, sec-, tert, neo- etc. are used in IUPAC system.
 - The systematic names of acids are formed by dropping -e of the name of parent alkane and adding -oic acid.
- Which of the following statement is /are correct?
 - $R-\overset{\overset{O}{\parallel}}{C}-O-\overset{\overset{O}{\parallel}}{C}-R$ is an unsaturated compound
 - Neohydrocarbons contain a 3° C atom
 - The IUPAC name of isopropyl alcohol is propan-2-ol
 - The IUPAC name of $(CH_3)_2CN$ is ethanenitrile

These questions consists of two statements each, printed as Statement-I and Statement-II. While answering these Questions you are required to choose any one of the following four responses.

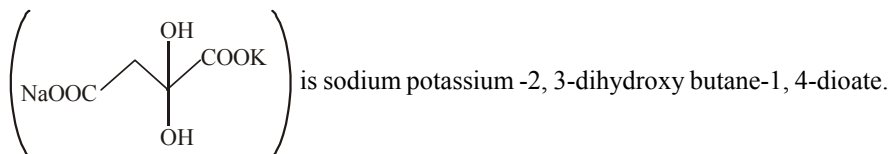
- (A) If both Statement-I & Statement-II are True & the Statement-II is a correct explanation of the Statement-I
- (B) If both Statement-I & Statement-II are True but Statement-II is not a correct explanation of the Statement-I.
- (C) If Statement-I is True but the Statement-II is False.
- (D) If Statement-I is False but the Statement-II is True.

1. **Statement - I** : All the C atom of but-2-ene lie in one plane.
Statement - II : Double-bond C atoms are sp^2 -hybridised.
2. **Statement - I** : The IUPAC name of isoprene is 2-methyl buta-1, 3-diene.
Statement - II : Isoprene unit is a monomer of natural rubber.
3. **Statement - I** : Pentane and 2-methyl pentane are homologues.
Statement - II : Pentane is a straight - chain alkane, while 2-methyl pentane is a branched -chain alkane.
4. **Statement - I** : The IUPAC name of citric acid is 2-hydroxy-propane-1, 2, 3-tricarboxylic acid.



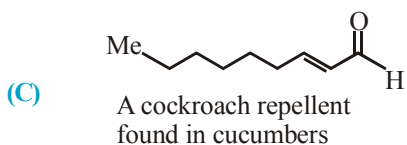
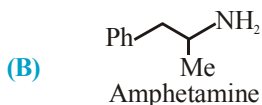
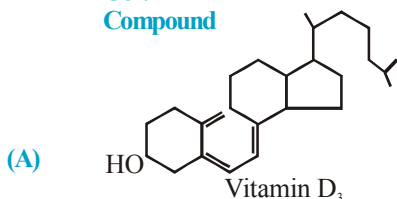
Statement - II : When an unbranched C atom is directly linked more than two like-functional groups, then it is named as a derivative of the parent alkane which does not include the C atoms of the functional groups.

5. **Statement - I** : Rochelle's salt is used as complexing agent in Tollen's reagent.
Statement - II : Sodium potassium salt of tartaric acid is known as Rochelle's salt. The IUPAC name of Rochelle's salt



5. Match the column

Column - I
Compound



Column - II

Containing all the functional groups

(p) 1° amine

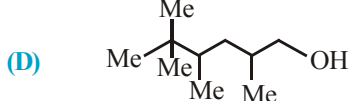
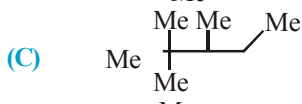
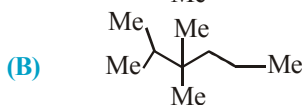
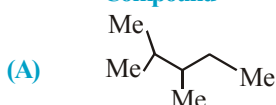
(q) 2° alcohol

(r) Triene

(s) Aldehyde and ene

6. Match the column

Column - I
Compound



Column - II
Nature of H atoms

(p) 15 (1°H), 4(2°H), 1(3°H)

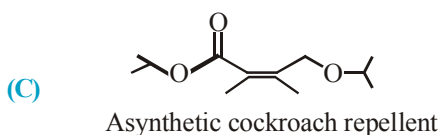
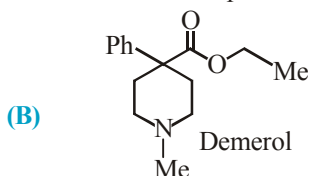
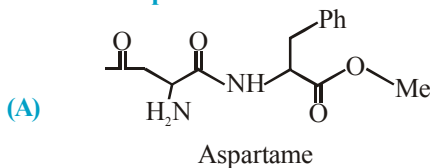
(q) 17 (1°H), 2(2°H), 2(3°H)

(r) 12(1°H), 2(2°H), 2(3°H)

(s) 15(1°H), 2(2°H), 1(3°H)

7. Match the column

Column - I
Compound



Column - II

Containing all the functional groups

(p) ene and diester

(q) Carboxylic acid, 1° amine, amide

(r) Ester

(s) 3° amine

3.
$$\begin{array}{c} \text{CH}_2\text{COOH} \\ | \\ \text{HOOC}-\text{CH}_2-\text{CH}-\text{CH}_2-\text{COOH} \end{array}$$
 True (A) 3-(carboxymethyl)-1, 5-dioic acid False (B)
4.
$$\begin{array}{c} \text{CH}_2\text{CHO} \\ | \\ \text{OHC}-\text{CH}_2-\text{CH}-\text{CH}_2-\text{CHO} \end{array}$$
 True (A) 3-(formylmethyl)pentane-1, 5-dial False (B)
5.
$$\begin{array}{c} \text{CONH}_2 \\ | \\ \text{H}_2\text{NOC}-\text{CH}_2-\text{CH}-\text{CH}_2-\text{CONH}_2 \end{array}$$
 True (A) Propane-1, 2, 3-tricarboxamide False (B)

Comprehension # 2

In addition to the standard ring systems (such as cyclohexane), cyclic compounds can also be bicyclic, tricyclic, etc. or they can be spirocyclic, bicyclic or bridge head carbons. The point of attachment of two rings are called bridge head atoms.

The formal names of bicyclic and related ring systems are based on

(A) Total number of atoms in the molecule.

(B) The number of atoms in each bridge connecting the bridge head atoms. These numbers are written in square bracket in decreasing order.

Spirocyclic compounds have two fused rings, but only bridge head atom. Spirocyclic compounds are named like bicyclic compounds, but have the prefix spirocyclo. Answer the following question :

1.



What is the IUPAC name of the above compound ?

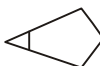
(A) cyclo [1.2.2] heptane

(B) Bicyclo [1.2.2] heptane

(C) Bicyclo [2.2.1] heptane

(D) cyclo [2.2.1] heptane

2.



The number of atoms in each bridge are :

(A) [3.2.1]

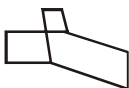
(B) [3.1.0]

(C) [1.3.0]

(D) [2.1.0]

3.

Select the correct statement about the following compounds :



(A) It is a tricyclic compound

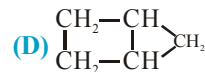
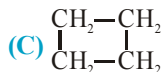
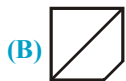
(B) It is bicyclo compound

(C) It is spiro compound

(D) Its IUPAC name is bicyclo [2.2.2] hexane

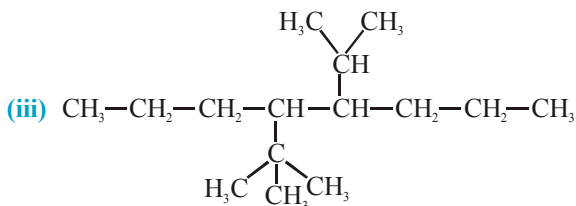
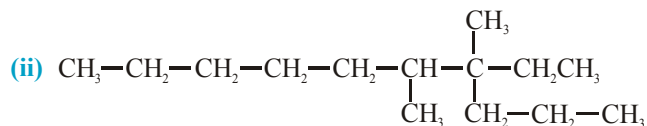
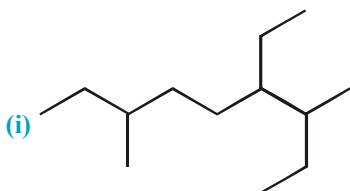
4.

Which of the following is the correct structure of bicyclo [1.1.0] butane?

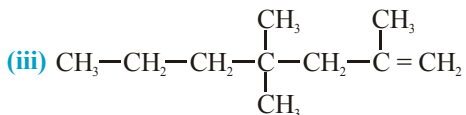
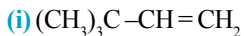


CHEMISTRY FOR JEE MAIN & ADVANCED

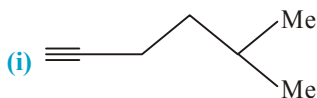
7. Write the correct IUPAC name of the following compounds.



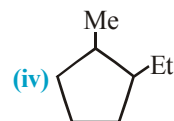
8. Write IUPAC name of the following :-



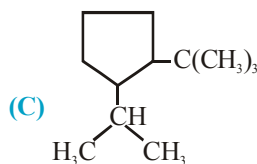
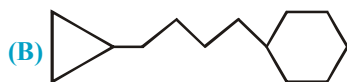
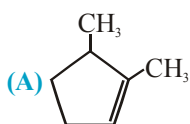
9. Write IUPAC name of the following



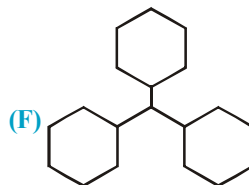
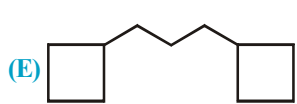
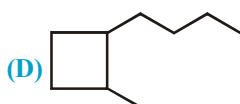
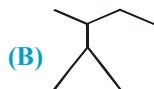
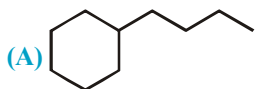
10. Write correct IUPAC name of the following



11. Write the IUPAC name of the following compounds.

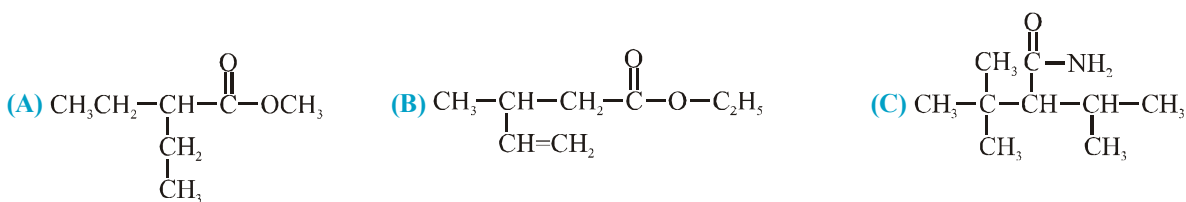


12. Identify the parent chain in the following compounds as ring or side chain.

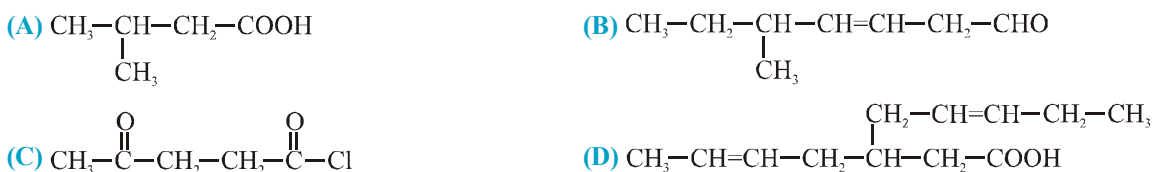


CHEMISTRY FOR JEE MAIN & ADVANCED

19. Write IUPAC name



20. Write the correct IUPAC name of the following compounds.



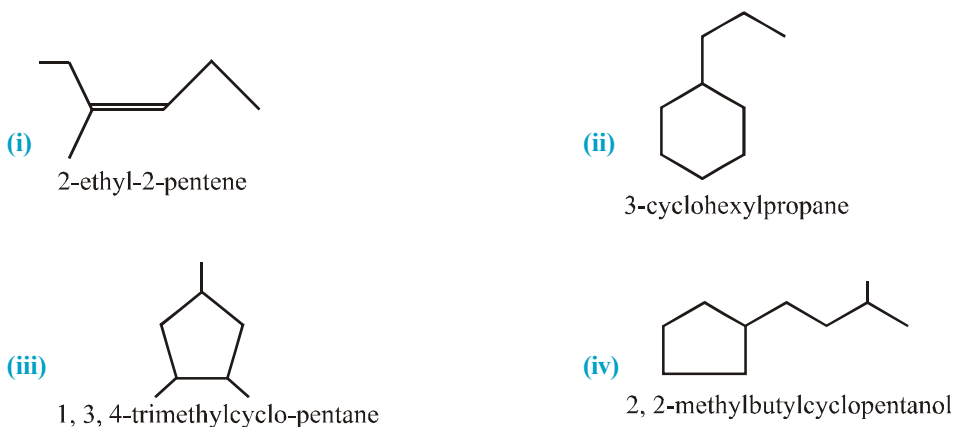
21. A certain substance contains only carbon and hydrogen and has a molecular weight of 70. Photochemical chlorination gave only one monochloride. Write the structure and IUPAC name of the hydrocarbon and its monochloride.

22. A hydrocarbon of molecular weight 72 g mol^{-1} has a 2-methyl group. What is the IUPAC name? Also draw its bond-line structure?

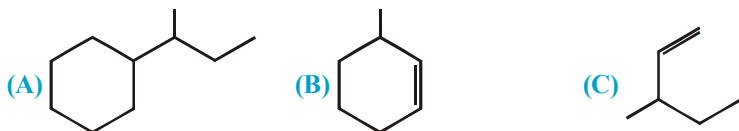
23. Write the structure and give IUPAC systematic name of an alkane or cycloalkane with the formula :

- (A) C_8H_{18} that has only primary hydrogen atoms
 (B) C_6H_{12} that has only secondary hydrogen atoms.

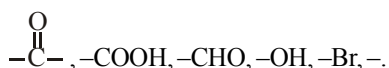
24. What is wrong with the names given for these compounds provide the correct name for each :

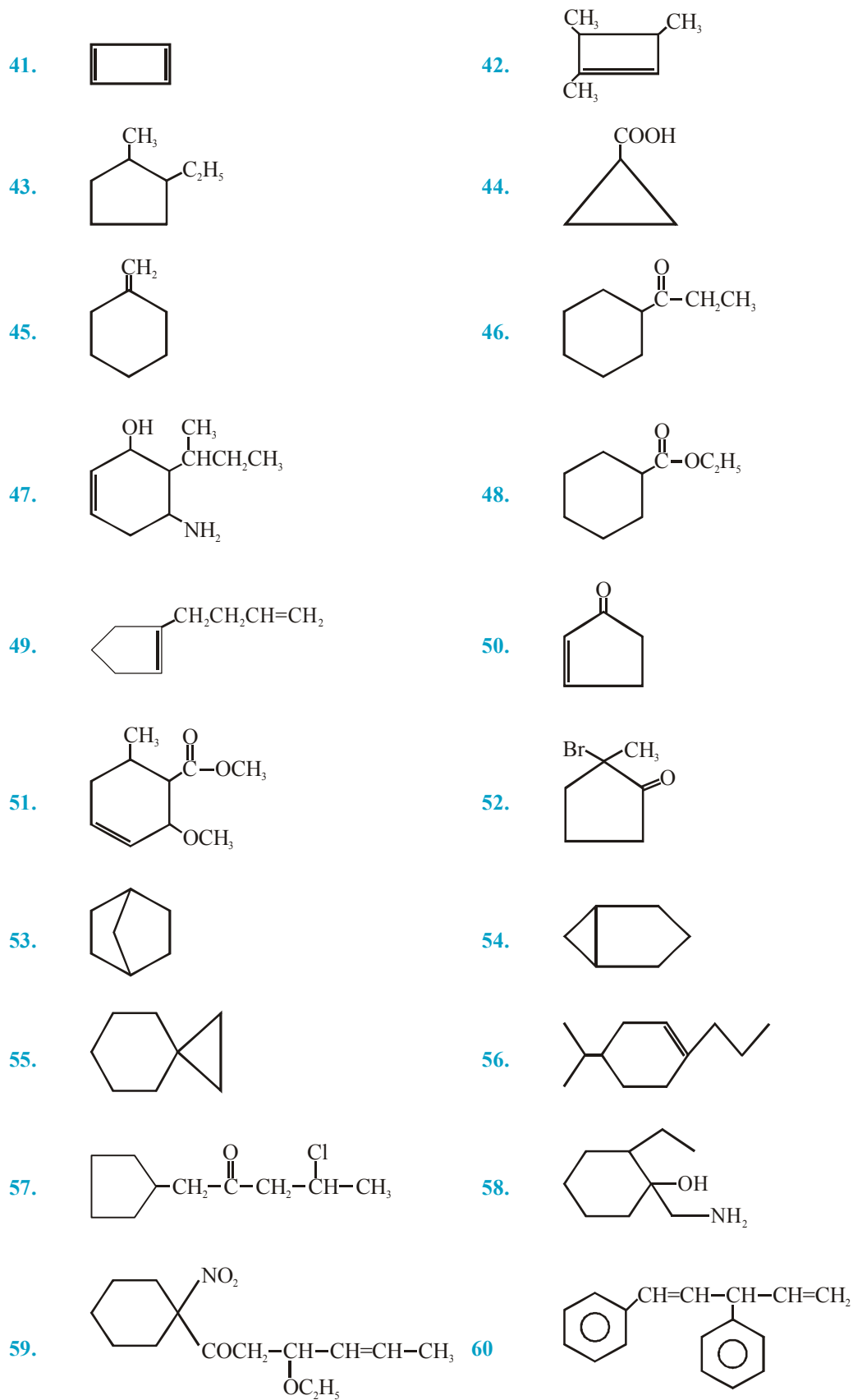


25. Write the IUPAC name for each the following structures :



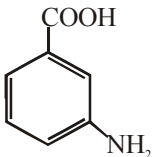
26. Write down the correct priority for citation as principal groups :





1. Write IUPAC name of the following

[IIT-Jee 2004]



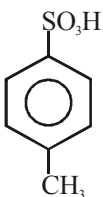
2. IUPAC name of $C_6H_5-CO-Cl$

[IIT-06]

- (A) Benzoylchloride
 (B) Benzenecarbonylchloride
 (C) Chlorophenyl ketone
 (D) Phenylchloroketone

3. Write IUPAC name of the following

[IIT-Jee 2005]



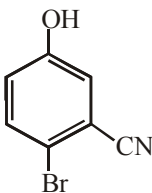
4. The number of structural isomers for C_6H_{14} is :

[IIT-Jee 2007]

- (A) 3
 (B) 4
 (C) 5
 (D) 6

5. The IUPAC name of the following compound is :

[IIT-Jee 2009]



- (A) 4-Bromo-3-cyanophenol
 (B) 2-Bromo-5-hydroxybenzonitrile
 (C) 2-Cyano-4-hydroxybromobenzene
 (D) 6-Bromo-3-hydroxybenzonitrile

6. The total number of cyclic isomers possible for a hydrocarbon with the molecular formula C_4H_6 is/are :

[IIT-Jee 2010]

7. In allene (C_3H_4), the type(s) of hybridisation of the carbon atoms is (are) :

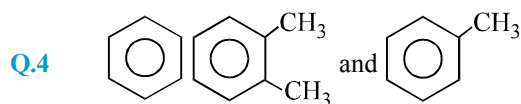
[IIT-Jee 2012]

- (A) sp and sp^3
 (B) sp and sp^2
 (C) only sp^3
 (D) sp^2 and sp^3

MOCK TEST

SECTION - I : STRAIGHT OBJECTIVE TYPE

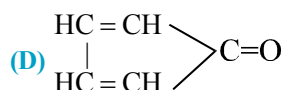
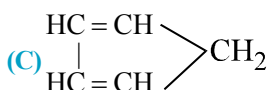
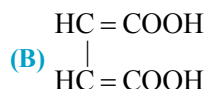
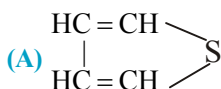
- Q.1 How many carbons are in simplest alkyne having two side chains?
 (A) 5 (B) 6 (C) 7 (D) 8
- Q.2 The commercial name of trichloroethene is:
 (A) Westron (B) Perclene (C) Westrosol (D) Orlone
- Q.3 The compound which has one isopropyl group is:
 (A) 2,2,3,3-Tetramethyl pentane (B) 2,2-Dimethyl pentane
 (C) 2,2,3-Trimethyl pentane (D) 2-Methyl pentane



Number of secondary carbon atoms present in the above compounds are respectively:
 (A) 6,4,5 (B) 4,5,6 (C) 5,4,6 (D) 6,2,1

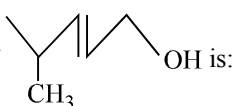
- Q.5 A substance containing an equal number of primary, secondary and tertiary carbon atoms is:
 (A) Mesityl Oxide (B) Mesitylene
 (C) Maleic acid (D) Malonic acid

- Q.6 Which of the following is a heterocyclic compound



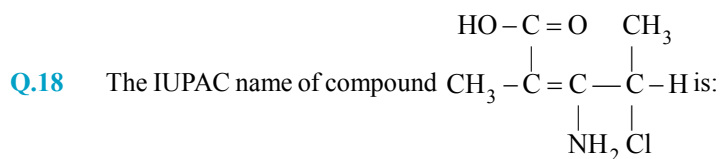
- Q.7 The correct IUPAC name of the compound $\text{CH}_3 - \text{CH}_2 - \overset{\text{CH}_3}{\underset{\text{C}_2\text{H}_5}{\text{C}}} = \text{C} - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$:

- (A) 5-Ethyl-3, 6-dimethyl non-3-ene (B) 5-Ethyl-4, 7-dimethyl non-3-ene
 (C) 4-Methyl-5, 7-diethyl oct-2-ene (D) 2,4-Ethyl-5-methyl oct-2-ene

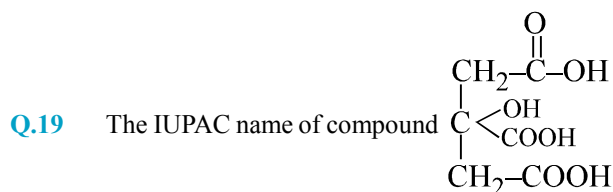
- Q.8 IUPAC name of  is:

- (A) 5-Methyl hexanol (B) 2-Methyl hexanol
 (C) 2-Methyl hex-3-enol (D) 4-Methyl pent-2-enol

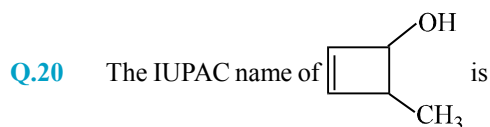
- Q.9 The IUPAC name of acetyl acetone is:
 (A) Pentane-2,5- dione (B) Pentane -2,4-dione (C) Hexane-2,4-dione (D) Butane-2,4-dione



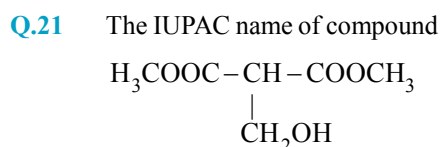
- (A) 2-Amino-3-chloro-2-methylpent-2-enoic acid
 (B) 3-Amino-4-chloro-2-methylpent-2-enoic acid
 (C) 4-Amino-3-chloro-2-methylpent-2-enoic acid
 (D) All of the above



- (A) 1,2,3-Tricarboxypropan-2-ol
 (B) 2-Hydroxy propane-1,2,3- tricarboxylic acid
 (C) 3-Hydroxy-3-carboxypentane-1,5-dioic acid
 (D) None

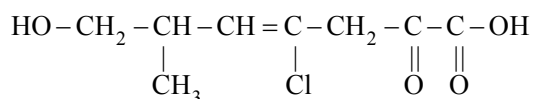


- (A) 3-Methyl cyclobut-1-ene-2-ol
 (B) 4-Methyl cyclobut-2-ene-1-ol
 (C) 4-Methyl cyclobut-1-ene-3-ol
 (D) 2-Methyl cyclobut-3-ene-1-ol



- (A) 2-(Hydroxy methyl) methyl propanedioate
 (B) Methyl-2-(hydroxy methyl) propanedioate
 (C) 2-(Hydroxy methyl) dimethyl propanedioate
 (D) None of these

Q.22 The suffix of the principal group, the prefixes for the other groups and the name of the parent in the structure



- (A) -oic acid, chloro, hydroxy, oxo, methyl, hept-4-ene
 (B) -oic acid, chloro, hydroxy, methyl, oxo, hept-4-ene
 (C) -one, carboxy, chloro, methyl, hydroxy, hept-4-ene
 (D) -one, carboxy, chloro, methyl, hydroxy, hept-4-ene

Q.23 The IUPAC name of β -ethoxy- α -hydroxy propionic acid (trivial name) is:

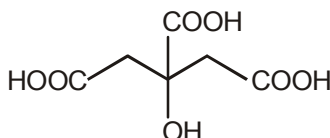
- (A) 1,2-Dihydroxy-1-oxo-3-ethoxy propane
 (B) 1-Carboxy-2-ethoxy ethanol
 (C) 3-Ethoxy-2-hydroxy propanoic acid
 (D) All above

SECTION - III : ASSERTION AND REASON TYPE

Each question has 5 choices (A), (B), (C), (D) and (E) out of which ONLY ONE is correct.

- (A) Statement-1 is true, Statement-2 is true and Statement-2 is correct explanation for Statement-1.
 (B) Statement-1 is true, Statement-2 is true and Statement-2 is not correct explanation for Statement-1.
 (C) Statement-1 is true, Statement-2 is false.
 (D) Statement-1 is false, Statement-2 is true.
 (E) Both Statements are false.

Q.27 **Statement-1** : The IUPAC name of citric acid is 2-hydroxy propane 1,2,3,- tricarboxylic acid



Statement-2 : When an unbranched carbon chain is directly linked to more than two like functional groups, then it is named as derivative of parent alkane which does not include the C-atoms of the functional groups.

- Q.28 **Statement-1** : The IUPAC name for the compound, $\text{OHC}-\text{CH}_2-\text{CH}_2-\text{COOH}$ is butane -3-formyl-1-oic acid
Statement-2 : COOH is considered as substituent group while CHO is considered as the principal functional group.
- Q.29 **Statement-1** : The IUPAC name for the compound $\text{C}_6\text{H}_5\text{COOCH}_2\text{CH}_2\text{COOH}$ is 3-benzoyloxypropanoic acid.
Statement-2 : $\text{C}_6\text{H}_5\text{CH}_2\text{O}$ is called benzoyloxy group
- Q.30 **Statement-1** : Pentane and 2-methyl pentane are homologues
Statement-2 : Pentane is straight chain alkane, while 2-methyl pentane is a branched chain alkane.
- Q.31 **Statement-1** : Butane and 2-methyl butane are chain isomers
Statement-2 : Butane is a straight chain alkane while 2-methyl butane is a branched chain alkane.
- Q.32 **Statement-1** : Neopentane is chain isomer of n-pentane.
Statement-2 : Molecular formula of neopentane and n-pentane is C_5H_{12} .

SECTION - IV : COMPREHENSION TYPE

Comprehension

A saturated hydrocarbon (P) has six membered ring. Three alkyl groups attached to the ring alternate to each other.

- (i) First group has only two carbon atoms.
 (ii) Second group has four carbon atoms and its all hydrogen atoms are chemically same.
 (iii) Third group has total five carbon atoms. Its main chain contains three carbon atoms with ethyl as a substituent.

- Q.33 How many 3° hydrogen atoms are present in the hydrocarbon (P) ?
 (A) 2 (B) 3 (C) 4 (D) 5
- Q.34 How many 2° carbon present in the compound (P).
 (A) 10 (B) 12 (C) 6 (D) 8
- Q.35 IUPAC name of hydrocarbon (P) is
 (A) 1-(1-Ethylpropyl)-3-ethyl-5-(1,1-dimethylethyl)cyclohexane
 (B) 1-Ethyl-3-(1-ethylpropyl)-5-(1,1-dimethylethyl)cyclohexane.
 (C) 1-(1,1-Dimethylethyl)-3-ethyl-5-(1-ethylpropyl)cyclohexane
 (D) 1-(1,1-Dimethylethyl)-3-ethyl-5-(2-ethylpropyl)cyclohexane

ANSWER KEY

EXERCISE - 1

1. A 2. C 3. C 4. B 5. C 6. D 7. B 8. C 9. D 10. B 11. A 12. B 13. B
 14. A 15. A 16. B 17. D 18. C 19. B 20. D 21. B 22. B 23. A 24. D 25. B 26. D
 27. C 28. C 29. B 30. A 31. C 32. C 33. D 34. B 35. C 36. C 37. D 38. B 39. C
 40. D 41. B 42. A 43. A 44. B 45. D 46. B 47. C 48. B 49. D 50. B 51. C 52. B
 53. B 54. C 55. C 56. A

EXERCISE - 2 : PART # I

1. A,B,C 2. A,B,C 3. A,B,C,D 4. A,B,C,D 5. A,B,C,D 6. A,B,C 7. C,D
 8. A,B,C,D 9. A,B,C,D 10. A,B,D 11. A,B 12. B,C 13. A,B,C 14. A,B,C
 15. A,B,C 16. B,D 17. A,C

PART # II

1. A 2. B 3. B 4. A 5. A

EXERCISE - 3 : PART # I

1. $A \rightarrow (s), B \rightarrow (q, r), C \rightarrow (p), D \rightarrow (q, r)$
 2. $A \rightarrow (r), B \rightarrow (s), C \rightarrow (p), D \rightarrow (q)$
 3. $A \rightarrow (q), B \rightarrow (r), C \rightarrow (s), D \rightarrow (p)$
 4. $A \rightarrow (r), B \rightarrow (s), C \rightarrow (p), D \rightarrow (q), E \rightarrow (u), F \rightarrow (t)$
 5. $A \rightarrow (r, q), B \rightarrow (p), C \rightarrow (s)$
 6. $A \rightarrow (r), B \rightarrow (p), C \rightarrow (s), D \rightarrow (q)$
 7. $A \rightarrow (q, r), B \rightarrow (r, s), C \rightarrow (p)$
 8. $A \rightarrow (q), B \rightarrow (r), C \rightarrow (s), D \rightarrow (p)$

PART # II

Comprehension # 1: 1. T 2. F 3. F 4. T 5. T

Comprehension # 2: 1. C 2. B 3. B 4. A

EXERCISE - 5 : PART # I

1. 3 2. 3 3. 2 4. 4 5. 1 6. 4 7. 1 8. 4 9. 1

PART # II

1. 3-Aminobenzoic acid 2. B 3. 4-Methylbenzenesulphonic acid 4. C 5. B
 6. 5 7. B 8. D 9. B,C

