CHEMISTRY

BOOKS - V PUBLICATION

NOMENCLATURE OF ORGANIC COMPOUNDS AND ISOMERISM

Question Bank

1. Write down the IUPAC names of the given compounds.

a) $CH_3CH_2CH_2CH(CH_3)CH_3$

b) $CH_3CH(CH_2CH_3)CH_2CH_2CH_3$

c) $CH_3CH_2CH = CHCH_2CH_2CH_3$

d) $CH_3CH_2CH_2CH_2CH_2CH_3$

e) $CH_3CH_2CH(CH_3)CH(CH_3)CH_3$

f) $CH_3CH(CH_3)CH_2C(CH_3CH_3)CH_3$

g) CH_(3)CH_(2)CH(OH)CH_(2)CH_(3) h)

$CH_3CH_2CH_2CH_2Cl$

i) $CH_3CH_2CH_2COOH$

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2. Write down the Structural formula of compounds given below.

a) 2,2-Dimethyl hexane

b) But-2-ene

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3. Write down the structural formula of com-pound C_5H_{10} . Write down the structural formula of one of its isomers which is an alicyclic compounds.

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4. given below are certain hints about a hydrocarbon. * The molecular formula is C_5H_{10} Has a methyl radical as branch

a) Write the structural formula of any two possible isomers of this compound.

b) Write their IUPAC names.

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5. Write doen the IUPAC names of the compounds given below.

a) $CH_3CH_2CH_2CH(CH_3)CH_2CH=CH_2$

b) $CH_3CH_2CH(CH_2CH_3)CH(CH_2CH_3)CH_2CH_3$

c) $CH_3CH(CH_3)CH_2CH(CH_3)CH_2CH_3$

d) $CH_3CH_2CH_2C\equiv C$

e) $CH_3CH_2CH_2OH$

f) $CH_3CH_2OCH_3$

g) $CH_3CH_2CH_2CH_2CH_2COOH$

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6. Write the structural formula of all possible isomers of the compound with molecular formula$C_4H_{10}O$. Identify

the different isomer pairs from them and find the type of isomerism to which each belongs.

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7. Find three pairs of isomers from the compounds given below. Identify the type of isomerism to which each pair belongs.

a) Propan-1-ol

b) 2,2,3,3-Tetramethylbutane

c) Octane

d) Propane-2-ol e) Methoxyethane

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8. The Structural formula of two organic compounds are given

i) $CH_3OCH_2CH_3$

ii) $CH_3CH_2CH_2OH$

a) What are the IUPAC names of these comounds?

b) Write one similarity and one difference between these two compounds

c) what is this phenomenon knowns as?

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9. Write down the structural formula of the following componds.

a) Cyclopentane

b) Cyclobutene

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10. Self linking property of carbon atom is known as.....

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11. The first artificial organic ompound is .....

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12. Write the structural formula of the compond C_3H_8

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13. What is the minimum number of carbon atoms required to form a cyclic compound.

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14. Name the functional group present in the compound $CH_3CH_2CH_2OH$

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15. Of the given compounds the name of which one ends with 'yne'? C_3H_6 C_3H_4 C_4H_8 C_4H_{10}

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16. What is the structural formula of the compound But-2-ene?

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17. what is the structural formula of the compound 3,3-Diethyl heptane?

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18. Choose the odd one out and given reason (C_5H_{12} $C_{10}H_{22}$ C_5H_{10} C_4H_{10})

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19. Alcohol having only one carbon atom is.....

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20. $CH_2 = CHCH_2CH_3$

a) Write the IUPAC name of the compound

b) what will be the IUPAC name of the compound, if the double bond were in between the second and third carbon atoms?

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21. Write the structural formula of the following compounds.

i) 2-methyl butane

ii) 2,2-dimethyl propane

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22. Write the position isomers of Butanol

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23. The details of a hydrocarbon is given below.

* There are 3 carbon atoms in its main chain

* One hydroxyl group is at the first carbon

a) Write the structural formula of the compound

b) Write the condensed formula of the compound of this compound and also find out what kind of isomerism it is.

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24. i) CH_3OCH_3

ii) CH_3CH_2OH

a) Write the IUPAC names of the given compounds given above.

b) Which type of isomers are these compounds?

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25.

$CH_3CH(CH_3)CH_2CH_2CH_2CH(CH_3)CH(CH_3)CH_2CH_3$

The main chain of the given compound consists of 9 carbon atoms and its word root is 'Non'.

a) Give the position of the branches?

b) Write the IUPAC name of this compound.

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26. The Structural formula of two organic compounds are given below

i) $CH_3CH_2CH_2OH$

ii) $CH_3OCH_2CH_3$

a) What are the IUPAC names of these comounds? What is

the this phenomenon known as?

b) Write the functional group of these two compounds?

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27. Write the IUPAC name of the following compounds?

i) $CH_3CH = CH_2$

ii)$CH_3CH_2CH = CHCH_3$

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28. a) Write is the similarity between these two compounds 2,2-dimethyl hexane

b) Write the structural formula of any one of its isomer and also write its IUPAC name.

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29. Some molecular formulas are given below. (C_5H_{12} C_5H_{10} C_5H_8 $C_5H_{12}O$

a) From the above which one is the molecular formula of pent-2-ene?

b) Write the condensed formula of the pent-2-ene?

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30. $CH_3CH_2CH_2CH=CH_2$ it is unsaturated compound

a) This compound is the member of which homologous series?

b) Write the general formual which indicate this homologous series

c) Write the structural formula of the next neighbouring member of this compound?

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31. The chain of a hydrocarbon which contains 5 carbon atom is given below. $-C-C-C-C-C-$

a) Complete the structure by including hydrogen atoms.

b) Write the molecular formula of this compund.

c) Write its IUPAC name.

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32. Complete the table.

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33. C_2H_6, C_3H_8,.....C_5H_{12} are the members of a homologous series.

a) Write the molecular formula of thr missing member.

b) To which homologous series do they belong?

c) write the structural formula of C_2H_6 .

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34. The molecular formula of some hydrocarbona are given below. (C_3H_6 C_4H_8 C_5H_{12} C_6H_{12}

a) To which homologous series do they belong?

b) Give two reasons for then homologous

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35. The molecular formula of the compound is C_4H_8 (Hint : it is a cyclic compound)

a) Give the structure of the cyclic compound.

b) write the structural formula of the open chain hydrocarbon having the same molecular formula.

c) Write the structure of the cyclic compound which has molecular formula same as that of hex-2-ene.

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36. The details of the hydrocarbon 'P' are given below.

i) There are 3 carbon atoms.

ii) The family of compounds with 'P' as a member has a general formula C_nH_{2n}

iii) The IUPAC name of 'P' is propene.

a) Write the condensed formula of the compound

b) Write the IUPAC name of the compound which is before 'P' in the homologous series.

c) Give the molecular formula of the compound succeeding 'P' in the series.

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37. The Structure of a hydrocarbon is given.  .

a) Write the molecular formula of the compound.

b) Write the IUPAC name.

c) Which homologous series does it belong?

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38. The Structure formula of a hydrocarbon is given. $CH_3CH(CH_2CH_3)CH_2CH_3$

a) How many carbon atoms are there in the main chain?

b) What is the branch in it?

c) Write the Structural formula of the alicycle compound which contains 6 carbon atoms and also write its IUPAC name.

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39. Write the IUPAC name of the following.

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40. Two hints regarding a hydrocarbon is given below. * It consists of 4 carbon atom * The general formula of the series which indicates is C_nH_{2n+2}

a) Write the molecular formula of the compound

b) Give the structure of the compound.

c) What will be the molecular formula of the hydrocarbon with the same number of carbon atoms and having a double bond

d) Write the structure of the cyclic hydrocarbon with the same number of carbon atoms.

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41. The homologous series of some hydrocarbons is given below.  .

a) Write the molecular formula of A,B and C

b) To which family do these belong?

c) Write the IUPAC name of the compound 'A'?

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42. Structure of a hydrocarbon is given.

 .

a) Write its condensed formula

b) Write its molecular formula

c) Give the structural formula of the first member in this homologous series.

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43. The Structural formula of a compound is given below.

CH_3OCH_3

a) Give the IUPAC name of this compound.

b) Write the condensed formula of one of its isomer.

c) Write the IUPAC name of the isomer.

d) What type of isomers are they?

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44. $CH_3CH_2CH_2CH_2CH(CH_2CH_2CH_3)CH_2CH_3$

a) How many carbon atoms are there in the main chain?

b) What are the positions of the branches?

c) Which is the branch?

d) Give the IUPAC name of the compound.

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45. $CH_3CH(Cl)CH_3$

a) Write the molecular formula of the compound

b) What is the functional group in it?

c) Write the IUPAC name of the compound.

d) Give the condensed formula of the isomer of this compound.

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46. The IUPAC name of acetic acid is.....

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47. The valency of carbon is....

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48. Choose the saturated hydrocarbon from the following.

(Alkane, Alkene, Alkyne)

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49. Find out the relation and fill in the blank. $-OH$: Alcohol $-COOH$: .....

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50. The acid contains only one carbon atom is.....

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51. Write down the structural formula of com-pound C_5H_{10}. Write down the structural formula of one of its isomers which is an alicyclic compounds.

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52. Some hints regarding a hydrocarbon is given below.

i) There are 5 carbon atoms in its main chain.

ii) A double bond is there in between first and second carbon.

iii) One methyl group is branched at the third carbon atom.

a) Give the structural formula of the compound.

b) To which family does it belong?

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53. $CH_3CH_2CH_2C \equiv C - CH_2CH_3$ The IUPAC name of this compound is written as 3-heptene. Check whether it is correct or incorrect by assigning position numbers to carbon atoms in the chain. If it is wrong correct it.

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54. Write the IUPAC name of the following.

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55. Complete the flow chart.

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56. The structure of a hydrogen is given below.

i) Write its molecular formula

ii) Write its IUPAC name

iii) Write the IUPAC name of the cyclic compound having the same molecular formula.

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57. Structural formula of a compound is given.

$CH_3CH_2OCH_3$

a) Which is the functional group present in it?

b) What is the general name of the compounds including this functional group?

c) Give the Structural formula of the isomer of this compound. d) Write the IUPAC name of this Compound.

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58. Homologous series of some hydrocarbon are given.

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1) To which family do they belong?

2) Write the general formula of the series to which they

include.

3) Give the structure of C_2H_6

4) Write the IUPAC name of CH_4

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