

Organic: Isomers

1. Which compound listed below is an isomer of hexane?
 - a) cyclohexane
 - b) 2-methylpent-2-ene
 - c) 2,2-dimethylbutane
 - d) 2,4-diethylbutane

2. Which substance below is an isomer of 3-ethyl-2-methylpentane?
 - a) cyclooctane
 - b) 2,2,3,3-tetramethylbutane
 - c) 2,2,3-trimethylpent-1-ene
 - d) 1,2,3-trimethylbenzene

3. Which of the following substances is **NOT** an isomer for 2-methylbutanoic acid?
 - a) 3-methylbutanoic acid
 - b) pentanoic acid
 - c) 2-methylpropanoic acid
 - d) 2,2-dimethylpropanoic acid

4. The compound that is NOT an isomer for C_5H_{10} is _____
 - a) methylcyclobutane
 - b) cyclopentene
 - c) 2-methylbut-1-ene
 - d) 1,2-dimethylcyclopropane

5. Which substance below is an **isomer** of 3-methyl-3-hexene?
 - a) methylcyclohexane
 - b) cycloheptene
 - c) 2,3,3-trimethylpent-1-ene
 - d) p-dimethylbenzene

6. Which of the following substances is NOT an isomer for 3-methylpentan-2,3-diol?
 - a) 1,3-hexanediol
 - b) 4-methyl-1,1-pentanediol
 - c) hexanoic acid
 - d) 3,3-dimethyl-1,2-butanediol

7. Which of the following is an isomer of $C_8H_{17}OH$?
 - a) octan-2,3-diol
 - b) 3-ethyloctan-2-ol
 - c) 2-ethylheptan-3-ol
 - d) 2-methylheptan-3-ol

8. Which compound is an isomer of heptyne?

- a) 2,4-dimethylhex-2-yne
- b) 3,3-dimethyl hex-2-yne
- c) 2,3,3-trimethylbutan-1,3-diene
- d) 4,4-dimethylpent-2-yne

9. Which of the following is **NOT** an isomer for C_4H_{10} ?

- a) 2-methylpropane
- b) methylpropane
- c) 2-ethylpropane
- d) butane

10. Consider the condensed structural formula : $CH_3CH_2CH_2OH$

This formula represents a(n) _____ compound that contains a(n) _____ functional group and is classed as a(n) _____

- a) aliphatic, carbonyl group, ester
- b) aromatic, hydroxyl, ester
- c) aliphatic, hydroxyl, alcohol
- d) aromatic, carbonyl, alcohol

11. Consider the four chemical compounds listed in the table below

1	Propanoic acid
2	Methylpropanoate
3	Acetic acid
4	methylmethanoate

The formulas above that represent **structural ISOMERS of each other** are

- a) 1 and 2
- b) 1 and 4
- c) 2 and 3
- d) 3 and 4

12. Which of the following IUPAC names identifies an isomer for C_6H_{12} ?

- a) cyclohexene
- b) methylcyclopentane
- c) 4-methylpentyne
- d) hex-3-yne

13. All of the following compounds are isomers of pent-2-ene, except _____.

- a) 2,2 - dimethyl propane
- b) cyclopentane
- c) methylcyclobutane
- d) 3 - methyl but-1-ene

14. **Numerical response question**

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Left justify your answer in the boxes provided.

List all the compounds in the list below that are structural isomers of oct-3-ene.

- 1. 5,5 – dimethyl hex-3-ene
- 2. 4-ethyl -2-methyl pentane
- 3. Ethyl cycloheptane
- 4. Oct-1-ene
- 5. 2,3-dimethyl pentene

List the answer(s) in ascending order.

Solutions:

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