

10.1B Fundamentals of Organic Chemistry

Naming and Drawing Past Exam Questions (Paper 1, 2)

1. [1 mark] What is the IUPAC name for $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3$?

- A. 1,1-dimethylpropane
- B. 2-ethylpropane
- C. 2-methylbutane
- D. 3-methylbutane

2. [1 mark]

What is the structural formula of 2,3-dibromo-3-methylhexane?

- A. $\text{CH}_3\text{CHBrCHBrCH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
- B. $\text{CH}_3\text{CHBrCBr}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_3$
- C. $\text{CH}_3\text{CH}_2\text{CHBrCBr}(\text{CH}_2\text{CH}_3)_2$
- D. $\text{CH}_3\text{CHBrCHBrCH}(\text{CH}_2\text{CH}_3)_2$

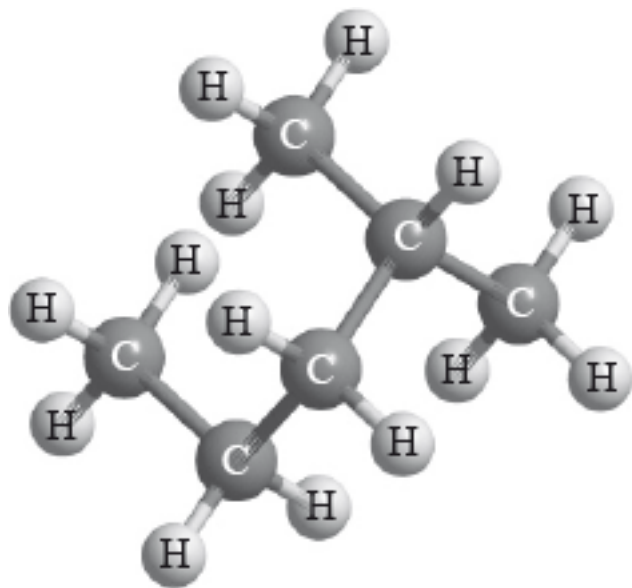
3. [1 mark]

What is the name of $(\text{CH}_3)_3\text{CCOCH}_3$, applying IUPAC rules?

- A. 2,2-dimethylbutan-3-one
- B. 3,3-dimethylbutan-2-one
- C. 2,2-dimethylbutanal
- D. 3,3-dimethylbutanal

4. [1 mark]

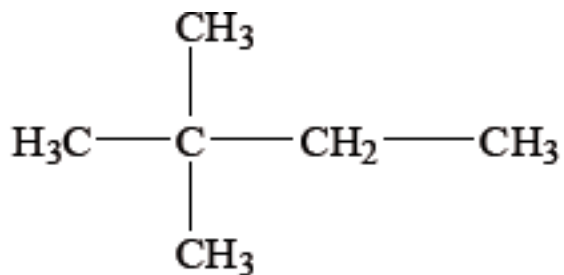
What is the name of the following molecule applying IUPAC rules?



- A. 1,1-dimethylbutane
- B. Hexane
- C. 2-methylpentane
- D. 4-methylpentane

5. [1 mark]

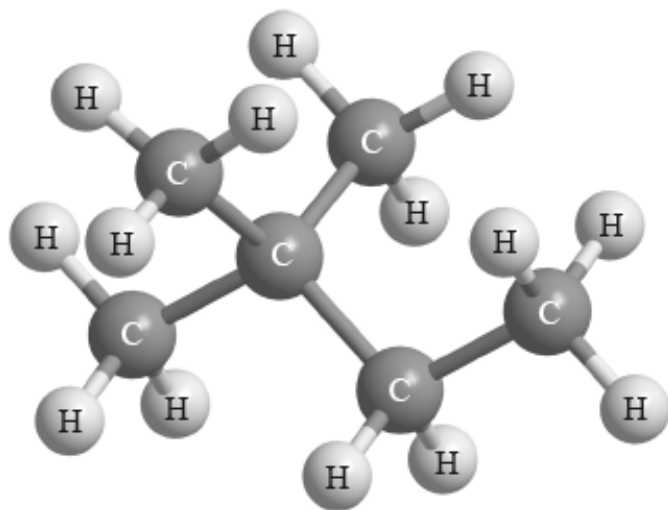
What is the name of the following compound applying IUPAC rules?



- A. 1,1,1-trimethylpropane
- B. 2,2-dimethylbutane
- C. 3,3-dimethylbutane
- D. 2-methyl-2-ethylpropane

6. [1 mark]

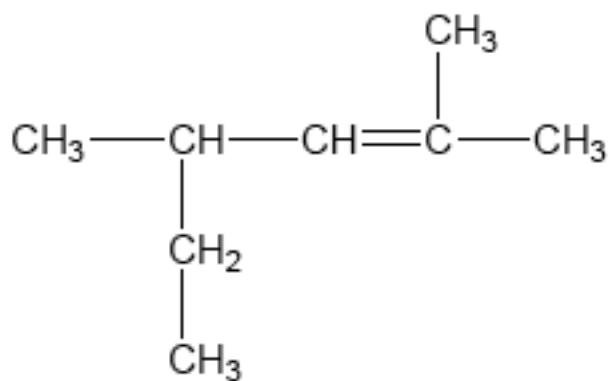
What is the name of the alkane shown in the diagram below, applying IUPAC rules?



- A. Hexane
- B. 1,1,1-trimethylpropane
- C. Ethylmethylpropane
- D. 2,2-dimethylbutane

7. [1 mark]

Applying IUPAC rules, what is the name of the compound?



- A. 1-ethyl-1,3-dimethylbut-2-ene
- B. 2-ethyl-4-methylpent-3-ene
- C. 2-methyl-4-ethylpent-3-ene
- D. 2,4-dimethylhex-2-ene

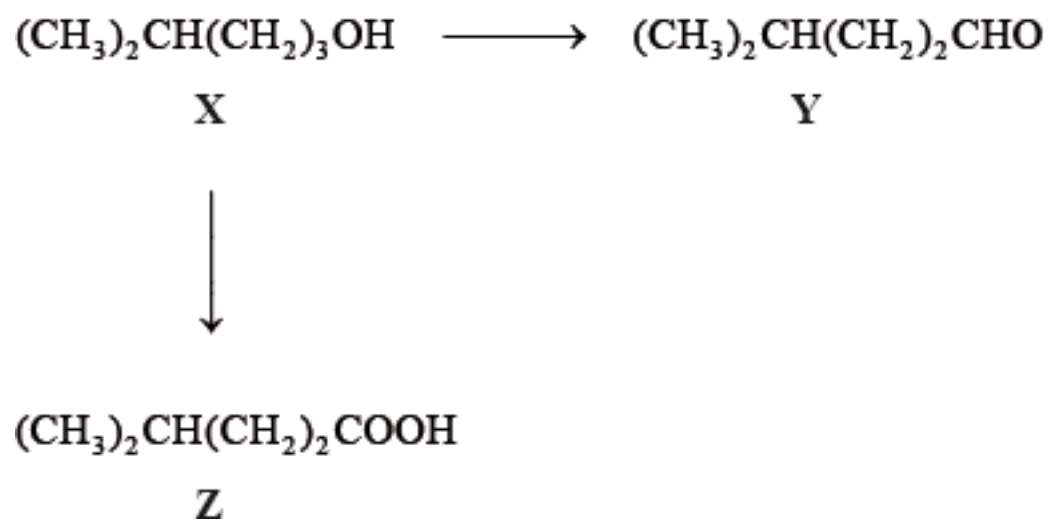
8. [1 mark]

Applying IUPAC rules, what is the name of $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{COOH}$?

- A. 2,3-dimethylpropanoic acid
- B. Pentanoic acid
- C. 3-methylbutanoic acid
- D. 2-methylbutanoic acid

9. [2 marks]

Consider the following reactions.



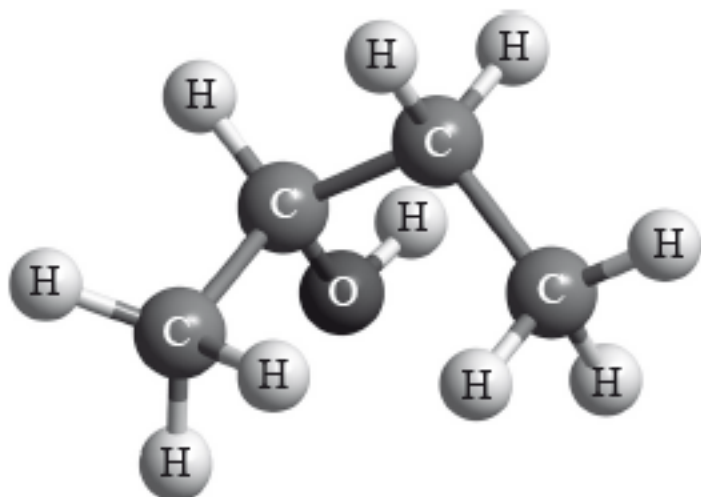
The IUPAC name of **X** is 4-methylpentan-1-ol. State the IUPAC names of **Y** and **Z**.

Y:

Z:

10a. [1 mark]

The following diagram shows the three-dimensional structure of a molecule.



Apply IUPAC rules to state the name of this molecule.

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10b. [2 marks]

Deduce the structural formula of **two** isomers of the molecule above with the same functional group.

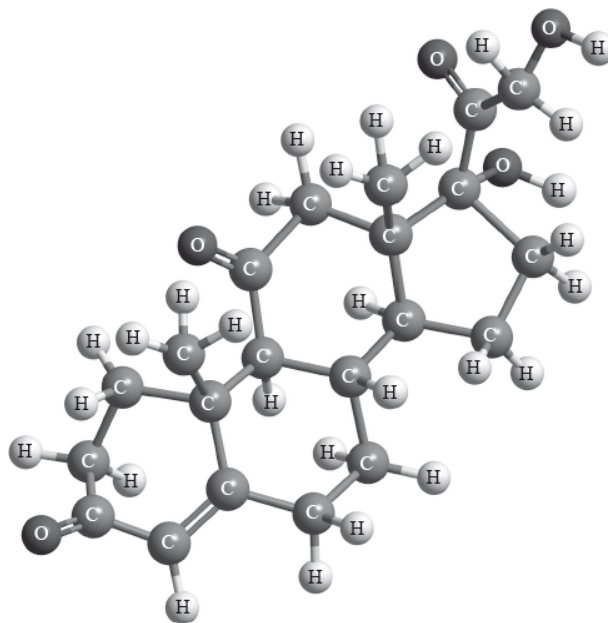
11a. [2 marks]

Cortisone is a therapeutic drug whose three-dimensional structure is represented below.

Identify the names of **two** functional groups present in cortisone.

1.

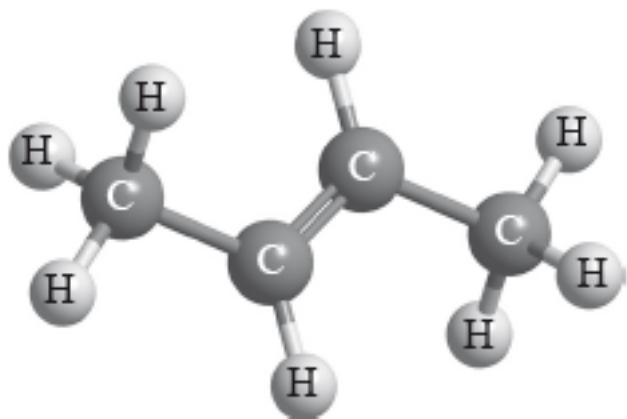
2.



11b. [1 mark]

Draw a circle around each of these **two** functional groups in the structure above and label them 1 and 2 as identified in 11 (a)

11c. [1 mark]



P

Apply IUPAC rules to state the name of **P**.

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.....

12. [1 mark]

Consider the following list of organic compounds.

Compound 1: $\text{CH}_3\text{CH}_2\text{CH}(\text{OH})\text{CH}_3$

Compound 2: $\text{CH}_3\text{CH}_2\text{COCH}_3$

Compound 3: $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$

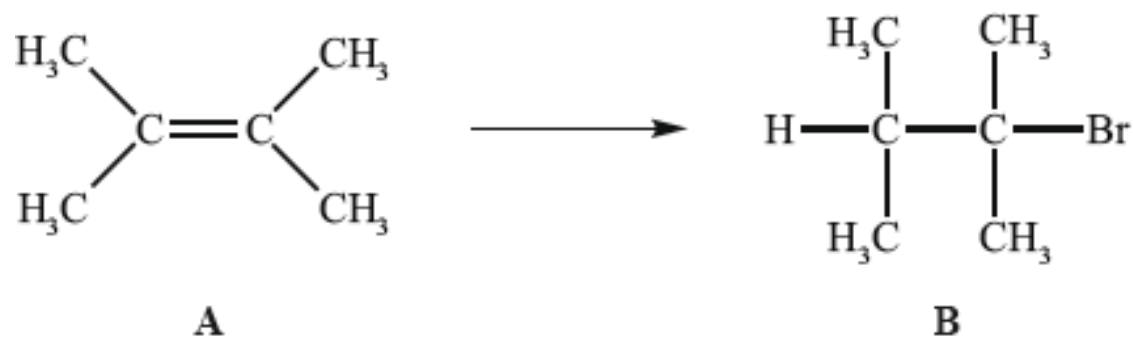
Compound 4: $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$

Apply IUPAC rules to state the name of compound 1.

.....
.....
.....

13. [1 mark]

Alkenes, such as **A** (shown below), are important intermediates in the petrochemical industry because they undergo addition reactions to produce a wide variety of products, such as the conversion shown below.



Applying IUPAC rules, state the name of **A**.

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