IGCSE Organic Chemistry Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- **Practice answering questions under realistic conditions,**
- **Improve accuracy and speed,**
- **Review explanations to strengthen weak areas, and**
- **Approach the exam with greater confidence.**

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. Describe the trend in a fractionating column at high temperature.

A. Large molecules with high boiling points

B. Small molecules with low boiling points

C. Volatility decreases with carbon count

D. All molecules condense at bottom

2. What color is bromine water at the start of the test?

A. Orange-brown

B. Colorless

C. Blue

D. Green

3. What is the physical state of ethanol produced by the described hydration of ethene under the specified conditions?

A. Liquid

B. Gas

C. Solid

D. Aqueous

4. Name two common esters and state one use for each.

A. Ethyl ethanoate (fuel) and methyl propanoate (fragrance/solvent)

B. Ethyl ethanoate (fragrance/solvent) and methyl propanoate (fragrance/solvent)

C. Ethyl ethanoate (fragrance) and methyl propanoate (fuel)

D. Propyl ethanoate (solvent) and ethyl acetate (fragrance/solvent)

5. Which of the following are common uses of polypropene?

A. Ropes and packaging

B. Insulation for electrical wires

C. Food coloring

D. Glassware

6. What is the molecular formula for ethanol?

A. C2H5OH

B. C2H6O

C. C3H7OH

D. C2H5O2

7. The formula CH3OH represents methanol as which type of formula?

A. Molecular formula

B. Displayed formula

C. Structural formula

D. Empirical formula

8. After a positive bromine water test, the double bond is converted into which type of bond in the product?

A. A dibromo compound

B. A monobrominated compound

C. An alcohol with bromine

D. A brominated aromatic

9. What is the molecular formula for pentane?

A. CH4

B. C2H6

C. C5H12

D. C4H10

10. What process is used to separate crude oil into fractions?

A. Fractional distillation

B. Cracking

C. Fermentation

D. Polymerization

Answers

1. A
2. A
3. A
4. B
5. A
6. A
7. A
8. A
9. C
10. A

Explanations

1. Describe the trend in a fractionating column at high temperature.

A. Large molecules with high boiling points

B. Small molecules with low boiling points

C. Volatility decreases with carbon count

D. All molecules condense at bottom

In a fractionating column, the bottom is heated and the temperature drops as you move up. The separation happens because components boil at different temperatures. Heavy, large molecules have high boiling points, so they only vaporize enough to rise where the column is hot enough, and as the vapor climbs and meets cooler regions, these heavy molecules tend to condense lower down. So the common trend is that large molecules with high boiling points end up near the bottom, while lighter, more volatile molecules rise higher and can be collected there. That's why describing the trend as large molecules with high boiling points being present at the bottom fits best. The other ideas don't capture the main vertical separation: light, low-boiling components aren't the defining bottom-trend, volatility versus carbon count is a general property but not the column's top-to-bottom behavior, and not all components condense at the bottom.

2. What color is bromine water at the start of the test?

A. Orange-brown

B. Colorless

C. Blue

D. Green

The main idea here is that bromine water shows the color of dissolved bromine. At the start, bromine water is orange-brown because Br2 in water gives a reddish-orange solution. This color is visible before any reaction takes place. If you shake it with an alkene, the bromine adds across the double bond and the solution decolorizes, turning colorless as Br2 is consumed. The other color options don't fit bromine water's initial state, since colorless would mean no bromine is present and blue or green are typical of different solutions, not bromine water.

3. What is the physical state of ethanol produced by the described hydration of ethene under the specified conditions?

A. Liquid

B. Gas

C. Solid

D. Aqueous

Ethanol has a boiling point of 78°C, so at room temperature it exists as a liquid. In the hydration of ethene, water is present and the ethanol formed is typically collected as a liquid (often after distillation to purify). While the reaction mixture may be an ethanol–water mixture, the ethanol itself is a liquid, not a gas or a solid. Describing it as aqueous would imply a solution, but ethanol itself is a liquid phase regardless of the presence of water in the mixture.

4. Name two common esters and state one use for each.

A. Ethyl ethanoate (fuel) and methyl propanoate (fragrance/solvent)

B. Ethyl ethanoate (fragrance/solvent) and methyl propanoate (fragrance/solvent)

C. Ethyl ethanoate (fragrance) and methyl propanoate (fuel)

D. Propyl ethanoate (solvent) and ethyl acetate (fragrance/solvent)

Esters are prized for their fruity smells and are widely used as flavors, fragrances, and solvents. Ethyl ethanoate (ethyl acetate) is a classic example with a fruity scent and is a common solvent in things like coatings and perfumes, as well as used to carry flavors. Methyl propanoate also has a pleasant fruity odor and is used as a fragrance and solvent in flavorings and related applications. Because both esters have real-world uses as fragrances and solvents, this pairing fits what esters are commonly used for. The other options mix in less typical uses (like fuel) or pair esters with roles that aren't as standard, so they don't match as well.

5. Which of the following are common uses of polypropene?

A. Ropes and packaging

B. Insulation for electrical wires

C. Food coloring

D. Glassware

Polypropene is a lightweight, tough plastic with good chemical resistance that can be easily melt-processed into strong fibers and clear films. These traits make it ideal for ropes and packaging. Fibers from polypropylene have high tensile strength and wear well, giving durable ropes and twines. For packaging, its ability to form thin, clear, inexpensive films and containers, along with good barrier properties against moisture and some gases, makes it a staple material. Food coloring isn't a use of the polymer itself—colorants are additives, not a primary function of the material. Glassware is made from glass, not plastic, so polypropylene wouldn't be used to make traditional glass items. Electrical wire insulation is typically done with other polymers like PVC or polyethylene, chosen for flexibility and flame retardancy, so that use isn't characteristic of polypropene.

6. What is the molecular formula for ethanol?

A. C_2H_5OH

B. C_2H_6O

C. C_3H_7OH

D. $C_2H_5O_2$

Two carbons, six hydrogens, and one oxygen make up ethanol. Writing the formula as C_2H_5OH keeps those counts intact while explicitly showing the hydroxyl group (the OH) attached to the carbon framework. This presentation is a common shorthand in organic chemistry because it communicates not just composition but also the functional group present. While C_2H_6O conveys the same overall composition, C_2H_5OH emphasizes the alcohol group, which is why it's a preferred way to represent ethanol in many contexts. The other options would imply a different molecule (more carbons or more oxygens), so they don't fit ethanol.

7. The formula CH3OH represents methanol as which type of formula?

A. Molecular formula

B. Displayed formula

C. Structural formula

D. Empirical formula

The main idea here is that a molecular formula shows the exact number of each type of atom in one molecule. CH3OH tells you there is 1 carbon, 4 hydrogens, and 1 oxygen in methanol, which is the precise composition of the molecule. It doesn't depict how the atoms are bonded or arranged—that's what a structural or displayed formula would do. An empirical formula would be the simplest whole-number ratio of atoms, which for methanol is CH4O, a form that conveys only the ratio, not the full structure. So CH3OH is read as the molecular formula because it communicates the actual composition of a methanol molecule.

8. After a positive bromine water test, the double bond is converted into which type of bond in the product?

A. A dibromo compound

B. A monobrominated compound

C. An alcohol with bromine

D. A brominated aromatic

Bromine water turning colorless shows that bromine adds across the carbon–carbon double bond. The Br_2 molecule splits and each carbon of the former C=C forms a new bond to bromine. So the double bond is converted into two C–Br single bonds, yielding a vicinal dibromide (a dibrominated product). The other options don't fit because they would require only one bromine adding, formation of an alcohol with bromine, or bromination of an aromatic ring, which isn't what happens in this test.

9. What is the molecular formula for pentane?

A. CH_4

B. C_2H_6

C. C_5H_{12}

D. C_4H_{10}

Pentane is an alkane with five carbon atoms, and alkanes have the formula C_nH_{2n+2}, where n is the number of carbon atoms. With n = 5, hydrogen is $2\times5 + 2 = 12$. So the molecular formula is C_5H_{12}. This formula is the same for all pentane isomers, even though they differ in arrangement. The other formulas correspond to smaller alkanes: CH_4 for one carbon (methane), C_2H_6 for two carbons (ethane), and C_4H_{10} for four carbons (butane).

10. What process is used to separate crude oil into fractions?

A. Fractional distillation

B. Cracking

C. Fermentation

D. Polymerization

This question tests your understanding of how crude oil is separated into different hydrocarbon fractions by boiling point using fractional distillation. When crude oil is heated, its many hydrocarbons boil off at different temperatures. A tall fractionating column creates a temperature gradient—from hot at the bottom to cooler at the top. The vapors rise and encounter cooler surfaces; components with higher boiling points condense lower in the column, while those with lower boiling points rise higher and condense near the top. This way, the original mixture is split into distinct fractions, each containing hydrocarbons within a narrower boiling-point range, such as heavier fuels lower down and lighter fuels higher up. The column often contains trays or packing to improve contact between rising vapors and the condensed liquid, making the separation more effective. Cracking, fermentation, and polymerization are different processes: cracking breaks large molecules into smaller ones, fermentation converts sugars to alcohol, and polymerization links monomers to polymers. So the separation of crude oil into fractions is achieved by fractional distillation.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://igcseorganicchem.examzify.com

We wish you the very best on your exam journey. You've got this!