IGCSE ORGANIC CHEMISTRY PRACTICE TEST (SAMPLE)

STUDY GUIDE

Prepare with structure. Pass with confidence

Table of Contents

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. The molecular formula for pentane is which of the following?

A. CH4

B. C5H12

C. C2H6

D. C3H8

2. What is the molecular formula for propene?

A. C2H4

B. C3H6

C. C4H8

D. C5H10

3. 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

4. Structural formula for propene?

A. CH2 CH CH3

B. CH2 CH2 CH3

C. CH3 CH CH2

D. CH2 CH2 CH2

5. What product forms when an alkene undergoes hydrogenation?

A. An alkane.

B. A diol.

C. An alkynes.

D. A carboxylic acid.

6. What is the alternative industrial method to fermentation for producing ethanol?

A. Fermentation of sugars by yeast

B. Hydration of ethene (steam) using a catalyst

C. Electrolysis of water

D. Cracking of hydrocarbons

7. Which polymer's monomer has the formula C2H3Cl?

A. PVC

B. Polythene

C. Polypropene

D. Polystyrene

8. What is the monomer unit of PVC?

A. Vinyl chloride

B. Ethylene

C. Styrene

D. Propene

9. What is a major disadvantage of the fermentation method for producing ethanol?

A. It is slow, requires land to grow sugar, ethanol needs further separation, is batchy and less controlled, and requires more workers

B. It is instant and fully automated

C. It never requires any separation

D. It uses non-renewable feedstocks

10. Why do esters often have fruity smells?

A. They are non-volatile and colorless

B. They are strong acids

C. They have a metallic taste

D. They are volatile compounds with pleasant odors due to the ester linkage

Answers

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

Explanations

1. The molecular formula for pentane is which of the following?

A. CH4

B. C5H12

C. C2H6

D. C3H8

Alkanes have a simple pattern for their molecular formula: CnH2n+2. Pentane is an alkane with five carbon atoms, so substituting n = 5 gives H = 2(5) + 2 = 12, yielding C5H12. The other formulas correspond to hydrocarbons with fewer carbon atoms—CH4 is methane (1 carbon), C2H6 is ethane (2 carbons), and C3H8 is propane (3 carbons). Therefore, the pentane formula is C5H12.

2. What is the molecular formula for propene?

A. C2H4

B. C3H6

C. C4H8

D. C5H10

Propene is an alkene with three carbon atoms, so its formula follows the general idea for alkenes: CnH2n. With n = 3, that gives C3H6. The structural formula CH2=CH-CH3 shows three carbon atoms and six hydrogens, confirming the same result. Formulas with different numbers of carbons—like C2H4 for two carbons, C4H8 for four carbons, or C5H10 for five—describe other hydrocarbons, not propene.

3. 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 Br2 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.

4. Structural formula for propene?

A. CH2 CH CH3

B. CH2 CH2 CH3

C. CH3 CH CH2

D. CH2 CH2 CH2

Propene is an alkene with a carbon–carbon double bond. Its structural formula is CH2=CH-CH3: the first carbon has two hydrogens, the second carbon is bonded to one hydrogen and to the third carbon, and the third carbon has three hydrogens. The double bond is essential and makes it C3H6, unlike propane which is fully single-bonded and has C3H8. The option that shows CH2=CH-CH3 correctly represents this double bond; the others depict all single bonds or a structure corresponding to propane rather than propene.

5. What product forms when an alkene undergoes hydrogenation?

A. An alkane.

B. A diol.

C. An alkynes.

D. A carboxylic acid.

Hydrogenation adds hydrogen across a carbon–carbon double bond, converting the C=C into a single bond and giving a saturated hydrocarbon. So an alkene reacts with H2 under metal catalyst to form an alkane. The other options would require introducing oxygen (a diol), forming a triple bond (an alkyne) or oxidizing to a carboxylic acid, none of which come from simple hydrogenation of an alkene. Therefore, the product is an alkane.

6. What is the alternative industrial method to fermentation for producing ethanol?

A. Fermentation of sugars by yeast

B. Hydration of ethene (steam) using a catalyst

C. Electrolysis of water

D. Cracking of hydrocarbons

An industrial alternative to fermentation for making ethanol is the hydration of ethene with steam in the presence of a catalyst. In this process, ethene (CH2=CH2) reacts with water (H2O) to form ethanol (C2H5OH) according to CH2=CH2 + H2O C2H5OH. This method is used because it can operate continuously at high temperature and pressure with a suitable acid catalyst (often phosphoric acid on a solid support), giving ethanol in high yield and purity. It relies on ethene derived from petroleum rather than crops, making it faster and not dependent on harvests or fermentation constraints such as yeast tolerance to ethanol. In comparison, electrolysis of water would split water into hydrogen and oxygen, not produce ethanol. Cracking of hydrocarbons breaks larger molecules into smaller ones and doesn't specifically yield ethanol. Fermentation of sugars by yeast is the biological method being contrasted with the industrial hydration route. It is slower, limited by the sugar supply and yeast tolerance, and generally yields ethanol at lower concentrations requiring extensive purification.

7. Which polymer's monomer has the formula C2H3Cl?

A. PVC

B. Polythene

C. Polypropene

D. Polystyrene

The concept is identifying the monomer from which a polymer is made. PVC comes from the vinyl chloride monomer, CH2=CHCl, which has the formula C2H3Cl. When this double bond opens in polymerization, the repeating unit in PVC is -CH2-CHCl-, so the monomer's formula directly matches C2H3Cl. The other polymers use monomers without chlorine: ethene (C2H4) for polythene, propene (C3H6) for polypropene, and styrene (C8H8) for polystyrene. Therefore, the monomer with formula C2H3Cl is vinyl chloride, leading to PVC.

8. What is the monomer unit of PVC?

A. Vinyl chloride

B. Ethylene

C. Styrene

D. Propene

PVC is made by polymerizing vinyl chloride. The monomer that links to form PVC is vinyl chloride, which has the structure CH2=CHCl. When these units join, the double bond opens and the repeating unit in the polymer chain becomes -CH2-CHCl-. This is what the polymer chain is built from, giving polyvinyl chloride. The other options would produce different polymers: ethylene would give polyethylene, styrene would give polystyrene, and propene would give polypropylene.

9. What is a major disadvantage of the fermentation method for producing ethanol?

A. It is slow, requires land to grow sugar, ethanol needs further separation, is batchy and less controlled, and requires more workers

B. It is instant and fully automated

C. It never requires any separation

D. It uses non-renewable feedstocks

The method uses a biological process where yeast converts sugars into ethanol and carbon dioxide. The major drawback is that fermentation is slow and the ethanol produced is in a dilute solution. Yeast can tolerate only a relatively low percentage of alcohol, so the liquid must be heavily processed to separate the ethanol from water, usually by energy-intensive distillation. Since the process is typically run in batch steps rather than continuously, production isn't steady and requires more handling and supervision. Growing enough sugar crops to supply the feedstock also demands substantial land, and farming adds to labour needs. All these factors together explain why fermentation has significant drawbacks for large-scale ethanol production. In contrast, the other statements don't fit: fermentation isn't instant and fully automated; separation is necessary; and the feedstocks for fermentation are renewable, not non-renewable.

10. Why do esters often have fruity smells?

A. They are non-volatile and colorless

B. They are strong acids

C. They have a metallic taste

D. They are volatile compounds with pleasant odors due to the ester linkage

Esters smell fruity because they are volatile compounds that evaporate readily, allowing their molecules to reach our nose and produce an odor. Their relatively low boiling points mean they are present as vapors at room temperature, so we can detect them easily. The ester group itself tends to give pleasant, fruity aromas, and the specific scent depends on which alcohol and carboxylic acid form the ester. For example, ethyl ethanoate has a pineapple-like aroma, while isoamyl acetate smells banana. The other options don't explain why esters are smelled; being non-volatile, being strong acids, or having a metallic taste aren't related to the fruity odors characteristic of esters.

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!