IGCSE Organic Chemistry Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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. **Which statement correctly describes PVC compared with polythene?**

   A. PVC is strong, hard, and less flexible; plasticisers can make it more flexible

   B. PVC is weaker than polythene and very flexible

   C. PVC is a gas at room temperature

   D. PVC cannot be made flexible

2. **Which description best matches the appearance of crude oil?**

   A. Gaseous substance

   B. Sticky, smelly dark brown liquid

   C. Colorless liquid

   D. White powdery solid

3. **What is the substitution reaction?**

   A. Reactants put under a bright light with bromine water.

   B. Reactants are heated with oxygen.

   C. Reactants are dissolved in acid.

   D. Reactants are treated with base to form salts.

4. **In the bromine water test, what is the role of bromine?**

   A. Bromine adds across the double bond

   B. Bromine acts as a solvent

   C. Bromine acts as a catalyst

   D. Bromine breaks the double bond into two fragments

5. **What is produced when ethanol undergoes dehydration with a catalyst?**

   A. Ethene

   B. Ethane

   C. Ethanol

   D. Ethyl ethanoate

6. Which is the structural formula for butane?

A. CH4

B. CH3 CH3

C. CH3 CH2 CH3

D. CH3 CH2 CH2 CH3

7. What is the monomer of PVC?

A. Chloroethene

B. Ethene

C. Propene

D. Chloromethane

8. Which polymer would you associate with ropes and packaging?

A. Polypropene

B. PVC

C. Polythene

D. Polycarbonate

9. In the bottom-to-top order of fractions, which is directly above bitumen?

A. Heavy fuel oil

B. Lubricating oil

C. Diesel

D. Kerosine

10. What is the molecular formula for propane?

A. CH4

B. C2H6

C. C3H8

D. C4H10

Answers

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

Explanations

1. Which statement correctly describes PVC compared with polythene?

A. PVC is strong, hard, and less flexible; plasticisers can make it more flexible

B. PVC is weaker than polythene and very flexible

C. PVC is a gas at room temperature

D. PVC cannot be made flexible

Understanding how plasticisers change polymers helps explain this. PVC has chlorine atoms in its chain, which makes the polymer chains attract each other strongly. Those strong intermolecular forces make unplasticised PVC hard, strong, and not very flexible. When plasticisers are added, they insert between the PVC chains and reduce these forces, allowing the chains to move past one another more easily. This increases flexibility, making PVC usable in many flexible products. Polythene is a non-polar hydrocarbon and its chains don't attract each other as strongly, so it can be flexible, especially in the lower-density grades. Unplasticised PVC, however, is typically less flexible than many forms of polythene. So the description of PVC as strong, hard, and less flexible, with plasticisers able to make it more flexible, matches how PVC compares with polythene.

2. Which description best matches the appearance of crude oil?

A. Gaseous substance

B. Sticky, smelly dark brown liquid

C. Colorless liquid

D. White powdery solid

Crude oil is a mixture of large hydrocarbon molecules that is a liquid at room temperature but is very viscous, so it feels sticky and flows slowly. Its color is typically dark brown to black because the many components absorb light strongly, giving it a dense, opaque appearance. It also has a distinctive smell from sulfur-containing compounds and other organics. So the description that fits best is a sticky, smelly dark brown liquid. It's not a gas, not colorless, and not a white solid powder.

3. What is the substitution reaction?

A. Reactants put under a bright light with bromine water.

B. Reactants are heated with oxygen.

C. Reactants are dissolved in acid.

D. Reactants are treated with base to form salts.

Substitution reactions involve replacing one atom or group in a molecule with another. In organic chemistry, a common substitution is halogenation of alkanes, where a hydrogen atom in an alkane is replaced by a halogen atom. When reactants are exposed to bright light in the presence of bromine water, bromine molecules absorb energy and form bromine radicals. These radicals initiate a chain reaction that replaces a hydrogen on the alkane with bromine, producing a bromoalkane and hydrogen bromide. The bromine water decolorizes as bromine is consumed, which is a visual sign that substitution is occurring. Other scenarios don't involve replacing a hydrogen with a halogen on the carbon skeleton. Heating with oxygen leads to combustion, not substitution. Dissolving in acid or reacting with base to form salts typically results in other types of reactions, not hydrogen being swapped for a halogen.

4. In the bromine water test, what is the role of bromine?

A. Bromine adds across the double bond

B. Bromine acts as a solvent

C. Bromine acts as a catalyst

D. Bromine breaks the double bond into two fragments

Bromine in the bromine water test behaves as an electrophile that adds across a carbon–carbon double bond. The C=C bond is electron-rich, so it polarizes Br2 and causes each bromine atom to attach to a different carbon, converting the alkene into a dibromoalkane. As this addition happens, the bromine is consumed and the orange-brown color of bromine water fades, giving a decolorized solution. This is why bromine's role is described as adding across the double bond, not acting as a solvent or a catalyst, and not causing cleavage into fragments.

5. What is produced when ethanol undergoes dehydration with a catalyst?

A. Ethene

B. Ethane

C. Ethanol

D. Ethyl ethanoate

Dehydration of an alcohol with a catalyst is an elimination process that removes a water molecule to form an alkene. In ethanol, the -OH group is protonated by the acid, turning into a good leaving group as water. When water leaves, a hydrogen from the adjacent carbon is removed, creating a C=C double bond and yielding ethene. The reaction can be written as CH3-CH2-OH → CH2=CH2 + H2O, with the acid catalyst (like concentrated sulfuric acid) and heat driving the process. Ethane would come from adding hydrogen (hydrogenation), not removing water. Ethyl ethanoate would form by esterification with a carboxylic acid, not dehydration.

6. Which is the structural formula for butane?

A. CH4

B. CH3 CH3

C. CH3 CH2 CH3

D. CH3 CH2 CH2 CH3

Butane is a straight-chain alkane with four carbon atoms. In its structural formula, the four carbons are connected in a row, with the end carbons carrying three hydrogens (CH3) and the inner carbons carrying two hydrogens (CH2). Put together, that gives CH3-CH2-CH2-CH3 (often written CH3CH2CH2CH3). This shows four carbons in a continuous chain, which is why it represents butane. The other options reflect fewer carbon atoms: CH4 is methane (one carbon), CH3 CH3 would be two methyl groups (ethane would be CH3-CH3 but written separated isn't a single chain), and CH3-CH2-CH3 is propane (three carbons).

7. What is the monomer of PVC?

A. Chloroethene

B. Ethene

C. Propene

D. Chloromethane

PVC is polyvinyl chloride, made by addition polymerization of the vinyl chloride monomer. The monomer must have a carbon–carbon double bond to join with others, and chloroethene (vinyl chloride) has CH2=CHCl, giving the repeating unit -CH2-CHCl- in the polymer. Ethene would polymerize to polyethylene (no chlorine), while propene would give polypropene, and chloromethane is not an alkene and cannot form this polymer. So the monomer is chloroethene.

8. Which polymer would you associate with ropes and packaging?

A. Polypropene

B. PVC

C. Polythene

D. Polycarbonate

Understanding how a polymer's properties match its common uses helps here. For ropes and packaging, you want something that is strong for its weight, can be made into fibers and films, and resists moisture and chemicals. Polypropylene fits this well: it has a good strength-to-weight ratio, is tougher and abrasion-resistant enough for fiber or rope applications, and resists water, making it ideal for packaging films, bags, and containers. It's also inexpensive and easy to processing into either fibers or films. PVC is often rigid and used for pipes, windows, and some packaging, but its stiffness makes it less ideal for flexible ropes. Polyethylene can be used for packaging films and bags, but it doesn't pair with rope as effectively as polypropylene in terms of strength and performance. Polycarbonate is strong and transparent, used for lenses and safety gear rather than typical ropes or packaging. So, the polymer most closely associated with both ropes and packaging is polypropylene.

9. In the bottom-to-top order of fractions, which is directly above bitumen?

A. Heavy fuel oil

B. Lubricating oil

C. Diesel

D. Kerosine

In fractional distillation, components are arranged by boiling point from bottom to top: heavier, higher-boiling fractions stay lower, while lighter, lower-boiling ones rise higher. Bitumen is the heaviest residue that remains at the bottom, so the next fraction above it must have a lower boiling point but still be quite heavy. That is heavy fuel oil, which sits directly above bitumen in the bottom-to-top order. Lighter fractions—lubricating oil, diesel, kerosene, and so on—continue above it as you move up the column.

10. What is the molecular formula for propane?

A. CH4

B. C2H6

C. C3H8

D. C4H10

Propane is an alkane, a saturated hydrocarbon. Alkanes follow the formula CnH2n+2, where n is the number of carbon atoms. For propane, n = 3, so the formula is C3H8. This exactly describes three carbons with eight hydrogens, which is why it's the correct molecular formula. Other simple alkanes have different carbon counts—methane CH4 (1 carbon), ethane C2H6 (2 carbons), and butane C4H10 (4 carbons)—so they don't match propane.

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!