

DOST SCIENCE PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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

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- 1. Which carbohydrate forms the cell walls of fungi?**
 - A. Chitin
 - B. Cellulose
 - C. Peptidoglycan
 - D. Glycogen
- 2. What does the law of conservation of mass require in a chemical equation?**
 - A. Atoms must balance on both sides
 - B. Mass can disappear during reaction
 - C. Energy is conserved
 - D. Only reactants must balance
- 3. Which threadlike structure of nucleic acids and protein in the nucleus carries genetic information in the form of genes?**
 - A. Nucleosome
 - B. Chromosome
 - C. Nucleolus
 - D. Chromatin
- 4. Which of the following best describes cyanobacteria?**
 - A. Aquatic, photosynthetic bacteria capable of producing their own food
 - B. Parasitic fungi
 - C. Multicellular algae
 - D. Non-photosynthetic archaea
- 5. The science of life and living organisms, derived from the Greek words bios and logos, is called?**
 - A. Biology
 - B. Geology
 - C. Ecology
 - D. Anatomy

- 6. Which chart best describes inheritance patterns within a family?**
- A. Punnett square
 - B. Gel electrophoresis
 - C. Karyotype
 - D. Pedigree chart
- 7. Which process is the reverse of sublimation, where a gas turns directly into a solid?**
- A. Deposition
 - B. Sublimation
 - C. Condensation
 - D. Freezing
- 8. Which organelle is primarily responsible for ribosome synthesis and assembly in eukaryotic cells?**
- A. Nucleolus
 - B. Mitochondrion
 - C. Ribosome
 - D. Golgi apparatus
- 9. Which branch deals with the immune system and its processes?**
- A. Microbiology
 - B. Immunology
 - C. Biotechnology
 - D. Physiology
- 10. Which science concerns the inheritance of traits from parents?**
- A. Ecology
 - B. Genetics
 - C. Taxonomy
 - D. Immunology

Answers

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

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Explanations

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1. Which carbohydrate forms the cell walls of fungi?

- A. Chitin**
- B. Cellulose
- C. Peptidoglycan
- D. Glycogen

Chitin forms the cell walls of fungi. It is a polymer of N-acetylglucosamine linked by beta-1,4 bonds, creating a strong, rigid layer that helps fungi withstand osmotic pressure. This nitrogen-containing polysaccharide is characteristic of fungal walls, setting them apart from plants, whose walls are made of cellulose, and bacteria, whose walls rely on peptidoglycan. Glycogen is an energy storage carbohydrate, not structural. So, chitin is the carbohydrate that forms fungal cell walls.

2. What does the law of conservation of mass require in a chemical equation?

- A. Atoms must balance on both sides**
- B. Mass can disappear during reaction
- C. Energy is conserved
- D. Only reactants must balance

Mass is conserved in chemical reactions, so the number of atoms of each element on the left side must equal the number on the right side. Balancing an equation is about adjusting coefficients in front of the formulas to reflect how many molecules participate, ensuring every element has the same count on both sides. For example, in forming water from hydrogen and oxygen, you balance so that there are the same total hydrogen and oxygen atoms on both sides. A balanced form is $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$, which has 4 hydrogen and 2 oxygen atoms on each side. Mass cannot disappear during a reaction, which is why the other statements aren't correct. Energy conservation is a separate principle, and the products must also reflect the same atom counts as the reactants, not just the reactants.

3. Which threadlike structure of nucleic acids and protein in the nucleus carries genetic information in the form of genes?

- A. Nucleosome
- B. Chromosome**
- C. Nucleolus
- D. Chromatin

Genes are stored on chromosomes, which are long, threadlike structures in the nucleus made of DNA wrapped around proteins. Chromosomes organize the genetic material and carry the information that determines inherited traits. During cell division they condense so each new cell gets a complete set of genes. Nucleosomes are the basic packaging units of DNA on histone proteins, not the carriers of genes themselves. Chromatin is the entire DNA-protein complex; it includes the material where genes reside, but the distinct carriers of genetic information are the chromosomes. The nucleolus is the region where ribosomal RNA is synthesized, not where genes are carried.

4. Which of the following best describes cyanobacteria?

- A. Aquatic, photosynthetic bacteria capable of producing their own food
- B. Parasitic fungi
- C. Multicellular algae
- D. Non-photosynthetic archaea

Cyanobacteria are aquatic, photosynthetic bacteria that produce their own food through photosynthesis. They are prokaryotes, meaning they lack a true nucleus and membrane-bound organelles, yet they carry out oxygenic photosynthesis, using light energy to convert carbon dioxide and water into sugars and oxygen. This sets them apart from other groups: parasitic fungi are eukaryotic and heterotrophic, multicellular algae are also eukaryotic photosynthesizers, and non-photosynthetic archaea are prokaryotes that do not perform photosynthesis. Cyanobacteria were historically called blue-green algae, but they are bacteria, not true algae.

5. The science of life and living organisms, derived from the Greek words bios and logos, is called?

- A. Biology
- B. Geology
- C. Ecology
- D. Anatomy

Biology is the science of life and living organisms. The term comes from Greek bios meaning life and logos meaning study, so it literally means the study of life. This field covers what living things are, how they function, grow, reproduce, evolve, and interact with their environment. Geology focuses on the Earth, anatomy concerns the structure of organisms, and ecology looks at how organisms interact within ecosystems. Because biology encompasses the broad study of life itself, it is the best fit.

6. Which chart best describes inheritance patterns within a family?

- A. Punnett square
- B. Gel electrophoresis
- C. Karyotype
- D. Pedigree chart

Mapping how a trait is passed through generations is shown by a pedigree chart. It records family relationships across multiple generations and marks who is affected, who carries a trait, and how it appears in relatives. By examining patterns of who is affected, whether generations are skipped, and any sex differences in expression, you can infer how the trait is inherited (autosomal versus sex-linked, dominant versus recessive). The symbols and connections clearly illustrate transmission through a family, which is exactly what's needed to describe inheritance patterns. The other tools serve different purposes: a Punnett square predicts offspring genotypes for a single mating, gel electrophoresis analyzes DNA fragments, and a karyotype shows chromosome number and structure, not how traits run through a family.

7. Which process is the reverse of sublimation, where a gas turns directly into a solid?

- A. Deposition**
- B. Sublimation
- C. Condensation
- D. Freezing

Phase changes involve transitions between states of matter with energy changes. Sublimation is solid turning into gas when heat is added. The reverse occurs when a gas loses energy and becomes a solid directly, without forming a liquid—that process is deposition (also called desublimation). A common example is frost forming on cold surfaces from water vapor turning directly into solid ice. The other terms describe different transitions: condensation is gas turning into liquid, and freezing is liquid turning into solid. So deposition is the process where a gas turns directly into a solid.

8. Which organelle is primarily responsible for ribosome synthesis and assembly in eukaryotic cells?

- A. Nucleolus**
- B. Mitochondrion
- C. Ribosome
- D. Golgi apparatus

Ribosome production happens inside the nucleolus, a specialized region within the nucleus. There, ribosomal RNA genes are transcribed by RNA polymerase I, the pre-rRNA is processed, and ribosomal proteins imported from the cytoplasm join with the rRNA to form the large and small ribosomal subunits. These subunits are then exported to the cytoplasm to assemble into functional ribosomes for protein synthesis. The mitochondrion does contain its own ribosomes, but it's not the primary site for making ribosomes used by the cell as a whole. A ribosome is the particle itself, not the site where ribosome components are assembled. The Golgi apparatus handles protein modification and trafficking, not ribosome assembly.

9. Which branch deals with the immune system and its processes?

- A. Microbiology
- B. Immunology**
- C. Biotechnology
- D. Physiology

Immunology is the field that focuses on the immune system and its processes. It explores how the body detects invaders, how immune cells and antibodies coordinate responses, how these responses are regulated to prevent damage, and how memory provides lasting protection. It also covers vaccines and immune-related disorders. Microbiology studies microorganisms themselves, not the body's defense network. Physiology looks at how body systems function overall, and biotechnology applies biological knowledge to practical applications, sometimes touching on immune topics but not specifically the immune system itself.

10. Which science concerns the inheritance of traits from parents?

- A. Ecology
- B. Genetics**
- C. Taxonomy
- D. Immunology

The main concept being tested is how traits are passed from parents to offspring. Genetics is the field that investigates inheritance, genes, and how genetic information is transmitted and expressed in organisms. It explains how offspring inherit combinations of genes from their parents, leading to inherited traits, and how variations arise. Ecology studies how organisms interact with the environment; taxonomy classifies living things; immunology deals with the body's defense system. Therefore, genetics is the science that concerns the inheritance of traits from parents.

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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://dostscience.examzify.com>

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

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