BIOLOGY MARKING PERIOD 3 PRACTICE TEST (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.

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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!

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Questions

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1. Which list names the five kingdoms?

A. Eubacteria, Archaebacteria, Protista, Plants, Animals

B. Eubacteria, Archaebacteria, Protists, Fungi, Animals

C. Eubacteria, Archaebacteria, Protists, Plants, Animals

D. Archaebacteria, Eubacteria, Protists, Plants, Animals

2. What does independent assortment refer to in genetics?

A. The uniform distribution of a single gene copy into gametes.

B. The linkage between genes on the same chromosome.

C. The pairing of homologous chromosomes during meiosis.

D. The random arrangement of maternal and paternal chromosomes during gamete formation, leading to various combinations.

3. Why is only about 10% of energy transferred between trophic levels?

A. Only 10% transfers because organisms use most energy for metabolism, movement, growth, reproduction, and heat loss.

B. Energy is destroyed during transfers between levels.

C. Energy is stored entirely in producers.

D. Energy is emitted as light at higher levels.

4. In gel electrophoresis, how does fragment size affect migration distance?

A. Larger fragments move faster and farther

B. Fragment size has no effect on movement

C. Only extremely small fragments move

D. Smaller fragments move faster and farther

5. What does the rough ER do?

A. Detoxifies chemicals

B. Packages proteins

C. The rough ER helps produce proteins.

D. Stores energy

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6. In eukaryotic cells, translation occurs primarily in which compartment?

A. Nucleus

B. Mitochondria

C. Cytoplasm (on ribosomes)

D. Golgi apparatus

7. What are the main reactants and products of photosynthesis?

A. Reactants: carbon dioxide and water; Products: glucose and oxygen.

B. Reactants: carbon dioxide and water (using light energy); Products: glucose and oxygen.

C. Reactants: glucose and oxygen; Products: carbon dioxide and water.

D. Reactants: oxygen and water; Products: glucose and carbon dioxide.

8. What does the Golgi apparatus do?

A. Produces energy

B. Detoxifies chemicals

C. Breaks down waste

D. Packages and ships proteins

9. What does the smooth ER do?

A. Produces proteins

B. Packages proteins

C. Detoxifies chemicals and makes lipids

D. Stores energy

10. Crossing over occurs in meiosis during which phase?

A. Metaphase II

B. Anaphase I

C. Telophase I

D. Prophase I

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Answers

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

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Explanations

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1. Which list names the five kingdoms?

A. Eubacteria, Archaebacteria, Protista, Plants, Animals

B. Eubacteria, Archaebacteria, Protists, Fungi, Animals

C. Eubacteria, Archaebacteria, Protists, Plants, Animals

D. Archaebacteria, Eubacteria, Protists, Plants, Animals

In the five-kingdom view of classification, life is grouped into five broad kingdoms: Eubacteria, Archaebacteria, Protists, Plants, and Animals. The two bacterial lineages are treated as separate kingdoms because of major differences in biochemistry and genetics, while Protists cover diverse single-celled and simple multicellular eukaryotes, Plants are multicellular photosynthetic organisms, and Animals are multicellular organisms that ingest other organisms. The listed set matches this traditional five-kingdom framework, using the standard plural form Protists, which is why it's the correct choice. The other options either use a nonstandard singular form or differ in naming, but the essential five groups shown here are the ones recognized in this system.

2. What does independent assortment refer to in genetics?

A. The uniform distribution of a single gene copy into gametes.

B. The linkage between genes on the same chromosome.

C. The pairing of homologous chromosomes during meiosis.

D. The random arrangement of maternal and paternal chromosomes during gamete formation, leading to various combinations.

Independent assortment is about the random distribution of chromosome copies into gametes during meiosis, which creates many possible genetic combinations. Because the maternal and paternal chromosomes orient randomly, alleles from different genes end up in diverse pairings in the gametes, increasing variation in offspring. This idea is not about uniformly distributing a single gene copy, and it's distinct from gene linkage, where genes on the same chromosome tend to be inherited together. It's also not about the pairing of homologous chromosomes itself—the pairing is a step that allows segregation to happen, while independent assortment describes the random outcome of which chromosome ends up in a given gamete.

3. Why is only about 10% of energy transferred between trophic levels?

A. Only 10% transfers because organisms use most energy for metabolism, movement, growth, reproduction, and heat loss.

B. Energy is destroyed during transfers between levels.

C. Energy is stored entirely in producers.

D. Energy is emitted as light at higher levels.

The question tests why energy transfer between trophic levels is inefficient. In every transfer, organisms spend energy on maintaining life: fueling metabolism, moving, growing, reproducing, and repairing tissues. A lot of this energy is released as heat, which cannot be reused by the next level. Only a small portion—about 10% on average—remains as new biomass that the next trophic level can use. So, energy is not destroyed; it's transformed, mostly into heat and metabolic work, leaving much less energy available for the next level. That's why you often hear the 10% rule. The other options misstate how energy moves: energy isn't destroyed, it isn't stored entirely in producers, and it isn't generally emitted as light at higher levels.

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4. In gel electrophoresis, how does fragment size affect migration distance?

A. Larger fragments move faster and farther

B. Fragment size has no effect on movement

C. Only extremely small fragments move

D. Smaller fragments move faster and farther

In gel electrophoresis, DNA fragments are pulled through a gel matrix by an electric field, and all fragments carry the same kind of negative charge along their backbone. The gel acts like a sieve: smaller fragments thread through the pores with less resistance, so they move through the gel more quickly and travel farther in the same amount of time. Larger fragments face more friction as they navigate the dense network, so they migrate more slowly and end up closer to where they started. Because of this size-dependent hindrance, smaller fragments move faster and farther than larger ones. This is why gel electrophoresis separates DNA by fragment size.

5. What does the rough ER do?

A. Detoxifies chemicals

B. Packages proteins

C. The rough ER helps produce proteins.

D. Stores energy

The rough endoplasmic reticulum is studded with ribosomes, which makes it the site where new proteins are synthesized. As ribosomes build polypeptide chains, these chains are threaded into the ER lumen or inserted into the ER membrane, guided by signal sequences. Inside the ER, the proteins begin to fold and may receive initial modifications with help from chaperone proteins. Once properly folded, they're packed into transport vesicles that bud from the ER and carry the proteins to the Golgi apparatus for further processing and sorting to their final destinations, such as secretion, incorporation into membranes, or lysosomes. Detoxification is mainly a job of the smooth ER, and storing energy is handled by mitochondria (and chloroplasts in plants), so those roles don't fit the rough ER's function. Therefore, describing it as helping produce proteins is the best answer.

6. In eukaryotic cells, translation occurs primarily in which compartment?

A. Nucleus

B. Mitochondria

C. Cytoplasm (on ribosomes)

D. Golgi apparatus

Translation in eukaryotic cells happens in the cytoplasm on ribosomes, including those attached to the rough endoplasmic reticulum. After mRNA is transcribed in the nucleus and processed, it is exported to the cytoplasm where ribosomes read the mRNA and assemble amino acids into a polypeptide. Some translation occurs inside mitochondria on their own ribosomes, but the vast majority of cellular proteins are made in the cytoplasm, which is why this location is the correct answer. The nucleus houses transcription, not translation, and the Golgi apparatus handles post-translational modification and sorting rather than protein synthesis.

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7. What are the main reactants and products of photosynthesis?

A. Reactants: carbon dioxide and water; Products: glucose and oxygen.

B. Reactants: carbon dioxide and water (using light energy); Products: glucose and oxygen.

C. Reactants: glucose and oxygen; Products: carbon dioxide and water.

D. Reactants: oxygen and water; Products: glucose and carbon dioxide.

Photosynthesis uses light energy to build a sugar from simple molecules. Plants take in carbon dioxide from the air and water from their tissues as the starting materials. Light energy powers the chemical steps that fix CO2 into glucose, with oxygen released as a byproduct from splitting water. So, the main reactants are carbon dioxide and water, and the main products are glucose and oxygen, with light energy driving the process. The other statements either misstate what's consumed or produced, or omit the need for light energy.

8. What does the Golgi apparatus do?

A. Produces energy

B. Detoxifies chemicals

C. Breaks down waste

D. Packages and ships proteins

The Golgi apparatus acts as the cell's packaging and dispatch center for proteins and lipids. It receives cargo from the endoplasmic reticulum, where proteins are made, and then it modifies them (such as adding sugar tags), sorts them, and packs them into vesicles. These vesicles then deliver the molecules to their final destinations—outside the cell, to the plasma membrane, or to lysosomes and other organelles. This dispatch role is what sets it apart from mitochondria (which generate energy), the smooth ER and peroxisomes (which detoxify chemicals), and lysosomes (which break down waste). So it's the packaging and shipping of proteins that best fits the Golgi's function.

9. What does the smooth ER do?

A. Produces proteins

B. Packages proteins

C. Detoxifies chemicals and makes lipids

D. Stores energy

The smooth endoplasmic reticulum is specialized for detoxification and lipid synthesis. It lacks ribosomes, so it isn't the site where proteins are made; that job belongs to ribosomes on the rough ER. Instead, enzymes in the smooth ER help metabolize and neutralize drugs and other chemicals, especially in liver cells, which is why detoxification is a key function. It also synthesizes lipids, including phospholipids for membranes and cholesterol, which are essential components of cell membranes and signaling molecules. In some cells, it can store calcium ions, contributing to cellular signaling, but energy storage is mainly handled by mitochondria and other structures. Packaging and shipping proteins are tasks of the rough ER and the Golgi apparatus, not the smooth ER. So describing the smooth ER as detoxifying chemicals and making lipids best captures its role.

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10. Crossing over occurs in meiosis during which phase?

A. Metaphase II

B. Anaphase I

C. Telophase I

D. Prophase I

Crossing over is the genetic exchange between homologous chromosomes, which occurs when they pair up during meiosis. That pairing, called synapsis, happens in prophase I, when homologs align to form a tetrad and non-sister chromatids exchange segments at sites called chiasmata. This recombination, especially prominent during the pachytene stage of prophase I, creates new combinations of alleles on each chromosome and contributes to genetic diversity. After prophase I, the chromosomes are prepared to separate, and crossing over does not occur again in later phases such as metaphase II, anaphase I, or telophase I.

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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://biologymarkingperiod3.examzify.com

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

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