Biology MYA 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 field studies interactions among organisms and their environment?

A. Ecology

B. Biology

C. Ethology

D. Physiology

2. Which phase involves chromatin condensing into visible chromosomes and the dissolution of the nucleus?

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

3. Which three-nucleotide unit in mRNA specifies a particular amino acid?

A. Codon

B. Anticodon

C. Exon

D. Intron

4. Which term refers to organisms that are typically the first to colonize barren areas and help modify the environment?

A. Pioneer Species

B. Secondary Succession

C. Eukaryote

D. Aerobic

5. At what temperature does water freeze at standard conditions?

A. -10 degrees Celsius

B. 0 degrees Celsius

C. -5 degrees Celsius

D. 25 degrees Celsius

6. Which description best matches the Rough Endoplasmic Reticulum?

A. A membranous network studded with ribosomes where proteins are synthesized

B. A smooth membranous network where lipids are synthesized

C. The site of ATP production

D. The powerhouse of the cell generating energy

7. A three-nucleotide sequence of DNA or mRNA that specifies an amino acid or termination signal is called a:

A. Codon

B. Anticodon

C. Exon

D. Intron

8. What is the native form of DNA consisting of two adjacent polynucleotide strands wound into a spiral?

A. Double helix

B. Single helix

C. Nucleotide

D. Purines

9. Which term refers to the specialization of cells to perform specific functions within a multicellular organism?

A. Specialization

B. Unicellularity

C. Apoptosis

D. Cell Division

10. Which term refers to an organism with two identical copies of a gene?

A. Homozygous

B. Heterozygous

C. Carrier

D. Codominance

Answers

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

Explanations

1. Which field studies interactions among organisms and their environment?

A. Ecology

B. Biology

C. Ethology

D. Physiology

Interactions between organisms and their environment are studied by ecology. Ecology focuses on how living things affect one another and the physical world around them, including energy flow, nutrient cycling, population dynamics, and the ways climate, habitat, and other environmental factors shape communities. That specific emphasis on relationships within ecosystems is what makes ecology the best fit for studying these interactions. Other fields are more narrowly focused: ethology examines animal behavior patterns, physiology looks at how body systems function, and biology is the broad study of life in general.

2. Which phase involves chromatin condensing into visible chromosomes and the dissolution of the nucleus?

A. Prophase

B. Metaphase

C. Anaphase

D. Telophase

The main idea here is what happens at the start of mitosis when the cell prepares to separate its genetic material. During prophase, chromatin fibers condense into visible chromosomes, making them easier to move without tangling. At the same time, the nuclear envelope breaks down and the nucleus dissolves, which allows spindle fibers to interact with chromosomes. This condensation and nuclear dissolution are what set the stage for accurate chromosome segregation. In the next phase, chromosomes align in the center of the cell, but the nucleus is no longer dissolving; that step has already occurred. Later, the sister chromatids are pulled apart toward opposite poles, and in the final phase, the nuclear envelope re-forms around the separated chromosomes and chromatin de-condenses.

3. Which three-nucleotide unit in mRNA specifies a particular amino acid?

A. Codon

B. Anticodon

C. Exon

D. Intron

In mRNA, the unit of three nucleotides that specifies a particular amino acid is called a codon. The genetic code maps each codon to one amino acid (though some amino acids have multiple codons), and the ribosome reads these codons to add the correct amino acids in order during protein synthesis. The anticodon, by contrast, is a three-nucleotide region on tRNA that pairs with the codon to deliver the matching amino acid. Exons and introns are parts of genes: exons are the coding regions retained in mature mRNA, while introns are noncoding sequences removed during processing.

4. Which term refers to organisms that are typically the first to colonize barren areas and help modify the environment?

A. Pioneer Species

B. Secondary Succession

C. Eukaryote

D. Aerobic

The idea being tested is how certain organisms kickstart life in barren places by altering the environment to make it hospitable for others. Pioneer species are the first to appear in primary succession, such as lichens and some mosses that colonize bare rock. They break down rock and add organic material as they live and die, slowly building a thin layer of soil and improving moisture retention. This environmental modification creates new niches and allows later species—like grasses and small shrubs—to establish, continuing the succession toward a more complex ecosystem. The other terms don't describe this initiating role: secondary succession refers to regrowth after a disturbance when soil remains, eukaryote is a broad cellular category, and aerobic means requiring oxygen, not about starting colonization or changing the environment.

5. At what temperature does water freeze at standard conditions?

A. -10 degrees Celsius

B. 0 degrees Celsius

C. -5 degrees Celsius

D. 25 degrees Celsius

The temperature at which water changes from liquid to solid under standard atmospheric pressure is 0 degrees Celsius. At 1 atmosphere, pure water reaches a balance point between the liquid and solid phases right at 0°C, so that is the freezing point. If you lower the temperature below 0°C, water would already be ice; if you raise it above 0°C, ice would melt and water would be liquid. The other temperatures don't fit because -5°C or -10°C are below the freezing point (water would be solid there), and 25°C is well above it (water would remain liquid).

6. Which description best matches the Rough Endoplasmic Reticulum?

A. A membranous network studded with ribosomes where proteins are synthesized

B. A smooth membranous network where lipids are synthesized

C. The site of ATP production

D. The powerhouse of the cell generating energy

The Rough Endoplasmic Reticulum is defined by its ribosome-studded surface, giving it a rough appearance and making it the main site where protein synthesis begins for many proteins. The ribosomes on its cytosolic side translate mRNA into polypeptides that are then threaded into the ER lumen or integrated into the ER membrane. This compartment is part of the endomembrane system and is continuous with the nuclear envelope, which helps coordinate protein production and trafficking to the Golgi apparatus and other destinations. This is distinct from the smooth ER, which lacks ribosomes and mostly handles lipid synthesis and detoxification. The mitochondria, not the ER, are the cellular powerhouses responsible for ATP production, so that option describes a different organelle entirely.

7. A three-nucleotide sequence of DNA or mRNA that specifies an amino acid or termination signal is called a:

A. Codon

B. Anticodon

C. Exon

D. Intron

A three-nucleotide sequence that encodes a single amino acid or a stop signal is called a codon. During translation, the ribosome reads these mRNA codons three bases at a time and adds the corresponding amino acid to the growing protein chain, with specific codons that signal termination. The same triplet concept applies to DNA in that a DNA triplet is transcribed into the matching mRNA codon (with thymine replaced by uracil in RNA). An anticodon is the three-nucleotide region on tRNA that pairs with a codon to deliver the correct amino acid. Exons are the coding portions of a gene, while introns are noncoding segments removed during RNA processing. So the described unit is the codon.

8. What is the native form of DNA consisting of two adjacent polynucleotide strands wound into a spiral?

A. Double helix

B. Single helix

C. Nucleotide

D. Purines

DNA's natural form is a double helix: two polynucleotide strands run alongside each other and twist into a spiral. These strands are antiparallel, with the sugar–phosphate backbones on the outside and the bases paired inside through hydrogen bonds (A with T, C with G). This arrangement, along with base stacking, stabilizes the molecule and creates the characteristic grooves that proteins recognize. The term double helix specifically describes two strands wound together, whereas a single helix would mean only one strand, a nucleotide is a single building block, and purines are a class of bases, not a structural form.

9. Which term refers to the specialization of cells to perform specific functions within a multicellular organism?

A. Specialization

B. Unicellularity

C. Apoptosis

D. Cell Division

Cell specialization is the process by which cells in a multicellular organism develop different structures and functions. Through selective gene expression, cells activate specific proteins and pathways that define their shape, metabolism, and role—so some become neurons, others muscle cells, and others epithelial cells. Even though all cells share the same genetic material, what they express changes in response to developmental signals, giving rise to tissues and organs that work together. This is why the term that fits the description is specialization: it directly names the development of distinct cellular roles within a multicellular organism. Unicellularity describes organisms made of a single cell, apoptosis is programmed cell death, and cell division relates to growth and reproduction, not the assignment of specialized functions.

10. Which term refers to an organism with two identical copies of a gene?

A. Homozygous

B. Heterozygous

C. Carrier

D. Codominance

In a diploid organism, each gene exists in two copies. When those two copies are identical, the organism is homozygous for that gene. For example, having two copies of the same allele (like AA or aa) means you're homozygous. If the two copies are different, it's heterozygous (Aa). A carrier typically refers to someone who is heterozygous for a recessive disease allele but shows no symptoms. Codominance is a situation where both alleles are expressed in the phenotype, not about identical copies. So, two identical copies define the homozygous state.

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://biologymya.examzify.com

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