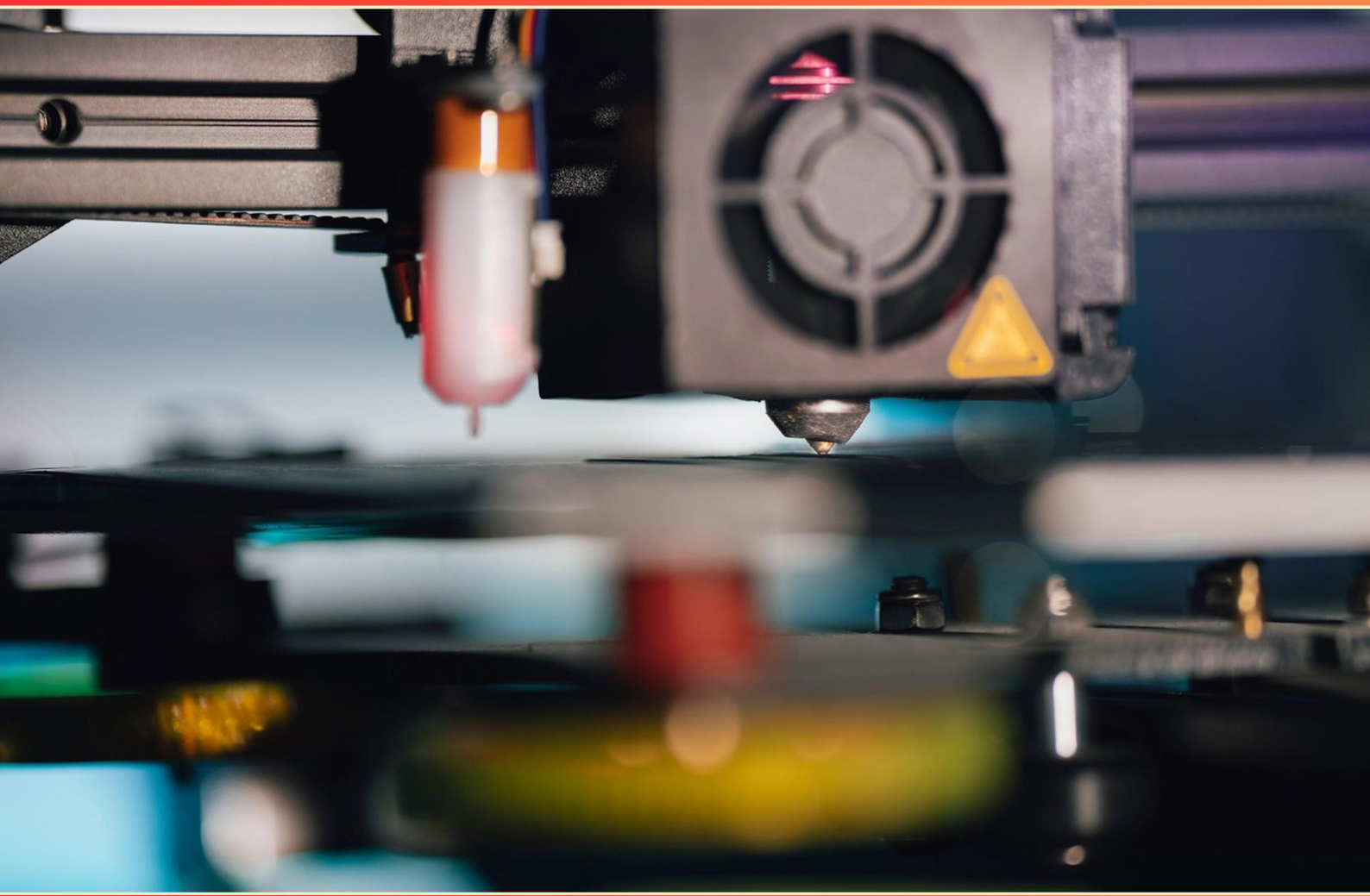
JMSS SCIENCE PRACTICE TEST (SAMPLE)

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. What does the law of superposition state about the relative age of deeper rock layers?

A. Younger than layers above

B. Older than layers above

C. Contains more advanced species

D. Depth cannot indicate age

2. What did early geologists believe about the Earth's composition?

A. The earth was made up of water

B. The earth was made up of rock

C. The earth was hollow

D. The earth was made up of metals

3. Seafloor spreading is defined as:

A. The creation of oceanic crust at subduction zones

B. The melting of crust at ridges

C. The process by which new oceanic crust forms along a mid-ocean ridge and older oceanic crust moves away from the ridge

D. The breaking of continents into smaller landmasses

4. Alpha particles are best described as?

A. Negatively charged particles

B. Positively charged particles

C. Electrically neutral particles

D. They have no charge and are photons

5. Which model is described as the planetary model of the atom?

A. Ernest Rutherford

B. Niels Bohr

C. James Chadwick

D. Louis de Broglie

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6. Which option lists the monomer type of proteins?

A. Nucleotides

B. Amino acids

C. Simple sugars

D. Fatty acids

7. Which pair are metamorphic rocks?

A. Granite and Basalt

B. Sandstone and Limestone

C. Marble and Slate

D. Coal and Shale

8. Which option lists elements that are part of the structure of a neuron?

A. Dendrites

B. Axon

C. Synapse

D. Dendrites, cell body, axon, synapse, myelin sheath

9. Which structure acts to equalize pressure between the middle ear and the throat?

A. Ear canal

B. Eustachian tube

C. Cochlea

D. Semicircular canals

10. What is the retina?

A. The light-sensitive inner surface of the eye, containing the receptor rods and cones plus layers of neurons that begin the processing of visual information

B. The sclera

C. The cornea

D. The optic nerve

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Answers

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

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Explanations

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1. What does the law of superposition state about the relative age of deeper rock layers?

A. Younger than layers above

B. Older than layers above

C. Contains more advanced species

D. Depth cannot indicate age

The law of superposition says that in a stack of sedimentary rock laid down in sequence without disturbance, the oldest material is at the bottom and each higher layer is younger. So deeper rock layers are older than the layers above them. This principle lets us compare relative ages even without exact dates. If the sequence has been tilted, folded, faulted, or intruded by magma, the straightforward order can be disrupted, but in an undisturbed stack, depth directly indicates that the bottom layers are oldest.

2. What did early geologists believe about the Earth's composition?

A. The earth was made up of water

B. The earth was made up of rock

C. The earth was hollow

D. The earth was made up of metals

Early geologists built their understanding from what they could observe directly: solid rock. They studied rock types, how rocks form, and the way landscapes are built from rock layers. This focus on visible material led them to conclude that the Earth's outer parts are made up of rock. The idea of a hollow Earth isn't supported by that same body of observations, and although metals exist inside the planet, the rocks they could study and name—the things they could map and classify—were the main evidence they used. So, describing the Earth as made up of rock best matches what early geologists concluded from their field observations.

3. Seafloor spreading is defined as:

A. The creation of oceanic crust at subduction zones

B. The melting of crust at ridges

C. The process by which new oceanic crust forms along a mid-ocean ridge and older oceanic crust moves away from the ridge

D. The breaking of continents into smaller landmasses

Seafloor spreading is the process by which new oceanic crust forms along mid-ocean ridges and older oceanic crust moves away from the ridge. At divergent plate boundaries, magma from the mantle rises at the ridge, erupts as lava, and cools to create new basaltic crust. As more magma continues to rise, the newly formed crust is pushed outward from the ridge by mantle convection, causing the seafloor to spread. This pattern is supported by magnetic stripes in the cooled rocks that mirror on opposite sides of the ridge, showing reversals of Earth's magnetic field over time. Over long timescales, oceanic crust is added at ridges and recycled back into the mantle at subduction zones, driving plate tectonics. The other descriptions don't fit: crust isn't created at subduction zones (those areas recycle crust), ridges aren't sites of crust melting, and continental breaking describes continental rifting rather than the formation and outward move of oceanic crust.

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4. Alpha particles are best described as?

A. Negatively charged particles

B. Positively charged particles

C. Electrically neutral particles

D. They have no charge and are photons

Alpha particles are positively charged helium nuclei: they are made of two protons and two neutrons, giving them a net charge of +2e. That positive charge is what makes them interact strongly with electric and magnetic fields and with matter as they pass through—causing dense ionization along their path. They're not negatively charged like electrons, nor electrically neutral like neutrons or gamma rays, and they are not photons, which are massless quanta of light with no charge. Their relatively large mass and double positive charge explain both their short range in materials and their characteristic ionization pattern.

5. Which model is described as the planetary model of the atom?

A. Ernest Rutherford

B. Niels Bohr

C. James Chadwick

D. Louis de Broglie

Think of the atom as a tiny solar system: a nucleus at the center with electrons moving in circular paths around it. That planetary picture is what this model uses. The version described here is Bohr's model, because he kept the idea of electrons in orbits around the nucleus but added that only certain orbits are allowed and each has a fixed energy. When an electron jumps between these levels, light is emitted or absorbed in specific amounts, which explains the observed spectral lines. Rutherford's model had a similar solar-system vibe but didn't include these fixed-orbit energies and couldn't account for the lines. De Broglie introduced the wave nature of particles, leading to wave mechanics, and Chadwick discovered the neutron, not a planetary-atom picture.

6. Which option lists the monomer type of proteins?

A. Nucleotides

B. Amino acids

C. Simple sugars

D. Fatty acids

Proteins are made by linking smaller units called amino acids into long chains. Each amino acid has an amino group, a carboxyl group, and a side chain (the R group) that gives it unique properties. When two amino acids join, the carboxyl group of one forms a peptide bond with the amino group of the next, releasing a molecule of water. Repeating this linkage creates a polypeptide that folds into a functional protein. That's why amino acids are the monomer type for proteins. Nucleotides are the building blocks of nucleic acids (DNA, RNA); simple sugars are the monomers of carbohydrates; and fatty acids are components of lipids.

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7. Which pair are metamorphic rocks?

A. Granite and Basalt

B. Sandstone and Limestone

C. Marble and Slate

D. Coal and Shale

Metamorphic rocks form when existing rocks are altered by heat, pressure, or chemically active fluids without melting. Marble and slate exemplify this transformation: marble forms when limestone is recrystallized under heat and pressure, producing a hard, crystalline texture. Slate comes from shale that has undergone low-grade metamorphism, developing a fine foliation and the ability to split into thin sheets. The other pairs are not metamorphic: granite and basalt are igneous rocks that crystallize from molten material; sandstone and limestone are sedimentary rocks created by cementation and lithification of grains; coal and shale are also sedimentary, with coal from plant material and shale from clayey sediments.

8. Which option lists elements that are part of the structure of a neuron?

A. Dendrites

B. Axon

C. Synapse

D. Dendrites, cell body, axon, synapse, myelin sheath

Neurons have several structural parts that work together to receive, process, and send signals. Dendrites pick up signals from other neurons, the cell body integrates those inputs, the axon transmits the signal onward, the synapse is where communication occurs with the next cell, and the myelin sheath speeds up transmission along the axon. This set reflects the major components you're expected to know for neuron structure, so it's the best fit. The other options name only one part at a time, which doesn't capture the full structure. Remember that some neurons aren't myelinated, but many are, and these parts together describe the common architecture of neurons.

9. Which structure acts to equalize pressure between the middle ear and the throat?

A. Ear canal

B. Eustachian tube

C. Cochlea

D. Semicircular canals

The key idea is how the ear equalizes pressure as conditions change. The Eustachian tube connects the middle ear to the throat and acts as a pressure equalizer. It stays mostly closed, but when you swallow, yawn, or chew, the muscles open it briefly, allowing air to flow between the middle ear and the throat. This balances the air pressure on both sides of the eardrum, so it can vibrate properly and you don't feel painful pressure—something that's especially noticeable during airplane takeoff/landing or scuba diving. The ear canal just carries sound to the eardrum; the cochlea is the hearing part of the inner ear; the semicircular canals are involved in balance. So the Eustachian tube is the structure that equalizes pressure between the middle ear and the throat.

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10. What is the retina?

A. The light-sensitive inner surface of the eye, containing the receptor rods and cones plus layers of neurons that begin the processing of visual information

B. The sclera

C. The cornea

D. The optic nerve

The retina is the light-sensitive inner surface of the eye, containing the receptor rods and cones along with the layers of neurons that begin the processing of visual information. It sits at the back of the eye and converts light into electrical signals through photoreceptors: rods, which are very good in dim light and provide vision without color, and cones, which detect color and fine detail in brighter light. These signals move through intermediate neurons—bipolar, horizontal, and amacrine cells—before reaching ganglion cells, whose axons form the optic nerve that carries information to the brain for interpretation. The sclera is the tough white outer layer, the cornea is the transparent front surface that helps focus light, and the optic nerve is the bundle that transmits signals to the brain, not the retina itself.

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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://jmssscience.examzify.com

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

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