

DOST Junior Level Science Scholarship (JLSS) Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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. Galileo Galilei is to Telescope as Benjamin Franklin is to**
 - A. Electricity**
 - B. Steam Engine**
 - C. Telegraph Wire**
 - D. Motion Picture Camera**

- 2. Which statement is NOT a postulate of the Kinetic Molecular Theory of gases?**
 - A. The collisions between molecules are elastic.**
 - B. The gas molecules are in constant, random motion.**
 - C. At lower temperatures, molecules have higher kinetic energies.**
 - D. The volumes of the molecules are negligible compared with the volume of the container.**

- 3. In the empirical formula derivation, which step comes immediately after identifying the mass of each element stated in the problem?**
 - A. Compute for the number of moles from the given mass of each element.**
 - B. Determine the ratio by dividing the number of moles by the lowest number.**
 - C. Use the resulting ratio as the subscript in the formula.**
 - D. Identify the mass of each element stated in the problem or from the percentage given.**

- 4. If a pet fish is released back into its natural habitat and is to reproduce, which aquatic biome best fits?**
 - A. River**
 - B. Stream**
 - C. Estuary**
 - D. Freshwater Lake**

- 5. Which scale is used to measure atmospheric temperature in meteorology?**
 - A. Celsius ($^{\circ}\text{C}$)**
 - B. Fahrenheit ($^{\circ}\text{F}$)**
 - C. Kelvin (K)**
 - D. Rankine ($^{\circ}\text{R}$)**

- 6. Which technique is most appropriate to separate a mixture of plant pigments based on differential migration in a solvent?**
- A. Distillation**
 - B. Chromatography**
 - C. Filtration**
 - D. Evaporation**
- 7. Which combination describes a high risk condition for landslides?**
- A. Low angle slope, soil, and wet conditions**
 - B. High angle slope, soil, and wet conditions**
 - C. Low angle slope, rock, and wet conditions**
 - D. High angle slope, rock, and dry conditions**
- 8. What is the chemical name for table salt?**
- A. Sodium bicarbonate**
 - B. Sodium chloride**
 - C. Potassium chloride**
 - D. Table salt (sodium chloride)**
- 9. The area of a circle with radius 7 cm is 49π cm². Which of the following is an exact expression for the area?**
- A. 49π cm²**
 - B. 14π cm²**
 - C. 49 cm²**
 - D. 7π cm²**
- 10. Which gas is produced when you mix vinegar and baking soda?**
- A. Oxygen (O₂)**
 - B. Nitrogen (N₂)**
 - C. Hydrogen (H₂)**
 - D. Carbon dioxide (CO₂)**

Answers

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

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Explanations

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1. Galileo Galilei is to Telescope as Benjamin Franklin is to

- A. Electricity**
- B. Steam Engine**
- C. Telegraph Wire**
- D. Motion Picture Camera**

The idea is matching each figure with the area they are most closely associated with through a landmark contribution. Galileo made transformative advances by using the telescope to observe the heavens, expanding our understanding of astronomy. Benjamin Franklin is famously linked to electricity, through experiments that helped reveal its nature and practical applications. The pattern is linking a person to the breakthrough tool or field they are best known for. Among the options, electricity fits Franklin's legacy best, while the steam engine, telegraph wire, and motion picture camera pertain to later technologies or different domains.

2. Which statement is NOT a postulate of the Kinetic Molecular Theory of gases?

- A. The collisions between molecules are elastic.**
- B. The gas molecules are in constant, random motion.**
- C. At lower temperatures, molecules have higher kinetic energies.**
- D. The volumes of the molecules are negligible compared with the volume of the container.**

The main idea here is how the kinetic molecular theory describes gas behavior through basic statements about motion, energy, collisions, and volume. The statement that does not fit is the one that says lowering temperature gives higher kinetic energy. In the kinetic molecular view, temperature is a measure of the average kinetic energy of the gas molecules, and as temperature decreases, the average kinetic energy decreases as well. So lower temperatures correspond to less molecular motion, not more. The other statements line up with the theory: gas molecules move constantly and randomly, reflecting their random, continual motion; collisions between molecules and with the container are elastic, meaning no net loss of kinetic energy in those collisions; and the volume occupied by the gas molecules themselves is negligible compared with the container's volume, allowing most space to be empty for motion.

3. In the empirical formula derivation, which step comes immediately after identifying the mass of each element stated in the problem?

- A. Compute for the number of moles from the given mass of each element.**
- B. Determine the ratio by dividing the number of moles by the lowest number.**
- C. Use the resulting ratio as the subscript in the formula.**
- D. Identify the mass of each element stated in the problem or from the percentage given.**

Converting the identified masses into moles is the next essential move. Once you know how much of each element is present, you use atomic masses to turn those masses (in grams) into moles, giving you a comparable amount for each element. This step lets you see the true proportions, which you then express as a simple whole-number ratio by dividing all mole values by the smallest one. That ratio becomes the subscripts in the empirical formula. If you started from percentage composition, you'd first convert those percentages to masses for a convenient sample size, but the immediate step after identifying the masses is always to compute the moles.

4. If a pet fish is released back into its natural habitat and is to reproduce, which aquatic biome best fits?

- A. River**
- B. Stream**
- C. Estuary**
- D. Freshwater Lake**

Reproduction for many fish species benefits from habitats that are nutrient-rich, sheltered, and easy for young to feed and grow. Estuaries fit that description well because they are zones where freshwater mixes with seawater, creating brackish, dynamic environments that flood with nutrients and plankton. These shallow, protected waters act like nursery grounds, offering abundant food and shelter from predators, while tides help circulate eggs and larvae and bring in oxygen-rich water. For fish that migrate between freshwater and marine habitats, estuaries provide a welcoming transition area where young can develop before moving on. In contrast, fast-moving rivers and streams can be too turbulent for eggs and very young fry, and lakes, while productive, are usually deeper and may lack the same readily accessible sheltered nursery zones. So, for a pet fish released back into the wild with the aim of reproducing, the estuary offers the most conducive setting for early life stages to thrive.

5. Which scale is used to measure atmospheric temperature in meteorology?

- A. Celsius (°C)**
- B. Fahrenheit (°F)**
- C. Kelvin (K)**
- D. Rankine (°R)**

Temperature in weather reports is commonly given in Celsius because it fits the metric system and directly ties to everyday atmospheric phenomena. The 0°C point marks water freezing and the 100°C point marks boiling at standard pressure, which makes it intuitive to relate to frost, dew, rain, and other weather events. Fahrenheit is mainly used in the United States and isn't the global standard, while Kelvin is preferred for precise scientific calculations that require an absolute scale rather than for communicating routine weather observations. Rankine is not used in meteorology. So, Celsius is the practical and widely adopted choice for measuring atmospheric temperature.

6. Which technique is most appropriate to separate a mixture of plant pigments based on differential migration in a solvent?

- A. Distillation**
- B. Chromatography**
- C. Filtration**
- D. Evaporation**

Chromatography separates plant pigments by how far each pigment moves with a solvent along a stationary phase. Different pigments have varying affinities for the stationary phase and the solvent due to polarity and solubility, so they migrate at different speeds and appear as separate bands. This differential migration is exactly what lets you resolve mixtures of pigments like chlorophylls and carotenoids. Distillation, filtration, and evaporation don't separate components based on how they travel in a solvent through a stationary phase, so they aren't suitable here.

7. Which combination describes a high risk condition for landslides?

- A. Low angle slope, soil, and wet conditions**
- B. High angle slope, soil, and wet conditions**
- C. Low angle slope, rock, and wet conditions**
- D. High angle slope, rock, and dry conditions**

Landslide risk rises when three factors align: a steep slope, a loose, weathered material, and moisture. A high-angle slope increases the gravitational force trying to pull material downslope, so the driving force is strong. Soil, as opposed to solid rock, is more prone to sliding because it's less cohesive and can include loose grains that easily rearrange. When that soil is wet, pore water pressure rises, which reduces the effective stress that holds the grains together. With lower shear strength and higher driving force, failure along the slope becomes much more likely. So, a combination of a steep slope, soil, and wet conditions creates a situation where the slope is both stressed and weakened, making a landslide much more probable than other scenarios.

8. What is the chemical name for table salt?

- A. Sodium bicarbonate
- B. Sodium chloride
- C. Potassium chloride
- D. Table salt (sodium chloride)**

Table salt is sodium chloride, a compound formed from sodium ions and chloride ions in a 1:1 ratio, with the chemical formula NaCl. The name sodium chloride is the chemical name for this substance, while table salt is its common everyday name. The other options refer to different substances: sodium bicarbonate is baking soda, and potassium chloride is a salt used as a salt substitute, neither of which is table salt. So the best answer pairs the common name with its chemical name: table salt (sodium chloride).

9. The area of a circle with radius 7 cm is 49π cm². Which of the following is an exact expression for the area?

- A. 49π cm²**
- B. 14π cm²
- C. 49 cm²
- D. 7π cm²

Area of a circle is $A = \pi r^2$. With radius 7 cm, $A = \pi \times 7^2 = 49\pi$ cm². Keeping π in the expression gives an exact value, since the decimal form isn't used. The other options either drop the π , or use a squared radius that doesn't match 7, leading to incorrect results (for example, 14π would imply $r^2 = 14$, and 7π would imply $r^2 = 7$). So the exact area is 49π cm².

10. Which gas is produced when you mix vinegar and baking soda?

- A. Oxygen (O₂)
- B. Nitrogen (N₂)
- C. Hydrogen (H₂)
- D. Carbon dioxide (CO₂)**

The gas produced is carbon dioxide. When vinegar (acetic acid) meets baking soda (sodium bicarbonate), they react to form sodium acetate, water, and carbon dioxide: $\text{CH}_3\text{COOH} + \text{NaHCO}_3 \rightarrow \text{CH}_3\text{COONa} + \text{H}_2\text{O} + \text{CO}_2$. The fizz you see comes from CO₂ bubbles escaping from the solution. Oxygen, nitrogen, or hydrogen aren't generated in this reaction because there isn't a process here that creates those gases.

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://dostjlss.examzify.com>

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

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