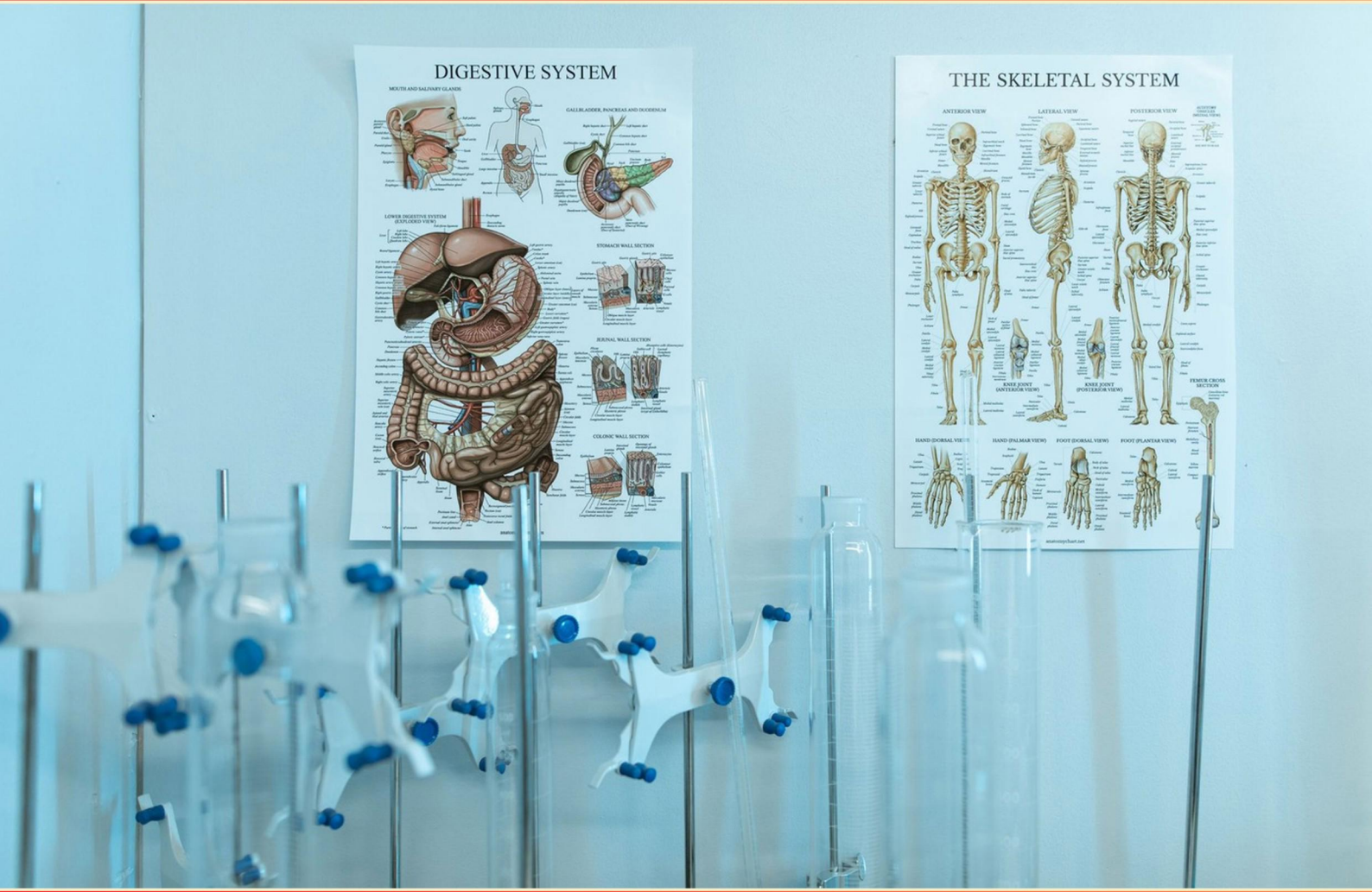
ABEKA SCIENCE MATTER AND ENERGY TEST 7 PRACTICE (SAMPLE)

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

1. What determines whether an object sinks or floats in water?

A. If its density is greater than water's density, it sinks; if less, it floats.

B. If its mass is greater than water's mass.

C. If it changes temperature.

D. If it dissolves in water.

2. What is density and how is it calculated?

A. Density is volume per mass; density = volume / mass.

B. Density is mass per area; mass per area.

C. Density is energy per mass.

D. Density is mass per volume; density = mass divided by volume.

3. In physics, what is work?

A. The force that opposes motion.

B. The transfer of energy that occurs when a force makes an object move a certain distance.

C. The speed at which an object travels.

D. A stored form of energy.

4. In an electric circuit, how do series and parallel circuits differ?

A. In series, voltage is the same across each component; in parallel, current is the same through each component.

B. In series, components share the same current; in parallel, components share the same voltage and current can vary.

C. In series, resistance decreases when more components are added; in parallel, resistance changes with number of paths.

D. In series, current increases with more components; in parallel, current decreases.

5. What is the purpose of a material's specific heat capacity?

A. It measures how much energy is needed to raise the temperature of a given mass by 1°C.

B. It measures the density of a material.

C. It measures how fast a substance dissolves.

D. It measures the color change when heated.

6. What method would you use to separate salt from seawater?

A. Filtration

B. Distillation

C. Evaporation

D. Chromatography

7. In a circuit with two resistors in series, each 6 Ω, connected to a 12 V battery, what is the current?

A. 0.5 A

B. 1 A

C. 2 A

D. 3 A

8. Which term describes a substance with no net electric charge?

A. Net positive

B. Positively charged

C. Neutral

D. Negatively charged

9. What is electrification by friction?

A. Heat generated by friction.

B. Static electricity produced by rubbing two materials together.

C. Light produced by friction.

D. Electric current produced by a battery.

10. What is volume?

A. The amount of space an object occupies.

B. The weight of an object.

C. The speed of an object.

D. The temperature of an object.

Answers

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

Explanations

1. What determines whether an object sinks or floats in water?

A. If its density is greater than water's density, it sinks; if less, it floats.

B. If its mass is greater than water's mass.

C. If it changes temperature.

D. If it dissolves in water.

The deciding factor is the object's density relative to water. According to Archimedes' principle, the buoyant force equals the weight of the water the object displaces. If the object is denser than water, its weight is greater than the buoyant force from the displaced water, so it sinks. If the object is less dense than water, the buoyant force is enough to support it, and it floats. Temperature can shift water's density a bit, which can change things under different conditions, but the fundamental rule is density comparison. Dissolving changes mass or surface interactions but doesn't override the basic density criterion.

2. What is density and how is it calculated?

A. Density is volume per mass; density = volume / mass.

B. Density is mass per area; mass per area.

C. Density is energy per mass.

D. Density is mass per volume; density = mass divided by volume.

Density tells you how much matter is packed into a given amount of space. It's an intensive property, meaning it doesn't depend on how much material you have. You find density by dividing the mass by the volume: density = mass / volume. Mass is how heavy the object is, and volume is how much space it occupies. For a regular-shaped object, volume is length × width × height; for an irregular object, you can measure volume by how much water it displaces when submerged. Common units are g/cm^3 for solids or kg/m^3 in SI. For example, if a block has a mass of 200 g and a volume of 100 cm^3, its density is 2 g/cm^3. Water at room temperature has a density of about 1 g/cm^3. Density helps explain buoyancy: objects with greater density than the surrounding liquid tend to sink, while less dense ones float. Descriptions like energy per mass or mass per area describe different quantities, so they aren't density.

3. In physics, what is work?

A. The force that opposes motion.

B. The transfer of energy that occurs when a force makes an object move a certain distance.

C. The speed at which an object travels.

D. A stored form of energy.

Work is the transfer of energy that occurs when a force moves an object a certain distance. When you push or pull an object and it actually moves in the direction of that force, energy is transferred to the object as work. The amount of work depends on how hard you push and how far the object travels in the direction of the force, described by W = F d cos theta. If the force isn't in the direction of motion, only the part of the force that points along the motion does work; if there's no movement, no work is done. The unit is the joule, one newton-meter. This matches the idea that work is about energy transfer caused by a force making something move a distance. It's not simply a force that opposes motion (that's friction), not the speed of the object, and not stored energy—that would be potential energy.

4. In an electric circuit, how do series and parallel circuits differ?

A. In series, voltage is the same across each component; in parallel, current is the same through each component.

B. In series, components share the same current; in parallel, components share the same voltage and current can vary.

C. In series, resistance decreases when more components are added; in parallel, resistance changes with number of paths.

D. In series, current increases with more components; in parallel, current decreases.

The main idea is how current and voltage are distributed in series versus parallel circuits. In a series circuit there's only one path for the current, so the same current flows through every component. The voltages across the individual components add up to the total supply voltage. In a parallel circuit, each component is connected directly across the same voltage source, so each branch has the same voltage across it, but the currents in the branches can vary depending on each path's resistance. The total current drawn from the source is the sum of all branch currents. That's why the correct description says the same current flows through all parts in series, while in parallel the voltage is the same across each component and the branch currents can differ. The other statements mix up these relationships: in series adding components does not decrease resistance, it increases it; in parallel adding paths typically lowers total resistance; and current is not inherently forced to increase or decrease with more components in series.

5. What is the purpose of a material's specific heat capacity?

A. It measures how much energy is needed to raise the temperature of a given mass by 1°C.

B. It measures the density of a material.

C. It measures how fast a substance dissolves.

D. It measures the color change when heated.

Specific heat capacity tells you how much energy you must add to a material to raise the temperature of a given mass by 1 degree. It describes how much thermal energy the material stores per degree of temperature change. The relationship $q = m\,c\,\Delta T$ ties together heat added (q), mass (m), specific heat capacity (c), and temperature change (ΔT). A higher c means more energy is needed to raise the temperature, so the material heats up and cools down more slowly, which is why this property is useful in predicting how substances respond to heating. The other ideas—density, how fast something dissolves, or color changes when heated—are different properties and not what specific heat capacity measures.

6. What method would you use to separate salt from seawater?

A. Filtration

B. Distillation

C. Evaporation

D. Chromatography

When a dissolved substance like salt is in water, you separate it by removing the water. Evaporation turns liquid water into vapor and leaves the non-volatile salt behind as a solid. As the water disappears, salt crystals form that you can collect. Filtration wouldn't work here because the salt is dissolved, not a separate particle to be trapped. Chromatography isn't suited for pulling an dissolved ionic compound out of water. Distillation could also separate the water from the salt, but evaporation is the simpler, practical method used to harvest solid salt from seawater.

7. In a circuit with two resistors in series, each 6 Ω, connected to a 12 V battery, what is the current?

A. 0.5 A

B. 1 A

C. 2 A

D. 3 A

In a series circuit, the same current flows through every component, and the total resistance is the sum of the individual resistances. Here, two 6 Ω resistors in series add up to 12 Ω. With a 12 V source, the current is I = V/R = 12 V / 12 Ω = 1 A. So the current through the circuit is 1 ampere. If you check voltage distribution, each resistor would drop about 6 V since the resistances are equal, but the current remains the same through both.

8. Which term describes a substance with no net electric charge?

A. Net positive

B. Positively charged

C. Neutral

D. Negatively charged

No net electric charge means the positive and negative charges balance out, leaving the substance neutral. In atoms, this happens when the number of protons (positive) equals the number of electrons (negative), giving zero overall charge. If there are more protons than electrons, the substance becomes positively charged; if there are more electrons, it becomes negatively charged. So neutral best describes a substance with no net charge.

9. What is electrification by friction?

A. Heat generated by friction.

B. Static electricity produced by rubbing two materials together.

C. Light produced by friction.

D. Electric current produced by a battery.

Electrification by friction is the buildup of static electricity on surfaces when two materials are rubbed together. The rubbing causes electrons to move from one material to the other because different substances hold onto electrons differently. The material that loses electrons becomes positively charged, while the one that gains electrons becomes negatively charged. These charges remain on the surfaces until they find a path to discharge, which is why you can see effects like a rubbed balloon sticking to walls or attracting lightweight paper. This is different from heat produced by friction, light produced by friction in some cases, or the continuous electric current produced by a battery.

10. What is volume?

A. The amount of space an object occupies.

B. The weight of an object.

C. The speed of an object.

D. The temperature of an object.

Volume is the amount of space an object occupies. This helps us distinguish volume from weight (how heavy something is under gravity), from speed (how fast something moves), and from temperature (how hot or cold something is). We measure volume in cubic units for solids, like cubic centimeters or cubic meters, and in liters or milliliters for liquids. For regular-shaped objects, you can find volume by multiplying dimensions such as length × width × height, while for irregular shapes you can use the water-displacement method—submerge the object in a graduated cylinder and watch the water rise to see how much space it takes up.

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://abekasciencematterenergy7.examzify.com

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