TASC PHYSICAL SCIENCE PRACTICE EXAM (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. Which of the following gases is a greenhouse gas contributing to warming?

A. Carbon Dioxide

B. Nitrogen

C. Oxygen

D. Argon

2. Negative work occurs when the force is opposite the direction of displacement.

A. The force and displacement are in opposite directions

B. The force and displacement are in the same direction

C. There is no force

D. There is no displacement

3. Which statement about the effect of surface area on reaction rate is true?

A. Increasing the surface area of a solid reactant increases the reaction rate.

B. Increasing the temperature always slows the reaction rate.

C. Increasing container volume always speeds up the reaction.

D. Adding a catalyst always slows the reaction.

4. How does gravity affect mass and weight?

A. Mass changes with gravity; weight stays the same.

B. Mass stays the same, weight changes with gravity.

C. Mass stays the same; weight stays the same.

D. Mass becomes weight in accelerated frames.

5. What are the major components of Earth's atmosphere in the lowest layer and their approximate percentages?

A. About 78% nitrogen, 21% oxygen, and the remainder argon, CO_2, and trace gases.

B. About 60% nitrogen, 40% oxygen, with trace neon and helium.

C. About 90% argon, 10% oxygen, and 0% carbon dioxide.

D. About 70% nitrogen, 25% oxygen, and 5% carbon monoxide.

6. What is latent heat of fusion and latent heat of vaporization?

A. Fusion: energy to melt a solid; Vaporization: energy to vaporize a liquid.
B. Fusion: energy to raise temperature; Vaporization: energy to heat a gas.
C. Fusion: energy to solidify; Vaporization: energy to condense.
D. Fusion: energy to vaporize; Vaporization: energy to melt.

7. In a reversible reaction, equilibrium occurs when

A. The forward rate is zero.
B. The forward and reverse rates are equal.
C. All reactants are converted.
D. Only products remain.

8. Which statement best characterizes gravitational force?

A. It only acts on objects with magnetic properties.
B. It acts between all masses across distance.
C. It requires a medium to propagate.
D. It disappears beyond a certain range.

9. Which force is an action-at-a-distance force?

A. Friction
B. Normal force
C. Gravity
D. Buoyancy

10. What is force?

A. A push or pull on an object from an interaction
B. The energy stored in matter
C. The rate of doing work
D. The direction of motion of the object

Answers

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

Explanations

1. Which of the following gases is a greenhouse gas contributing to warming?

A. Carbon Dioxide

B. Nitrogen

C. Oxygen

D. Argon

Greenhouse gases trap heat by absorbing infrared radiation emitted by Earth's surface. Carbon dioxide has vibrational modes that interact strongly with infrared light, so it absorbs heat and re-radiates it back toward the surface, warming the lower atmosphere and surface. Nitrogen and oxygen are abundant but their molecular structures don't absorb infrared radiation effectively at the relevant wavelengths, so they don't contribute much to greenhouse warming. Argon, a noble gas, is even less able to absorb infrared radiation. So, among these options, carbon dioxide is the gas that contributes to warming.

2. Negative work occurs when the force is opposite the direction of displacement.

A. The force and displacement are in opposite directions

B. The force and displacement are in the same direction

C. There is no force

D. There is no displacement

Work is the energy transferred to or from an object as it moves under a force. The key is how much of the force actually acts along the direction of the displacement. When the force points opposite to the motion, the force resists the movement, so energy is taken away from the object and the work is negative. This can be seen from $W = F \cdot d = |F||d| \cos(\theta)$: with $\theta = 180$ degrees (force opposite to displacement), $\cos(\theta) = -1$, giving negative work. Negative work means the object's kinetic energy decreases (often turning into heat). If the force and displacement align, the work is positive and adds energy to the object. If there's no force or no movement, the work is zero.

3. Which statement about the effect of surface area on reaction rate is true?

A. Increasing the surface area of a solid reactant increases the reaction rate.

B. Increasing the temperature always slows the reaction rate.

C. Increasing container volume always speeds up the reaction.

D. Adding a catalyst always slows the reaction.

The rate of a reaction depends on how often reacting particles meet, and for reactions involving a solid and another reactant, only the particles at the solid's surface can participate. Increasing the surface area of the solid means more of its particles are exposed to the other reactant, producing more collisions per unit time and speeding up the reaction. That's why breaking a solid into smaller pieces or grinding it into a powder often makes a reaction go faster—the surface area goes up a lot, so contact and collision opportunities increase. The other statements don't fit because temperature changes usually speed up reactions when you raise it, not slow them; increasing the container volume lowers the concentration of reactants and tends to slow the rate; and a catalyst provides an alternative pathway that speeds up the reaction, not slows it.

4. How does gravity affect mass and weight?

A. Mass changes with gravity; weight stays the same.

B. Mass stays the same, weight changes with gravity.

C. Mass stays the same; weight stays the same.

D. Mass becomes weight in accelerated frames.

Mass is the amount of matter in an object and doesn't change with location. Weight is the gravitational force acting on that mass, so it depends on how strong gravity is. The relationship is W = m × g. Because gravity (g) varies—from Earth to the Moon to space—weight changes with gravity while mass stays the same. For example, you'd weigh less on the Moon due to weaker gravity, even though your mass is unchanged. If gravity were eliminated, weight would be zero while mass remains.

5. What are the major components of Earth's atmosphere in the lowest layer and their approximate percentages?

A. About 78% nitrogen, 21% oxygen, and the remainder argon, CO2, and trace gases.

B. About 60% nitrogen, 40% oxygen, with trace neon and helium.

C. About 90% argon, 10% oxygen, and 0% carbon dioxide.

D. About 70% nitrogen, 25% oxygen, and 5% carbon monoxide.

The major components of the air at Earth's surface are nitrogen and oxygen, making up the vast majority of molecules, with small amounts of argon, carbon dioxide, and other trace gases. In dry air, nitrogen is about 78% and oxygen about 21% by volume (mole fraction). The remaining roughly 1% consists of argon, carbon dioxide, neon, helium, methane, and other trace gases. This is why the option listing about 78% nitrogen, 21% oxygen, and the rest as argon, CO2, and trace gases is the best description for the lowest atmospheric layer. The other options mismatch these proportions or misstate the presence of certain gases (for example, placing a large fraction of carbon monoxide or an unusually high amount of argon), which doesn't reflect the typical composition of dry air at sea level.

6. What is latent heat of fusion and latent heat of vaporization?

A. Fusion: energy to melt a solid; Vaporization: energy to vaporize a liquid.

B. Fusion: energy to raise temperature; Vaporization: energy to heat a gas.

C. Fusion: energy to solidify; Vaporization: energy to condense.

D. Fusion: energy to vaporize; Vaporization: energy to melt.

Latent heat is the energy needed to change the phase of a substance at a constant temperature. For fusion, or melting, the energy goes into turning a solid into a liquid by breaking apart the solid's structure. For vaporization, the energy goes into turning a liquid into a gas by overcoming intermolecular forces. In both cases the temperature doesn't rise during the phase change; the added heat is "hidden" in the change of state. So the description that fusion is the energy to melt a solid and vaporization is the energy to vaporize a liquid is the correct one. The other ideas mix this with heating (which is sensible heat, not latent) or with reverse changes (solidifying or condensing), which aren't what latent heat of fusion or latent heat of vaporization describe.

7. In a reversible reaction, equilibrium occurs when

A. The forward rate is zero.

B. The forward and reverse rates are equal.

C. All reactants are converted.

D. Only products remain.

In a reversible reaction, equilibrium is reached when the forward and reverse reaction rates are equal, so the amounts of reactants and products stay constant over time. This is a dynamic balance: molecules are still moving back and forth between reactants and products, but the two directions occur at the same rate, canceling out so there's no net change in concentrations. The idea can be seen with A turning into B and B turning back into A; at equilibrium, the rate of A becoming B equals the rate of B becoming A, which sets a stable ratio of A to B that doesn't change unless temperature or other conditions change. If the forward rate were zero, there would be no ongoing conversion to balance with the reverse direction, so you wouldn't have both reactants and products present in a steady state. If all reactants were converted, there'd be no source for the forward reaction, and no reverse activity to balance it. If only products remained, there wouldn't be reactants to convert, so the forward rate wouldn't match a reverse rate, breaking the equilibrium condition.

8. Which statement best characterizes gravitational force?

A. It only acts on objects with magnetic properties.

B. It acts between all masses across distance.

C. It requires a medium to propagate.

D. It disappears beyond a certain range.

Gravitational force is a universal attraction between masses. It acts between any two objects that have mass, and this influence extends across any distance—the strength follows the inverse-square law, getting weaker with the square of the separation. It does not require a medium to propagate and it does not disappear beyond a certain range; it remains present everywhere, though its effect becomes very small as distance grows. So the statement that best describes gravitational force is that it acts between all masses across distance.

9. Which force is an action-at-a-distance force?

A. Friction

B. Normal force

C. Gravity

D. Buoyancy

The key idea here is distinguishing action-at-a-distance forces from contact forces. Gravity is the classic action-at-a-distance force because it pulls on objects without them needing to touch. It acts through space, so a mass can attract another mass even when separated by distance, with the strength falling off with distance. Friction, the normal force, and buoyancy all require contact or a medium. Friction arises from the interaction of surfaces in contact and resists motion. The normal force is the perpendicular push from a surface on an object in contact with it. Buoyancy comes from fluid pressure acting on a submerged or partially submerged object, which requires the object to be in the fluid. So gravity stands out as the non-contact, action-at-a-distance force.

10. What is force?

A. A push or pull on an object from an interaction

B. The energy stored in matter

C. The rate of doing work

D. The direction of motion of the object

Force is a push or pull on an object that arises from its interaction with another object or a field, and it has both size and direction. This interaction can cause changes in motion or shape—for example, pushing a cart makes it speed up, gravity pulls an apple downward, and magnetic forces can attract or repel. In physics, forces are what produce acceleration, described by F = ma: a given force changes an object's velocity depending on its mass. The other ideas don't define force: energy stored in matter relates to potential energy, not the cause of motion; the rate of doing work is power, not force; and the direction of motion describes velocity, not the causing influence.

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://tascphysicalscience.examzify.com

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