EARTH & HUMAN ACTIVITY – ENERGY RESOURCES 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.

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 is a renewable energy resource?

A. Oil

B. Coal

C. Solar energy

D. Nuclear energy

2. What does sustainability promote in resource use?

A. Immediate energy consumption

B. Limited resource availability

C. Resource use that does not constrain future use

D. Excessive exploitation of resources

3. What process is defined as converting waste into reusable material?

A. Reducing

B. Recycling

C. Restoring

D. Reusing

4. What role do subsidies play in the economics of energy resources, and what are potential drawbacks?

A. Subsidies always harm the market.

B. Subsidies have no effect on energy economics.

C. Subsidies lower costs, promote deployment; drawbacks include market distortions, subsidizing inefficient resources, and fiscal burden.

D. Subsidies only help fossil fuels.

5. How does hydrogen fit into the future energy system?

A. Hydrogen cannot store energy.

B. Hydrogen is primarily used as a fuel for rockets only.

C. Hydrogen can store energy and fuel sectors hard to electrify; produced via electrolysis (green) or fossil fuels with CCS; challenges include efficiency and infrastructure.

D. Hydrogen has no infrastructure needs.

6. What is the primary cause of the erosion of shorelines and rainforests?

A. Deforestation

B. Global climate changes

C. Industrial pollution

D. Urbanization

7. What is EROEI and why does it matter for assessing energy resources?

A. EROOI measures the monetary cost of energy production.

B. EROEI is the ratio of energy obtained from a resource to the energy used to extract and process it; higher EROEI means more net energy gained and a more favorable resource.

C. EROEI is the energy density per unit mass of a fuel.

D. EROEI describes the efficiency of electricity transmission.

8. What are major greenhouse gas emissions from electricity generation using coal?

A. Methane is the dominant greenhouse gas; coal plants also emit NOx, SO2, and particulates; methane may be released during mining.

B. No greenhouse gases are emitted from coal-fired electricity.

C. CO2 is the dominant greenhouse gas; coal plants also emit NOx, SO2, and particulates; methane may be released during coal mining and handling, though less prominent in burning coal.

D. Oxygen is the main emission.

9. What is the difference between energy resources and reserves?

A. Energy resources are the total amount of energy available or recoverable in the environment; reserves are the portion that can be economically extracted with current technology and prices.

B. Energy resources refer to the energy that can be extracted profitably today; reserves are future potential supplies.

C. Energy resources refer to renewable sources only; reserves refer to non-renewable sources only.

D. Reserves are the building blocks for policy planning; resources are not.

10. How can energy efficiency and demand-side management contribute to reducing greenhouse gas emissions?

A. By reducing energy consumption and shifting usage to times of lower grid emissions, lowering emissions per unit of electricity produced.

B. By increasing the use of high-emission power plants.

C. By banning all electrical devices during peak hours.

D. By exporting all demand to fossil fuel plants.

Answers

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

Explanations

1. Which of the following is a renewable energy resource?

A. Oil

B. Coal

C. Solar energy

D. Nuclear energy

Solar energy is considered a renewable energy resource because it is derived from the sun, which emits a vast amount of energy continuously and will not run out in any human timeframe. Unlike fossil fuels such as oil and coal, which take millions of years to form and are finite in nature, solar energy can be harnessed wherever there is sunlight, making it an abundant and sustainable resource. Additionally, solar power systems can be installed on various scales, from small residential setups to large solar farms, providing flexibility and accessibility in energy production. Renewable energy sources like solar contribute to reducing greenhouse gas emissions and help combat climate change, as they do not produce harmful pollutants during energy generation. This characteristic further emphasizes the importance of solar energy in moving towards a more sustainable energy future. In contrast, oil and coal are non-renewable resources that contribute to environmental degradation, and while nuclear energy is low in carbon emissions, it relies on finite uranium resources and presents challenges related to radioactive waste. Therefore, solar energy stands out as a clean, sustainable, and inexhaustible energy solution.

2. What does sustainability promote in resource use?

A. Immediate energy consumption

B. Limited resource availability

C. Resource use that does not constrain future use

D. Excessive exploitation of resources

Sustainability in resource use emphasizes practices that ensure resources are managed in a way that meets current needs without compromising the ability of future generations to meet their own. This concept is rooted in the idea of long-term environmental health and stability. When resources are utilized sustainably, it allows for a balance between consumption and the natural replenishment of those resources, ensuring their availability for the future. This principle opposes immediate energy consumption, as such practices may lead to depletion without consideration for future generations. Similarly, sustainability is at odds with limited resource availability, as the goal is to manage resources effectively to prevent scarcity. Excessive exploitation of resources fails to align with sustainable practices, as it prioritizes short-term gains over long-term viability. Thus, resource use that does not constrain future use is the essence of sustainability, making it the correct choice in this context.

3. What process is defined as converting waste into reusable material?

A. Reducing

B. Recycling

C. Restoring

D. Reusing

The correct answer is recycling because it specifically refers to the process of collecting, processing, and transforming waste materials into new products or materials. This process helps minimize the consumption of fresh raw materials, reduce energy usage, decrease greenhouse gas emissions, and lessen water pollution, all contributing to a more sustainable environment. Recycling involves a systematic approach where materials such as paper, glass, metals, and plastics are separated from the waste stream, cleaned, and then processed to create new items. For instance, recycled paper can be made into new paper products, while recycled plastics can be used to manufacture new containers or products. Other choices—reducing, restoring, and reusing—illustrate different aspects of waste management and sustainability. Reducing means minimizing waste at the source; restoring involves returning ecosystems to their natural state; and reusing focuses on finding new applications for items without altering them significantly. While all these concepts contribute to sustainability, they do not specifically capture the transformation of waste materials into new resources like recycling does.

4. What role do subsidies play in the economics of energy resources, and what are potential drawbacks?

A. Subsidies always harm the market.

B. Subsidies have no effect on energy economics.

C. Subsidies lower costs, promote deployment; drawbacks include market distortions, subsidizing inefficient resources, and fiscal burden.

D. Subsidies only help fossil fuels.

Subsidies change energy economics by lowering the effective cost and reducing risk for energy projects. When governments offer subsidies, tax credits, rebates, or price supports, they make pursuing certain resources—like renewables or innovative fuels—more financially attractive. That lowers barriers to entry, speeds up deployment, and helps technologies reach scale, which can push down the long-run cost of energy from those sources and attract private investment. But subsidies can distort markets. If price signals don't reflect true costs, resources that are not the most efficient can receive support, delaying competition and keeping higher-cost options afloat. They also impose a burden on taxpayers and government budgets, which is a fiscal cost that has to be justified against other public needs. Poorly designed subsidies can misallocate capital, encourage rent-seeking, or create inertia, tying resources to policy support even when conditions change. They can also lock in infrastructure or technologies that may later prove suboptimal, unless policies include clear sunset provisions and performance criteria. When designed with environmental goals in mind, subsidies can help reduce externalities, but effectiveness hinges on careful targeting, evaluation, and timely adjustments.

5. How does hydrogen fit into the future energy system?

A. Hydrogen cannot store energy.

B. Hydrogen is primarily used as a fuel for rockets only.

C. Hydrogen can store energy and fuel sectors hard to electrify; produced via electrolysis (green) or fossil fuels with CCS; challenges include efficiency and infrastructure.

D. Hydrogen has no infrastructure needs.

Hydrogen acts as an energy carrier that can store energy and supply fuel to sectors that are hard to electrify. By using electrolysis, surplus renewable electricity can be converted into hydrogen and stored for later use, then converted back to electricity or used directly in fuel cells, helping to balance the grid and provide long term storage. There are two main production routes: green hydrogen from electrolysis powered by renewables, which emits virtually no carbon, and blue hydrogen produced from natural gas with carbon capture and storage, which lowers emissions but still relies on CCS infrastructure. Hydrogen's versatility means it can decarbonize difficult sectors like heavy industry, long haul transport, shipping, aviation, and certain heat applications where direct electrification is challenging. However, this potential comes with challenges: energy is lost in conversion, the overall system efficiency is lower than using electricity directly, and it requires substantial new infrastructure for production, transport (such as pipelines and shipping), storage, and distribution, along with safety considerations and costs. Despite these hurdles, hydrogen plays a meaningful role in a diversified future energy system because of its ability to store energy and power hard to electrify sectors.

6. What is the primary cause of the erosion of shorelines and rainforests?

A. Deforestation

B. Global climate changes

C. Industrial pollution

D. Urbanization

The primary cause of the erosion of shorelines and rainforests is closely linked to global climate changes. Climate change leads to rising sea levels, increased storm intensity, and altered rainfall patterns, all of which contribute significantly to shoreline erosion. When sea levels rise, coastal areas become more vulnerable to flooding and erosion as water encroaches on land. Additionally, changing precipitation patterns can impact the health of rainforests, making them more susceptible to erosion through processes like increased runoff, which washes away soil and vegetation. In rainforests, the loss of tree cover due to climate-related stresses can further exacerbate soil erosion. Trees play a vital role in stabilizing the soil with their root systems. When these trees are stressed or die due to climate change, the soil becomes loose and more easily eroded by wind and water. While other factors such as deforestation, industrial pollution, and urbanization also contribute to environmental degradation, their impacts can be interconnected with global climate changes. However, the overarching issue of climatic shifts is the primary driving force in the ongoing erosion of both shorelines and rainforests.

7. What is EROEI and why does it matter for assessing energy resources?

A. EROOI measures the monetary cost of energy production.

B. EROEI is the ratio of energy obtained from a resource to the energy used to extract and process it; higher EROEI means more net energy gained and a more favorable resource.

C. EROEI is the energy density per unit mass of a fuel.

D. EROEI describes the efficiency of electricity transmission.

EROEI, or Energy Return on Energy Invested, is a measure of how much energy you obtain from a resource relative to the energy needed to extract, process, and deliver it. It's expressed as a ratio: energy returned divided by energy invested. A higher EROEI means more net energy is available after paying the extraction and processing costs, so the resource is more favorable for powering other activities. This matters because it lets us compare resources not just by how much energy they can supply, but by how efficient the whole energy-gathering process is. Some resources deliver energy with relatively small upfront costs, while others require substantial energy inputs to get usable energy. Over time, EROEI can change as technology improves or as easy-to-access reserves are depleted, influencing long-term sustainability and economic viability. Note that EROEI is different from energy density (how much energy is in a unit of fuel) and from transmission efficiency or monetary cost.

8. What are major greenhouse gas emissions from electricity generation using coal?

A. Methane is the dominant greenhouse gas; coal plants also emit NOx, SO2, and particulates; methane may be released during mining.

B. No greenhouse gases are emitted from coal-fired electricity.

C. CO2 is the dominant greenhouse gas; coal plants also emit NOx, SO2, and particulates; methane may be released during coal mining and handling, though less prominent in burning coal.

D. Oxygen is the main emission.

The key idea is that CO2 is the largest greenhouse gas emitted when coal is used to generate electricity. When coal burns, its carbon combines with oxygen to form carbon dioxide, and this happens in large quantities, making CO2 the dominant greenhouse gas from coal-fired power. In addition to CO2, coal plants release nitrogen oxides, sulfur dioxide, and fine particulates as air pollutants that affect health and air quality (and have climate-related indirect effects). Methane, while a potent greenhouse gas, mainly comes from the mining and handling of coal (ventilation air in mines, methane released from coal seams), and is much less prominent during the burning process itself. So the best description is that CO2 is the primary greenhouse gas from coal electricity, with NOx, SO2, and particulates as co-emissions, and methane largely tied to mining activities.

9. What is the difference between energy resources and reserves?

A. Energy resources are the total amount of energy available or recoverable in the environment; reserves are the portion that can be economically extracted with current technology and prices.

B. Energy resources refer to the energy that can be extracted profitably today; reserves are future potential supplies.

C. Energy resources refer to renewable sources only; reserves refer to non-renewable sources only.

D. Reserves are the building blocks for policy planning; resources are not.

The essential idea is that energy resources include all energy that could potentially be recovered from the environment, while reserves are the subset that can be economically extracted with current technology and market conditions. Resources cover both discovered and undiscovered possibilities, including those that would require higher costs, new technology, or higher prices to become feasible. Reserves are the discovered and proven portion that can be produced profitable today under existing equipment, infrastructure, and prices. As technology advances or prices change, some resources may become reserves, and some reserves may be decommissioned if conditions change. This is why the distinction matters: it links what is physically available to what can actually be tapped economically at the moment. Why the other statements aren't right: one option reverses the idea, suggesting resources are profitable today and reserves are future potential, which doesn't capture how reserves depend on current economics and technology. Another option wrongly separates renewables and non-renewables into resources versus reserves, when both categories can include renewable and non-renewable sources. The last option misframes reserves as policy inputs and resources as not, which isn't how these terms are used in energy assessment.

10. How can energy efficiency and demand-side management contribute to reducing greenhouse gas emissions?

A. By reducing energy consumption and shifting usage to times of lower grid emissions, lowering emissions per unit of electricity produced.

B. By increasing the use of high-emission power plants.

C. By banning all electrical devices during peak hours.

D. By exporting all demand to fossil fuel plants.

Energy efficiency lowers how much electricity we need, while demand-side management shifts when we use energy to match when the grid is cleaner. When overall demand drops, fewer power plants run, or cleaner plants can cover the needed load, which cuts total greenhouse gas emissions. Shifting usage to times with lower grid emission intensity means the same amount of electricity is produced with a cleaner mix, so emissions per unit of electricity decrease. In short, using less energy and using it at better times reduces the emissions associated with power generation. Options that rely on burning more high-emission plants, banning devices during peak hours, or sending all demand to fossil-fuel plants would raise emissions or be impractical.

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:

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