

BIOENVIRONMENTAL ENGINEERING APPRENTICE (BEA) BLOCK 6 – NON- IONIZING RADIATION PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

<https://beablock6nonionizingrad.examzify.com>



Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

SAMPLE

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

SAMPLE

- 1. What is the Air Force Instruction (AFI) reference number commonly cited for electromagnetic field (EMF) guidelines?**
 - A. Air Force Instruction 48-109
 - B. Air Force Instruction 32-109
 - C. Air Force Instruction 58-101
 - D. Air Force Instruction 10-104

- 2. Which of the following is a main component of a laser?**
 - A. Power Pumping Station
 - B. Output Mirror
 - C. Battery Pack
 - D. Control Panel

- 3. Pulse Repetition Frequency measures what?**
 - A. The duration of each pulse
 - B. The average power
 - C. The number of pulses transmitted per second
 - D. The height of the pulse

- 4. Which statement best describes a collimated beam?**
 - A. Rapid divergence
 - B. High energy loss
 - C. The ability to minimize beam divergence over a distance
 - D. Short wavelength

- 5. Which action is a Unit Commander EMF safety responsibility?**
 - A. Establish a unit EMF safety program.
 - B. Issue medical exam orders for all personnel.
 - C. Post hazard signs for all non-EMF hazards.
 - D. Inspect civilian EMF equipment.

- 6. Which device is a ground-fixed emitter used to track missiles and satellites?**
- A. PAVE PAWS
 - B. Ground Satellites
 - C. Field-deployable
 - D. Medical Diathermy
- 7. Airborne Warning and Control Systems are used for?**
- A. Surveillance and tracking of aircraft.
 - B. Weather forecasting
 - C. Encryption of communications
 - D. Ground vehicle control
- 8. Ground Satellites are primarily associated with which function?**
- A. Communications
 - B. Medical heating
 - C. Weather monitoring
 - D. Grounding and safety
- 9. Gamma Radiation is emitted from the nucleus of an unstable atom and is ionizing.**
- A. Emitted from the nucleus of an unstable atom and is ionizing.
 - B. Emitted from the electron cloud and is non-ionizing.
 - C. Visible light
 - D. Infrared radiation
- 10. What characterizes a continuous wave (CW) emission?**
- A. The signal turns on and off in a rapid sequence.
 - B. Transmits an RFR signal continuously, without breaks.
 - C. It uses a single-conductor transmission line.
 - D. It is emitted by a ground-fixed emitter.

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the Air Force Instruction (AFI) reference number commonly cited for electromagnetic field (EMF) guidelines?

- A. Air Force Instruction 48-109**
- B. Air Force Instruction 32-109
- C. Air Force Instruction 58-101
- D. Air Force Instruction 10-104

The guiding idea is that EMF safety in the Air Force is documented in a specific instruction that addresses non-ionizing radiation exposure, measurement, and control. Air Force Instruction 48-109 is the standard reference typically cited for electromagnetic field guidelines because it directly covers non-ionizing radiation safety, including exposure limits, how to assess exposures, and what controls (engineering or administrative) are needed to keep personnel within safe limits. This instruction is the go-to source when planning operations around EMF sources like radar or communications equipment, and when conducting safety assessments or training. The other instruction numbers correspond to different topics and don't specifically address EMF guidelines, so they aren't the commonly cited EMF reference.

2. Which of the following is a main component of a laser?

- A. Power Pumping Station**
- B. Output Mirror
- C. Battery Pack
- D. Control Panel

At the heart of laser operation is population inversion—the gain medium must be pumped to higher energy states so stimulated emission can dominate. The energy source that pumps the gain medium provides this essential energy input, enabling electrons to reach excited states and the laser to amplify light. Without pumping, the gain medium remains in its ground state and no coherent laser output occurs. The output mirror is important for forming the optical cavity and providing feedback to sustain amplification, but it doesn't supply the energy itself. The battery pack and control panel are support elements for power and operation, not the fundamental mechanism that produces the laser light.

3. Pulse Repetition Frequency measures what?

- A. The duration of each pulse
- B. The average power
- C. The number of pulses transmitted per second**
- D. The height of the pulse

Pulse repetition frequency is the rate at which energy pulses are emitted, i.e., how many pulses are transmitted each second. This directly defines how often pulses occur. The duration of each pulse is a separate property (pulse width), so PRF isn't about how long a pulse lasts. Average power combines both how strong each pulse is and how often pulses are sent (duty cycle = pulse duration × PRF), so PRF alone isn't the measure of average power. The height or amplitude of the pulse describes peak strength, not how often pulses occur. In short, PRF specifically measures the number of pulses transmitted per second.

4. Which statement best describes a collimated beam?

- A. Rapid divergence
- B. High energy loss
- C. The ability to minimize beam divergence over a distance**
- D. Short wavelength

Collimation is about making the beam travel with rays that are nearly parallel, so it doesn't spread out much as it propagates. This keeps the beam's cross-section and intensity more or less constant over a distance, which is exactly what is meant by minimizing beam divergence. In practice, a collimated beam maintains directionality and focus, which is why it's described as having little angular spread. Real beams can still diverge due to diffraction and imperfections, but the goal is to keep that divergence as small as possible. The other statements describe different ideas: rapid divergence would mean the beam spreads quickly (the opposite of collimation), high energy loss refers to attenuation rather than directionality, and a short wavelength is about the radiation's energy or color, not how tightly the beam is aimed.

5. Which action is a Unit Commander EMF safety responsibility?

- A. Establish a unit EMF safety program.**
- B. Issue medical exam orders for all personnel.
- C. Post hazard signs for all non-EMF hazards.
- D. Inspect civilian EMF equipment.

The main idea here is that EMF safety at a unit level relies on having a formal program directed by the unit's leadership. Establishing a unit EMF safety program means the commander sets the policy, assigns responsibilities, ensures training and risk assessments are done, puts procedures in place, and oversees implementation. This creates an organized approach to identify, control, and monitor EMF hazards, rather than leaving safety to ad hoc actions. Medical exam orders and surveillance are typically handled by medical or occupational health staff, not by EMF safety program leadership. Posting signs for non-EMF hazards falls under general hazard communication and other safety programs, not specifically the EMF safety program. Inspecting civilian EMF equipment would be a maintenance, readiness, or equipment-check task rather than establishing the safety framework. So, the action that best reflects the commander's EMF safety responsibility is establishing a unit EMF safety program, which provides the structured framework for managing EMF exposure risks.

6. Which device is a ground-fixed emitter used to track missiles and satellites?

- A. PAVE PAWS**
- B. Ground Satellites
- C. Field-deployable
- D. Medical Diathermy

A ground-fixed emitter used to track missiles and satellites is a stationary radar system. PAVE PAWS is such a system—the fixed, ground-based, high-power phased-array radar designed for early warning of ballistic missiles and for tracking space objects. It stays in one location and uses electronically steered beams to monitor targets without needing to move the antenna structure. The other options don't fit: Ground Satellites are objects, not devices; field-deployable refers to portable systems that aren't fixed to one site; medical diathermy is a therapeutic RF device for heating tissue, not for tracking missiles or satellites.

7. Airborne Warning and Control Systems are used for?

A. Surveillance and tracking of aircraft.

B. Weather forecasting

C. Encryption of communications

D. Ground vehicle control

Airborne Warning and Control Systems are built to provide broad, real-time awareness of airspace by using a radar-equipped aircraft as a flying command post. The radar sweeps the surrounding area to detect, locate, and track many aircraft at once, giving operators a continuous picture of who is where. This enables rapid decision-making, coordination of friendly aircraft, and vectoring of interceptors or other assets, effectively serving as surveillance and control for air operations. This is why the best choice is surveillance and tracking of aircraft. The other options don't fit the primary role: weather forecasting relies on weather radar and atmospheric data, encryption of communications is a separate security function, and ground vehicle control is not what an AWACS is designed to manage.

8. Ground Satellites are primarily associated with which function?

A. Communications

B. Medical heating

C. Weather monitoring

D. Grounding and safety

Ground-based satellite systems are used to enable long-distance communication by acting as a relay between transmitting and receiving stations. A ground station sends a signal up to a satellite in orbit; the satellite then broadcasts it back down to other stations or users, creating global links for telephone, television, data, and internet services. This role centers on transmitting and receiving RF signals, which is the typical non-ionizing radiation domain involved in communications technology. The other familiar RF applications aren't the primary function here: medical heating uses RF energy for tissue heating in therapies, weather monitoring relies on satellites to observe atmospheric conditions from space rather than relay communications, and grounding and safety pertain to electrical safety practices rather than RF communication roles.

9. Gamma Radiation is emitted from the nucleus of an unstable atom and is ionizing.

A. Emitted from the nucleus of an unstable atom and is ionizing.

B. Emitted from the electron cloud and is non-ionizing.

C. Visible light

D. Infrared radiation

Gamma radiation originates in the nucleus of an unstable atom and has enough energy to ionize matter. That combination—nuclear origin and ionizing capability—defines gamma rays. They're highly penetrating and can eject electrons from atoms, which is why they are classified as ionizing radiation. The other options describe radiation from the electron cloud or lower-energy forms of light (visible or infrared), which are not ionizing under typical exposure. So, the description that gamma radiation comes from the nucleus and is ionizing matches its true nature.

10. What characterizes a continuous wave (CW) emission?

- A. The signal turns on and off in a rapid sequence.
- B. Transmits an RFR signal continuously, without breaks.**
- C. It uses a single-conductor transmission line.
- D. It is emitted by a ground-fixed emitter.

Continuous wave emission means the RF energy is carried by a single carrier that stays on without gaps while the transmitter is active. There is no intentional on/off pulsing or envelope modulation; the signal remains a constant carrier until you turn the transmitter off. This distinguishes it from emissions that deliver energy in bursts or with changing amplitude or frequency. The defining idea is the uninterrupted presence of the carrier, which is why this choice best describes a continuous wave. The other options describe pulsed behavior, or features unrelated to the waveform itself, which is why they aren't correct.

SAMPLE

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://beablock6nonionizingrad.examzify.com>

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

SAMPLE