# ELANCO Advanced Animal Science 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

**1. Name two indicators of heat or heat stress in cattle or poultry.**

**A. Panting and reduced feed intake**

**B. Increased appetite and decreased respiration**

**C. Blue coloration and aggression**

**D. Increased water intake and activity**

**2. Which direction means toward the tail?**

**A. Ventral**

**B. Dorsal**

**C. Caudal**

**D. Cranial**

**3. Which nutrients are associated with preventing white muscle disease?**

**A. Calcium and phosphorus**

**B. Selenium or Vitamin E**

**C. Vitamin C and zinc**

**D. Iron and copper**

**4. What are the nostrils called?**

**A. Naris**

**B. Nares**

**C. Nasal Cavity**

**D. Oris**

**5. Define metabolizable energy (ME) and explain why it's used in feed formulation.**

**A. ME equals energy lost as feces and urine only.**

**B. ME equals gross energy minus fecal energy and urine losses.**

**C. ME equals gross energy minus fecal, urine, and gas losses; used to estimate energy available for maintenance, growth, and production.**

**D. ME equals net energy.**

**6. Name a common zoonotic disease encountered in farm environments.**

**A. Salmonellosis (Salmonella)**

**B. Rabies**

**C. Tetanus**

**D. Lyme disease**

**7. Milk fever is defined as a sudden drop in blood level of which mineral?**

**A. Calcium**

**B. Sodium**

**C. Potassium**

**D. Magnesium**

**8. Which pair of energy components make up net energy (NE) in animal feeds?**

**A. NEm and NEp**

**B. Digestible energy and metabolizable energy**

**C. Gross energy and net energy**

**D. NEp and Gross energy**

**9. What is a common sign that a cow is in estrus?**

**A. Lying down.**

**B. Increased appetite.**

**C. Tail wagging.**

**D. Standing heat (cow stands to be mounted).**

**10. Which of the following best describes NEp?**

**A. Energy used for production**

**B. Energy used for maintenance**

**C. Energy lost as feces**

**D. Energy absorbed in the intestines**

# Answers

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

# Explanations

## 1. Name two indicators of heat or heat stress in cattle or poultry.

**A. Panting and reduced feed intake**

**B. Increased appetite and decreased respiration**

**C. Blue coloration and aggression**

**D. Increased water intake and activity**

**When cattle or poultry are overheating, their body tries to shed heat, so you'll see more rapid, shallow breathing or panting to increase evaporative cooling. At the same time, animals often cut back on food to reduce the heat produced by digestion and metabolism. Taken together, panting and reduced feed intake are reliable and practical signs that heat stress is occurring, since they reflect the animal's immediate cooling effort and a behavioral response to limit internal heat. The other patterns don't fit as well: increased appetite and decreased respiration would actually raise internal heat; blue coloration and aggression aren't typical indicators of heat stress; and while water intake can rise, activity usually decreases rather than increases when animals are heat-stressed.**

## 2. Which direction means toward the tail?

**A. Ventral**

**B. Dorsal**

**C. Caudal**

**D. Cranial**

**Toward the tail means caudal. This set of terms describes directions along the body's long axis. In animals with a head-to-tail orientation, caudal points toward the tail end, while cranial points toward the head. The opposite of caudal is cranial, and the other pair describes ventral and dorsal directions—ventral toward the belly and dorsal toward the back. So, when you move from the head toward the tail, you're moving caudally. For example, the tail is caudal to the hips, whereas the head is cranial to the chest. In humans, ventral and dorsal are often described as anterior and posterior, but the same idea applies: caudal is toward the tail, cranial toward the head.**

## 3. Which nutrients are associated with preventing white muscle disease?

**A. Calcium and phosphorus**

**B. Selenium or Vitamin E**

**C. Vitamin C and zinc**

**D. Iron and copper**

**White muscle disease is prevented by antioxidant nutrients that protect muscle tissue from oxidative damage, notably selenium and Vitamin E. Selenium is a key part of the enzyme glutathione peroxidase, which helps neutralize peroxides that can injure muscle cells, while Vitamin E protects cell membranes from lipid peroxidation. When animals don't get enough of these nutrients, developing muscles can suffer degeneration, leading to weakness and stiff gait in young livestock. Providing adequate selenium in the diet or through supplements, and ensuring sufficient Vitamin E intake (especially in neonates) effectively reduces risk. Other nutrient groups aren't directly linked to preventing this disease, since they pertain more to bone health, blood-related issues, or other aspects of nutrition.**

## 4. What are the nostrils called?

**A. Naris**

**B. Nares**

**C. Nasal Cavity**

**D. Oris**

**Nares is the term used for the nostrils in anatomical language. Each individual opening is a naris, so the plural form for the pair of openings is nares. The nasal cavity refers to the internal space behind the nostrils, not the openings themselves, and oris relates to the mouth. So nares is the best answer for the nostrils.**

## 5. Define metabolizable energy (ME) and explain why it's used in feed formulation.

**A. ME equals energy lost as feces and urine only.**

**B. ME equals gross energy minus fecal energy and urine losses.**

**C. ME equals gross energy minus fecal, urine, and gas losses; used to estimate energy available for maintenance, growth, and production.**

**D. ME equals net energy.**

**Metabolizable energy is the portion of a feed's gross energy that the animal can actually use after accounting for energy lost in feces, urine, and gases produced during digestion. In practical terms, ME = GE minus energy in feces minus energy in urine minus energy lost as gases. This makes ME a better predictor of what the animal can devote to maintenance, growth, and production than gross energy alone. Why this matters in feed formulation is that different feeds vary in how much energy is digested and how much is lost in those pathways. Using ME allows nutritionists to compare feeds on a realistic basis of usable energy, guiding diets to meet energy needs without overestimating what's available. In ruminants, gas losses from fermentation (like methane) are a meaningful part of the total energy loss, so they're included in ME; in non-ruminants, these losses are smaller but the concept still holds—ME sits between gross energy and the more refined net energy by accounting for the main losses after digestion.**

## 6. Name a common zoonotic disease encountered in farm environments.

**A. Salmonellosis (Salmonella)**

**B. Rabies**

**C. Tetanus**

**D. Lyme disease**

**Zoonotic diseases are infections that can pass between animals and people. On farms, people regularly handle animals, feed, water, and equipment, creating opportunities for pathogens to move from animal waste into humans. Salmonella lives in the intestines of many farm animals and is shed in feces, so contact with animals, contaminated surfaces, or contaminated food or water—especially with poultry, eggs, pork, or dairy operations—can readily cause infection in people. That frequent, direct line of contact makes salmonellosis a common farm-related zoonosis and the most likely choice in this context. While rabies, tetanus, and Lyme disease are important zoonoses in broader settings, they are less commonly encountered on farms in everyday scenarios: rabies risk centers on bites from infected animals, tetanus isn't transmitted from animals to humans and is tied to wound contamination, and Lyme disease is tick-borne and less tied to routine farm activities than Salmonella.**

## 7. Milk fever is defined as a sudden drop in blood level of which mineral?

**A. Calcium**

**B. Sodium**

**C. Potassium**

**D. Magnesium**

**Milk fever centers on calcium metabolism. It is a rapid decrease in blood calcium that occurs around calving when a dairy cow's demand for calcium for milk production spikes far beyond what intake and bone stores can quickly supply. This sudden hypocalcemia impairs muscle function and other calcium-dependent processes, which is what we recognize as milk fever. Calcium is the mineral involved here, not sodium, potassium, or magnesium. While those electrolytes are important for overall fluid balance and nerve/muscle function, the defining feature of milk fever is the drop in blood calcium. Magnesium deficiency can cause separate issues like grass tetany, and sodium/potassium imbalances aren't the defining factor for milk fever.**

## 8. Which pair of energy components make up net energy (NE) in animal feeds?

**A. NEm and NEp**

**B. Digestible energy and metabolizable energy**

**C. Gross energy and net energy**

**D. NEp and Gross energy**

**Net energy is the portion of feed energy available to an animal after all losses, and it is split into two parts: energy needed for maintenance and energy available for production. The maintenance portion covers basic body functions and daily upkeep, while the production portion supports growth, milk production, or other productive activities. Adding these two parts gives the total energy the animal can use, so the correct pairing is maintenance energy and production energy. Digestible energy and metabolizable energy are earlier stages in the energy flow and do not directly sum to net energy. Gross energy is the total energy in the feed, not the usable portion after losses, and pairing it with net energy also doesn't reflect how NE is partitioned.**

## 9. What is a common sign that a cow is in estrus?

**A. Lying down.**

**B. Increased appetite.**

**C. Tail wagging.**

**D. Standing heat (cow stands to be mounted).**

**When a cow is in estrus, she shows standing heat—the moment she will stand still to be mounted. This behavior is the clearest, most reliable sign of readiness to mate because it directly indicates receptivity to mating. Other common behaviors, like lying down, increased appetite, or tail wagging, are not specific to estrus and can occur for many reasons, making them poor indicators on their own. Standing heat is what farmers use to time artificial insemination, since it marks the exact window when ovulation is approaching.**

## 10. Which of the following best describes NEp?

**A. Energy used for production**

**B. Energy used for maintenance**

**C. Energy lost as feces**

**D. Energy absorbed in the intestines**

**Net energy for production is the portion of energy that can be allocated to productive processes such as growth, milk, or egg production after the animal's maintenance needs and heat losses have been accounted for. It represents the energy available to drive production, not the energy required just to keep the body functioning. Maintenance energy (the amount needed for daily upkeep) is a separate component, and energy lost in feces or energy absorbed in the intestines are not the energy that remains available for production. So the description that best fits NEp is the energy available for production.**

# 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://elancoadvancedanimalsci.examzify.com**

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