

# Jean Inman Food Science Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

**This is a sample study guide. To access the full version with hundreds of 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. Don't worry about getting everything right, 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, and take breaks to retain information better.**

## 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.**

## 7. Use Other Tools

**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!**

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## **Questions**

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- 1. What kind of carbohydrate is cellulose classified as?**
  - A. A digestible fiber**
  - B. A non-digestible fiber**
  - C. A simple sugar**
  - D. A complex carbohydrate**
- 2. Which regulatory body is responsible for controlling food additives?**
  - A. CDC**
  - B. FAA**
  - C. USDA**
  - D. FDA**
- 3. What does the term “umami” refer to?**
  - A. A sweet flavor commonly found in fruits**
  - B. A savory taste associated with glutamate**
  - C. A sour flavor often in fermented foods**
  - D. A bitter taste associated with dark chocolate**
- 4. Which vitamin is involved in calcium metabolism?**
  - A. Vitamin A**
  - B. Vitamin B12**
  - C. Vitamin C**
  - D. Vitamin D**
- 5. What effect does acid have on anthocyanins?**
  - A. Turns them bluish**
  - B. Turns them colorless**
  - C. Makes them bright red**
  - D. Turns them green**
- 6. How does sugar function in food preservation?**
  - A. By altering the taste of food**
  - B. By creating high osmotic pressure to inhibit microbes**
  - C. By increasing the moisture content**
  - D. By enhancing the color of food products**

**7. What property of sugar makes it hygroscopic and modifies texture by tenderizing?**

- A. Sugar concentration**
- B. Sugar crystalline structure**
- C. Presence of moisture**
- D. Thermal expansion**

**8. What is the purpose of blanching vegetables?**

- A. To reduce their size before canning**
- B. To preserve color, texture, and nutritional value before freezing or canning**
- C. To enhance flavor and reduce bitterness**
- D. To eliminate bacteria completely**

**9. What type of connective tissue is heat resistant and does not change during cooking?**

- A. Collagen**
- B. Elastin**
- C. Fibrous tissue**
- D. Adipose tissue**

**10. What causes food spoilage in refrigerated foods?**

- A. High levels of air exposure**
- B. Microorganisms and enzymatic reactions**
- C. Excessive moisture content**
- D. Insufficient cooling temperatures**

## **Answers**

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

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## **Explanations**

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## 1. What kind of carbohydrate is cellulose classified as?

- A. A digestible fiber
- B. A non-digestible fiber**
- C. A simple sugar
- D. A complex carbohydrate

Cellulose is classified as a non-digestible fiber due to its structural composition and the way it interacts with human digestive enzymes. It is a type of carbohydrate that is found in the cell walls of plants and serves as a crucial component for their structure. Humans lack the enzymes necessary to break down cellulose into its component glucose units, meaning it cannot be digested in the same way that other carbohydrates can. Instead, cellulose passes through the digestive system largely intact and contributes to dietary fiber intake. This non-digestibility is significant because it helps regulate bowel movements, contributes to feelings of fullness, and can assist in maintaining overall digestive health. While cellulose is also considered a complex carbohydrate because it is a polymer consisting of many sugar molecules linked together, its classification as a non-digestible fiber is more pertinent in the context of human nutrition and digestion.

## 2. Which regulatory body is responsible for controlling food additives?

- A. CDC
- B. FAA
- C. USDA
- D. FDA**

The Food and Drug Administration (FDA) is the regulatory body responsible for overseeing food additives in the United States. This agency ensures that food products, including any substances added to them, are safe for consumption and appropriately labeled. The FDA evaluates the safety of food additives before they can be used in foods, which includes conducting research and analysis to determine any potential health risks. Regulations set forth by the FDA require that food additives demonstrate safety and efficacy, and that there is sufficient evidence to support their intended use in food products. The FDA's rigorous approval process for these additives helps protect public health by ensuring that only substances considered safe are permitted in the food supply. The other regulatory bodies mentioned, such as the Centers for Disease Control and Prevention (CDC), the Federal Aviation Administration (FAA), and the United States Department of Agriculture (USDA), have specific roles related to public health, aviation safety, and agricultural products, respectively, but they do not control food additives directly like the FDA does.

### 3. What does the term “umami” refer to?

- A. A sweet flavor commonly found in fruits
- B. A savory taste associated with glutamate**
- C. A sour flavor often in fermented foods
- D. A bitter taste associated with dark chocolate

The term “umami” refers to a savory taste that is primarily associated with glutamate, which is an amino acid. This flavor profile enhances the overall taste experience of foods and is often found in ingredients like aged cheeses, meats, mushrooms, and fermented products such as soy sauce. Umami is recognized as one of the five basic tastes, alongside sweet, sour, salty, and bitter. The concept of umami was first identified by Japanese chemist Kikunae Ikeda in the early 20th century when he discovered that glutamate contributed to the deliciousness of certain foods. This discovery has led to a greater understanding of flavor profiles in cooking and food pairings, emphasizing that umami plays a key role in the balance and enjoyment of meals.

### 4. Which vitamin is involved in calcium metabolism?

- A. Vitamin A
- B. Vitamin B12
- C. Vitamin C
- D. Vitamin D**

Vitamin D plays a crucial role in calcium metabolism as it is integral in regulating calcium and phosphate levels in the bloodstream, which are essential for maintaining healthy bones and teeth. When the body is exposed to sunlight, it synthesizes vitamin D, which then promotes the absorption of calcium from the diet through the intestinal walls. Additionally, vitamin D helps maintain adequate calcium levels in the body by promoting its reabsorption in the kidneys and facilitating the release of calcium from bone stores when necessary. Without sufficient vitamin D, calcium absorption is significantly impaired, leading to potential health issues such as rickets in children and osteomalacia or osteoporosis in adults. This highlights the essential role that vitamin D plays in maintaining overall calcium balance and bone health within the human body.

## 5. What effect does acid have on anthocyanins?

- A. Turns them bluish
- B. Turns them colorless
- C. Makes them bright red**
- D. Turns them green

Anthocyanins are water-soluble pigments found in many fruits and vegetables, and they are responsible for red, purple, and blue colors. The color of anthocyanins can be significantly influenced by pH and acidity. In acidic environments, such as when blended with lemon juice or other acidic foods, anthocyanins tend to stabilize in a brighter red form. This occurs because the chemical structure of anthocyanins enables them to absorb light differently depending on the acidity, which enhances their red hues. The relationship between pH and anthocyanin color is an important aspect of food science, particularly in helping to understand how to achieve desired colors in various food products. The other options, such as turning bluish or colorless, do not accurately represent the chemistry of anthocyanins in acidic conditions. In basic conditions, they might shift toward bluish shades or become less vibrant; however, in acidic conditions, they enhance the vividness of red, making the correct choice reflective of the behavior of anthocyanins in such environments.

## 6. How does sugar function in food preservation?

- A. By altering the taste of food
- B. By creating high osmotic pressure to inhibit microbes**
- C. By increasing the moisture content
- D. By enhancing the color of food products

Sugar plays a significant role in food preservation primarily by creating high osmotic pressure, which inhibits the growth of microorganisms. When sugar is added to foods, it dissolves and creates a hypertonic environment. This means that the concentration of sugar is greater outside the microbial cells than inside. Due to osmosis, water is drawn out of the microbial cells, leading to dehydration and ultimately limiting their ability to grow and reproduce. This property of sugar is utilized in various preservation methods, most notably in the making of jams, jellies, and syrups, where the high sugar content effectively reduces the water activity in the food. As water activity decreases, the conditions become less favorable for bacteria, yeasts, and molds, effectively prolonging shelf life and maintaining safety in preserved foods. The other options do not accurately reflect the primary role that sugar plays in the preservation process. While sugar can enhance taste and contribute to color, these aspects do not directly involve food preservation. Likewise, sugar does not increase moisture content; in fact, it often reduces available moisture through its preservative effect. Thus, the ability of sugar to create high osmotic pressure and inhibit microbial growth is fundamental to its function in food preservation.

**7. What property of sugar makes it hygroscopic and modifies texture by tenderizing?**

- A. Sugar concentration**
- B. Sugar crystalline structure**
- C. Presence of moisture**
- D. Thermal expansion**

The property of sugar that makes it hygroscopic and modifies texture through tenderization is its presence of moisture. Sugar has the ability to attract and retain moisture from the environment, which is referred to as hygroscopicity. This characteristic allows sugar to absorb water, which can lead to a softer texture in baked goods. When sugar is incorporated into recipes, especially in baked items such as cakes and cookies, it not only provides sweetness but also contributes to the overall moisture retention. This moisture helps to prevent the final product from becoming dry and crumbly, resulting in a more tender and desirable texture. In addition to its role in moisture retention, sugar can also influence the structure of baked goods by interfering with gluten formation. This can further enhance tenderness, as the sugar modifies the texture by providing a softer crumb. The other choices do not accurately capture the role of sugar in terms of hygroscopicity and texture modification. Sugar concentration alone does not explain its ability to retain moisture, the crystalline structure does not directly correlate to its hygroscopic nature, and thermal expansion pertains more to how materials respond to heat rather than sugar's interaction with moisture.

**8. What is the purpose of blanching vegetables?**

- A. To reduce their size before canning**
- B. To preserve color, texture, and nutritional value before freezing or canning**
- C. To enhance flavor and reduce bitterness**
- D. To eliminate bacteria completely**

Blanching vegetables serves an important role in food preparation, particularly when it comes to preserving the quality of vegetables for freezing or canning. The primary purpose is to preserve the color, texture, and nutritional value of the vegetables. During the blanching process, vegetables are briefly immersed in boiling water, which helps in halting enzyme actions that can cause loss of flavor, color, and texture, as well as degradation of nutrients. This process also helps to clean the surface of the vegetables, remove dirt and organisms, and prepare them for freezing or canning by reducing the time needed in these preservation processes. This technique is crucial because it maintains the vibrant color of fruits and vegetables, keeps their crispness, and helps retain vitamins and minerals. After blanching, vegetables can be quickly cooled in ice water to stop the cooking process, further preserving their quality before they are packaged for freezing or canned. In contrast to other options, reducing size is not a primary goal of blanching, nor does it significantly enhance flavor or reduce bitterness. While blanching can help reduce the microbial load on the surface of vegetables, it does not guarantee complete elimination of bacteria, which is why proper food handling and storage practices are also necessary.

**9. What type of connective tissue is heat resistant and does not change during cooking?**

- A. Collagen**
- B. Elastin**
- C. Fibrous tissue**
- D. Adipose tissue**

The correct answer is elastin. This type of connective tissue is known for its toughness and elasticity, which allows it to withstand changes in heat without breaking down during cooking processes. Unlike collagen, which tends to soften and break down when exposed to heat, elastin retains its structure even after prolonged cooking. Elastin is primarily found in certain animal tissues, particularly in the connective tissues of tendons and ligaments, where its ability to return to shape after stretching is essential for the functionality of these structures. The other options, while important types of connective tissues, involve changes when exposed to heat. Collagen, for example, becomes more tender when cooked, particularly when moist heat is applied over time, as it converts to gelatin. Fibrous tissue is a broader category that can include collagen as well, making it inherently more susceptible to heat. Adipose tissue is primarily fat and does not possess the properties associated with elastin or collagen in the context of cooking temperatures.

**10. What causes food spoilage in refrigerated foods?**

- A. High levels of air exposure**
- B. Microorganisms and enzymatic reactions**
- C. Excessive moisture content**
- D. Insufficient cooling temperatures**

Food spoilage in refrigerated foods is primarily caused by the activity of microorganisms and enzymatic reactions. Refrigeration slows down the growth of bacteria, molds, and yeasts, which are the main microorganisms responsible for food spoilage. However, it does not completely stop their growth. Enzymatic reactions can also lead to deterioration of food quality, affecting flavor, texture, and color. These enzymes, naturally present in foods, continue to function even at lower temperatures, slowly breaking down food components. For instance, enzymes can lead to the browning of cut fruits and vegetables or the softening of meats. Though refrigeration significantly slows down these processes, it does not eliminate them, leading to spoilage over time. This is why monitoring and maintaining appropriate storage times in the refrigerator is crucial for food safety. While high levels of air exposure can contribute to spoilage by promoting oxidation and drying out food, it is not the primary cause in a refrigerated environment where moisture levels are generally controlled. Excessive moisture can lead to microbial growth, but it is not a root cause in the same way that microorganisms and enzymes are. Insufficient cooling temperatures can certainly lead to spoilage, as warmer environments allow for increased microbial growth; however, the fundamental factors of spoilage remain

# 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://jeaninmanfoodscience.examzify.com>**

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

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