

FOOD SCIENCE CDE 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

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1. In the Maillard reaction, which of the following is not considered a reducing sugar?
 - A. Sucrose
 - B. Glucose
 - C. Maltose
 - D. Lactose
2. A solution that contains less solute than can be dissolved in it at a given temperature is called a(n) _____ solution.
 - A. Unsaturated
 - B. Saturated
 - C. Supersaturated
 - D. Hypersaturated
3. What is the pH range of most foods?
 - A. A. Acid
 - B. B. Base
 - C. C. Neutral
 - D. D. Acid and Base
4. The water content in fruits, vegetables, and meats typically ranges between what percentage?
 - A. 10-30
 - B. 30-50
 - C. 50-70
 - D. 70-90
5. Which breed of cow has the highest percentage of butterfat in their milk for ice cream production?
 - A. Jersey
 - B. Holstein
 - C. Shorthorn
 - D. Brown Swiss

- 6. Anthocyanins will create which colors in certain foods?**
- A. Green and red
 - B. Red and blue
 - C. Purple and brown
 - D. Yellow and red
- 7. What is measured to determine the acidity or alkalinity of a food system?**
- A. Water activity
 - B. Brix
 - C. pH
 - D. sodium concentration
- 8. Which vegetable is expected to generate the most heat during confined storage?**
- A. Snap beans (5600 BTU/Ton/24 hours)
 - B. Asparagus (3440 BTU/Ton/12 hours)
 - C. Cucumbers (8400 BTU/Ton/48 hours)
 - D. Lima beans (4100 BTU/Ton/6 hours)
- 9. Which organization regulates the use of food additives in the United States?**
- A. Food and Drug Administration
 - B. United States Department of Agriculture
 - C. Department of Health and Human Services
 - D. Animal and Plant Health Inspection Services
- 10. What is the recommended length of time that hands should be washed prior to handling food to prevent disease spread?**
- A. 10 seconds
 - B. 15 seconds
 - C. 20 seconds
 - D. 25 seconds

Answers

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

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Explanations

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1. In the Maillard reaction, which of the following is not considered a reducing sugar?

- A. Sucrose
- B. Glucose
- C. Maltose
- D. Lactose

In the context of the Maillard reaction, reducing sugars play a crucial role because they contain a free aldehyde or ketone group capable of participating in the reaction with amino acids, leading to the development of complex flavors and brown pigments in cooked foods. Sucrose is not classified as a reducing sugar because it is a disaccharide composed of glucose and fructose linked by a glycosidic bond. In this bond, the anomeric carbon of glucose is involved in the linkage, and as a result, it does not have a free aldehyde or ketone group available for reaction. This absence of a free carbonyl group means that sucrose cannot act as a reducing agent, which is essential for the Maillard reaction to occur. On the other hand, glucose, maltose, and lactose are all reducing sugars because they possess the necessary free aldehyde or ketone functional groups that can undergo oxidation and react with amino acids. Thus, the correct identification of sucrose as a non-reducing sugar in the context of the Maillard reaction is important for understanding how different carbohydrates behave during cooking and food processing.

2. A solution that contains less solute than can be dissolved in it at a given temperature is called a(n) _____ solution.

- A. Unsaturated
- B. Saturated
- C. Supersaturated
- D. Hypersaturated

A solution that contains less solute than can be dissolved at a given temperature is termed an unsaturated solution. In an unsaturated solution, there is still capacity for more solute to be dissolved, which means that if additional solute is added, it will dissolve until the solution reaches a point of saturation. This definition highlights the dynamics of solubility and the limits of how much solute can be incorporated into a solvent at any temperature. In contrast, a saturated solution is one where the maximum amount of solute has been dissolved, resulting in any additional solute remaining undissolved. A supersaturated solution involves more solute than can be dissolved at that temperature under normal conditions, which is a unique and often unstable state. Hypersaturated is not a standard term used in this context and doesn't apply to the classification of solutions.

3. What is the pH range of most foods?

- A. A. Acid
- B. B. Base
- C. C. Neutral
- D. D. Acid and Base

Most foods fall within an acidic pH range, typically between 4.0 and 7.0. This acidity is due to naturally occurring organic acids found in food items such as fruits (e.g., citric acid in oranges and acetic acid in vinegar). Foods with a lower pH are not just limited to fruits; many fermented products and pickled items also display acidity due to the fermentation process, which often produces lactic acid or acetic acid. The preservation of several foods is enhanced through their acidic nature, as lower pH levels inhibit the growth of many pathogenic bacteria and spoilage organisms. Foods that are neutral, with a pH around 7.0, are less common, and those considered basic (above a pH of 7.0) are even rarer in typical diets. Thus, the overwhelming majority of foods, especially when considering fruits, vegetables, dairy, and fermented products, exhibit acidity as a predominant characteristic, making the correct answer appropriate.

4. The water content in fruits, vegetables, and meats typically ranges between what percentage?

- A. 10-30
- B. 30-50
- C. 50-70
- D. 70-90

The water content in fruits, vegetables, and meats is indeed typically in the range of 70-90%. This high percentage of water plays several crucial roles in the structure, texture, and overall quality of these foods. For fruits and vegetables, the high water content helps to maintain crispness and freshness, which are desirable properties in these food categories. Water also aids in the transport of nutrients and helps with various physiological processes within the plant. In meats, water contributes significantly to juiciness and tenderness, factors that are critical for the sensory attributes that consumers expect. Additionally, the high moisture content can influence food safety and spoilage. Many microorganisms thrive in moist environments, making water activity a critical consideration in food preservation and processing. Therefore, the answer emphasizing the range of 70-90% aligns with the scientific understanding of the moisture content significantly impacting the characteristics and quality of these food groups.

5. Which breed of cow has the highest percentage of butterfat in their milk for ice cream production?

- A. Jersey
- B. Holstein
- C. Shorthorn
- D. Brown Swiss

Jersey cows are known for producing the milk with the highest butterfat content among common dairy breeds. On average, Jersey milk contains about 4.5% to 5.5% butterfat, which is significantly higher than that of other breeds like Holsteins, Shorthorns, and Brown Swiss. The increased butterfat is particularly advantageous for ice cream production, as it contributes to a creamier texture and richer flavor, making the final product more appealing to consumers. This higher butterfat content also allows for better whipping ability and mouthfeel, essential qualities in quality ice cream.

6. Anthocyanins will create which colors in certain foods?

- A. Green and red
- B. Red and blue**
- C. Purple and brown
- D. Yellow and red

Anthocyanins are water-soluble pigments found in various fruits, vegetables, and flowers, and they are primarily responsible for the red, blue, and purple colors in these foods. The specific color that anthocyanins exhibit can vary depending on the pH level of the environment. In acidic conditions, anthocyanins tend to appear red, while in neutral to alkaline conditions, they can appear blue. Thus, the presence of anthocyanins in certain foods predominantly results in red and blue hues. The correct answer aligns with the way anthocyanins manifest in different pH environments, reflecting their versatility in contributing to the coloration of many fruits (like cherries and blueberries) and vegetables. Understanding the role of anthocyanins is crucial in food science, especially regarding the visual appeal of food products and their potential health benefits.

7. What is measured to determine the acidity or alkalinity of a food system?

- A. Water activity
- B. Brix
- C. pH**
- D. sodium concentration

The measurement used to determine the acidity or alkalinity of a food system is pH. This scale, which ranges from 0 to 14, indicates how acidic or basic a solution is, with values below 7 representing acidity, a value of 7 being neutral, and values above 7 indicating alkalinity. It's crucial in food science because the pH levels can influence flavor, preservation, and microbial growth in food products. For instance, many preservation methods, such as pickling, rely on maintaining a low pH to inhibit pathogen growth. In contrast, water activity measures the availability of water for microbial growth and does not directly indicate acidity or alkalinity. Brix is a scale used to measure the sugar content in solutions, particularly in fruit juices and syrups, while sodium concentration refers to the amount of sodium in a food, which, though it can affect flavor, doesn't provide insight into the food's acidity or alkalinity. Thus, pH is the key metric for assessing these characteristics in food systems.

8. Which vegetable is expected to generate the most heat during confined storage?

- A. Snap beans (5600 BTU/Ton/24 hours)
- B. Asparagus (3440 BTU/Ton/12 hours)
- C. Cucumbers (8400 BTU/Ton/48 hours)
- D. Lima beans (4100 BTU/Ton/6 hours)**

In the context of confined storage, the heat generated by vegetables is measured in BTUs (British Thermal Units) and relates to the respiration rates of the produce. The correct choice indicates that lima beans produce a significant amount of heat during storage, with a value of 4100 BTU per ton over 6 hours. This high respiration rate suggests that as lima beans breathe, they metabolize sugars and produce heat, which is critical for understanding how to manage the storage environment to prevent spoilage and maintain quality. Considering the respiration rates provided for the other vegetables, snap beans, asparagus, and cucumbers have comparatively lower BTU values relative to the time frames given. While cucumbers show a high BTU value over 48 hours, the total heat generated per ton over that extended timeframe is still lower than what lima beans can produce over a shorter duration. Therefore, the lima beans exhibit a more intense heat generation, which is crucial for anyone in food storage or handling to be aware of, as it can greatly influence the temperature and quality control measures that need to be taken.

9. Which organization regulates the use of food additives in the United States?

- A. Food and Drug Administration**
- B. United States Department of Agriculture
- C. Department of Health and Human Services
- D. Animal and Plant Health Inspection Services

The Food and Drug Administration (FDA) is responsible for regulating food additives in the United States. This organization ensures that any substances added to food products are safe for consumption and meet established standards for effectiveness. The FDA evaluates data from scientific studies, safety assessments, and other evidence to determine whether a food additive can be approved for use. Food additives encompass a wide variety of substances, including preservatives, flavor enhancers, and colorings, among others. The FDA's authority allows it to mandate pre-market safety studies and to monitor ongoing safety once the additives are in use. This regulatory process is vital for protecting public health and ensuring that food products are safe and accurately labeled. While the other organizations listed have important roles in food regulation, they do not specifically focus on food additives. The United States Department of Agriculture (USDA) primarily deals with agricultural products and the safety of meat, poultry, and egg products. The Department of Health and Human Services (HHS) encompasses a broader scope of health regulations but does not directly manage food additives. The Animal and Plant Health Inspection Service (APHIS) focuses on the health of animals and plants, not human food safety or additives.

10. What is the recommended length of time that hands should be washed prior to handling food to prevent disease spread?

- A. 10 seconds
- B. 15 seconds
- C. 20 seconds**
- D. 25 seconds

Washing hands thoroughly for 20 seconds is the widely recommended duration to effectively remove pathogens and contaminants before handling food. This duration allows adequate time to ensure that all areas of the hands, including between the fingers and under the nails, are cleaned properly. The effectiveness of handwashing in reducing the transmission of foodborne illnesses is well-supported by research, which emphasizes that a longer washing time significantly enhances the removal of harmful microorganisms. While shorter durations, such as 10 or 15 seconds, might seem adequate for basic cleaning, they are not long enough to ensure thorough sanitization, especially in environments where food safety is paramount. Likewise, washing for 25 seconds, although it may seem more thorough, exceeds the optimal amount of time recommended for balancing effectiveness and practicality in food-handling practices. Consistency in following the 20-second guideline helps promote better hygiene and reduces the risk of foodborne diseases.

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://foodsciencecde.examzify.com>

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

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