

HCC1 GLUCOSE REGULATION PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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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. Low or absent C-peptide is most consistent with which type of diabetes?**
 - A. Type 1 diabetes
 - B. Type 2 diabetes
 - C. Gestational diabetes
 - D. Prediabetes
- 2. Which part of the kidney reabsorbs glucose and amino acids?**
 - A. Distal tubule
 - B. Loop of Henle
 - C. Collecting duct
 - D. Proximal tubule
- 3. In non-ICU inpatients with hyperglycemia, what is the typical target blood glucose range?**
 - A. 140-180 mg/dL.
 - B. 80-120 mg/dL.
 - C. 200-240 mg/dL.
 - D. 300-350 mg/dL.
- 4. How does exercise acutely increase glucose uptake by muscles?**
 - A. Muscle contraction activates AMPK and other pathways that promote GLUT4 translocation to the cell membrane, increasing glucose uptake independent of insulin.
 - B. Exercise increases insulin secretion to raise glucose uptake.
 - C. Liver glycogenolysis is stimulated to supply glucose to muscles.
 - D. Adipose tissue releases insulin-like growth factor to enhance uptake.
- 5. How does stress hyperglycemia differ from chronic diabetes?**
 - A. It occurs during acute illness with elevated counterregulatory hormones and is usually transient; HbA1c may be normal or mildly elevated
 - B. It is autoimmune in nature like type 1 diabetes
 - C. It causes permanent beta-cell loss
 - D. It is identical to chronic diabetes

- 6. A client with type 1 diabetes newly diagnosed is learning to self-administer injections with an insulin pen. Which of the following actions is NOT recommended during injection technique?**
- A. Prime the needle with two units
 - B. Use a 29-gauge insulin needle
 - C. Recap the needle
 - D. Dial the pen to deliver the unit dose
- 7. What fasting glucose level defines prediabetes?**
- A. 100-125 mg/dL
 - B. 126-139 mg/dL
 - C. 90-99 mg/dL
 - D. 125-140 mg/dL
- 8. Which complication associated with type 1 diabetes should the nurse include in the teaching plan for the parent of a newly diagnosed child?**
- A. Obesity
 - B. Ketoacidosis
 - C. Resistance to treatment
 - D. Hypersensitivity to other medications
- 9. The risk for which pregnancy complication is increased in the client with type 1 diabetes mellitus?**
- A. Hypertensive disorders of pregnancy
 - B. Placenta accreta
 - C. Increased appetite
 - D. Oligohydramnios in the third trimester
- 10. A typical target range for time-in-range (TIR) in CGM is which of the following?**
- A. 60-140 mg/dL
 - B. 100-180 mg/dL
 - C. 70-180 mg/dL
 - D. 80-160 mg/dL

Answers

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

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Explanations

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1. Low or absent C-peptide is most consistent with which type of diabetes?

- A. Type 1 diabetes
- B. Type 2 diabetes
- C. Gestational diabetes
- D. Prediabetes

C-peptide levels reflect how much insulin the pancreas is producing on its own, since C-peptide is released in equal amounts with insulin when beta cells secrete insulin. In type 1 diabetes, autoimmune destruction of beta cells severely reduces or eliminates endogenous insulin production, so C-peptide becomes very low or absent. This is the hallmark that helps distinguish it from other forms where some insulin is still made. In type 2 diabetes, insulin production is typically preserved or even increased early on, so C-peptide levels are normal or elevated rather than low. Gestational diabetes involves insulin resistance during pregnancy with relatively preserved or compensatorily increased insulin secretion, so C-peptide tends to be normal or high. Prediabetes also features impaired glucose tolerance with ongoing or compensatory insulin production, so C-peptide is not low. Thus, low or absent C-peptide most strongly points to type 1 diabetes.

2. Which part of the kidney reabsorbs glucose and amino acids?

- A. Distal tubule
- B. Loop of Henle
- C. Collecting duct
- D. Proximal tubule

Glucose and amino acids are carried back into the blood mainly in the proximal tubule. The reabsorption process starts at the apical membrane, where glucose is taken into the tubular cell by sodium-glucose co-transporters: most of it is reabsorbed by the early proximal tubule via SGLT2, with the remainder handled by SGLT1 in the later part. Amino acids are reabsorbed by dedicated sodium-dependent amino acid transporters. In both cases, the driving force is the sodium gradient maintained by the Na⁺/K⁺-ATPase on the basolateral membrane, which keeps Na⁺ low inside the cell and powers the transporters to move solutes from the filtrate into the cells and then into the bloodstream. The other nephron segments—Loop of Henle, distal tubule, and collecting duct—primarily handle water and various ions and adjust acid-base balance; they do not normally reabsorb significant amounts of glucose or amino acids. If the filtered glucose load is high enough to saturate the proximal transporters, glucose spills into the urine, illustrating where reabsorption capacity is located.

3. In non-ICU inpatients with hyperglycemia, what is the typical target blood glucose range?

- A. 140-180 mg/dL
- B. 80-120 mg/dL
- C. 200-240 mg/dL
- D. 300-350 mg/dL

In non-ICU inpatients with hyperglycemia, the goal is to keep glucose in a safe, balanced range that reduces complications without causing dangerous hypoglycemia. The typical target is 140–180 mg/dL, which provides effective glycemic control while accounting for fluctuations in meal intake, infections, and overall illness that can make tight glucose control risky. A tighter target like 80–120 mg/dL would raise hypoglycemia risk in patients with irregular meals or variable insulin needs. Conversely, allowing levels to stay in the 200–240 mg/dL or higher range is associated with worse outcomes, including infection risk and dehydration. So 140–180 mg/dL is the commonly recommended middle ground for most non-ICU inpatients.

4. How does exercise acutely increase glucose uptake by muscles?

- A. Muscle contraction activates AMPK and other pathways that promote GLUT4 translocation to the cell membrane, increasing glucose uptake independent of insulin.**
- B. Exercise increases insulin secretion to raise glucose uptake.
- C. Liver glycogenolysis is stimulated to supply glucose to muscles.
- D. Adipose tissue releases insulin-like growth factor to enhance uptake.

During exercise, muscles need glucose fast, and they gain it through contraction-activated signaling that moves GLUT4 transporters to the muscle cell surface. When a muscle contracts, energy demand rises, triggering an increase in the AMP/ATP ratio and calcium signaling. These cues activate AMPK and related pathways, which cause GLUT4-containing vesicles to translocate to the plasma membrane. With GLUT4 at the surface, glucose enters the muscle more readily, and this happens even if insulin isn't driving uptake. This rapid, insulin-independent mechanism lets active muscles quickly fuel glycolysis and maintain performance. Insulin secretion isn't the main trigger for this immediate uptake during exercise, and liver glycogenolysis mainly affects glucose availability in the blood rather than directly boosting muscle uptake. IGF-related effects from adipose tissue aren't the driving factor for acute, contraction-mediated glucose entry into muscle.

5. How does stress hyperglycemia differ from chronic diabetes?

- A. It occurs during acute illness with elevated counterregulatory hormones and is usually transient; HbA1c may be normal or mildly elevated
- B. It is autoimmune in nature like type 1 diabetes
- C. It causes permanent beta-cell loss
- D. It is identical to chronic diabetes**

Stress hyperglycemia is a temporary rise in blood glucose that occurs during acute illness or physiological stress. It happens because counterregulatory hormones (like glucagon, cortisol, catecholamines) and inflammatory signals surge, increasing glucose production by the liver and reducing insulin action. Because this is tied to the acute event, the hyperglycemia usually resolves once the illness improves. HbA1c, which reflects average glucose over the past 2–3 months, may remain normal or only be mildly elevated if there wasn't long-standing hyperglycemia before the stress. Chronic diabetes, on the other hand, is a persistent condition caused by ongoing beta-cell dysfunction and/or insulin resistance, often with autoimmune destruction in type 1 or long-standing metabolic impairment in type 2, leading to sustained hyperglycemia and higher HbA1c that persists beyond acute episodes. So the key distinction is transient glucose elevation during acute illness with possibly normal or only mildly elevated HbA1c, versus long-term, persistent diabetes.

6. A client with type 1 diabetes newly diagnosed is learning to self-administer injections with an insulin pen. Which of the following actions is NOT recommended during injection technique?

- A. Prime the needle with two units
- B. Use a 29-gauge insulin needle
- C. Recap the needle**
- D. Dial the pen to deliver the unit dose

The practice of giving insulin with a pen centers on delivering the exact dose safely into the subcutaneous tissue. Each step is about accuracy of dose and minimizing risk or discomfort. Recapping the needle after injection is not recommended because it raises the risk of needle-stick injuries and potential contamination. Once a needle is used, it should be disposed of in a sharps container without reseating or recapping, to protect you and others and to keep the device safe for disposal. Priming with a small amount, like two units, helps verify insulin flow so you're sure the pen is delivering correctly and there are no air bubbles in the line. Using a thin gauge needle, such as a 29-gauge needle, reduces pain and tissue trauma, which makes injections more tolerable, especially for someone new to self-injection. Dialing to the prescribed dose ensures you deliver the intended amount of insulin, which is essential for maintaining glycemic control. So, the action that is not recommended is recapping the needle after the injection.

7. What fasting glucose level defines prediabetes?

- A. 100-125 mg/dL**
- B. 126-139 mg/dL
- C. 90-99 mg/dL
- D. 125-140 mg/dL

Prediabetes is identified by fasting glucose levels that are elevated but not yet in the diabetes range. The accepted range for prediabetes is 100 to 125 mg/dL after an 8-hour fast, which is why this option is the best choice. Values below 100 mg/dL are considered normal, while a fasting level of 126 mg/dL or higher on two occasions indicates diabetes. The other ranges either fall into the normal zone or extend into diabetes, so they don't define prediabetes.

8. Which complication associated with type 1 diabetes should the nurse include in the teaching plan for the parent of a newly diagnosed child?

- A. Obesity
- B. Ketoacidosis**
- C. Resistance to treatment
- D. Hypersensitivity to other medications

Diabetic ketoacidosis is the urgent complication to focus on when teaching parents of a newly diagnosed child. It happens when there isn't enough insulin, so the body can't use glucose properly and starts breaking down fat for energy. That fat breakdown creates ketones, which build up in the blood and lead to dehydration and a dangerous acid-base imbalance. In children, DKA can develop quickly, especially during illness, when insulin doses are missed, or fluid intake is not maintained. So teaching should emphasize recognizing early signs—more thirst and urination, unintended weight loss, fatigue, abdominal pain or vomiting, fast or deep breathing, fruity breath—and knowing when to take action: check blood glucose and ketones, keep up with insulin and fluids as prescribed, and seek urgent care if vomiting prevents fluids, if glucose remains high with positive ketones, or if signs of dehydration or altered mental status appear. Other options listed aren't the immediate teaching targets here; obesity isn't an acute complication of new-onset type 1 diabetes, and resistance to treatment or hypersensitivity to medications aren't typical concerns at this stage.

9. The risk for which pregnancy complication is increased in the client with type 1 diabetes mellitus?

A. Hypertensive disorders of pregnancy

B. Placenta accreta

C. Increased appetite

D. Oligohydramnios in the third trimester

In type 1 diabetes, the combination of chronic hyperglycemia and vascular changes in the mother makes hypertensive disorders in pregnancy more likely. The high glucose levels contribute to endothelial dysfunction and increased oxidative stress, which can stiffen and narrow blood vessels. This vascular strain raises the risk of developing gestational hypertension and preeclampsia as the placenta forms and implants. Abnormal placental development in diabetic pregnancies can further disrupt placental perfusion, feeding into the cycle that elevates blood pressure during pregnancy. Placenta accreta isn't a typical consequence of type 1 diabetes; it's more tied to prior uterine scarring and placenta previa. Increased appetite isn't a complication but a symptom, and oligohydramnios in the third trimester isn't the best fit for this scenario—diabetic pregnancies more often feature polyhydramnios due to fetal polyuria from maternal hyperglycemia, though other issues can modify amniotic fluid levels.

10. A typical target range for time-in-range (TIR) in CGM is which of the following?

A. 60-140 mg/dL

B. 100-180 mg/dL

C. 70-180 mg/dL

D. 80-160 mg/dL

Time-in-range is the share of time your glucose values from CGM fall within a defined target window. The standard window most guidelines use is 70 to 180 mg/dL. This range is chosen because it minimizes the risk of hypoglycemia (glucose staying above about 70 mg/dL) while also limiting hyperglycemia (staying below about 180 mg/dL), providing a practical balance for daily life. Clinically, staying largely within this band is associated with better overall glucose control and fewer lows, which is why it's the commonly used target. The other ranges are more restrictive or do not align with how CGM-based TIR is typically defined, so they aren't the standard reference for time-in-range.

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://hcc1glucosereg.examzify.com>

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

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