PROGRAMMABLE LOGIC CONTROLLER (PLC) PRACTICE TEST (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.

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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!

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Questions

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1. Which PLC component is directly responsible for turning field devices on or off?

A. Power supply

B. Input module

C. Output module

D. CPU

2. An AND gate operates on the same principle as a

A. Parallel circuit

B. Series circuit

C. Open circuit

D. Short circuit

3. Current sink modules are characterized by which statement?

A. Current flows into the field device

B. Current flows out of the field device

C. Current circulates freely in the circuit

D. No current flows through sink modules

4. When is the XIO instruction true with respect to a physical input terminal?

A. There is input voltage applied to the terminal

B. There is no input voltage at the terminal

C. Voltage is alternating

D. Voltage is reversed

5. Which type of relay maintains its contact state after the control coil is energized only momentarily?

A. Latch

B. Momentary

C. Magnetic

D. Reed

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6. Which action is commonly performed by a programming device?

A. Loading a new program into the PLC

B. Replacing the PLC CPU hardware

C. Reconfiguring I/O hardware in the field

D. Providing plant-wide network security

7. For the AC discrete input module circuit schematic, what is the purpose of the filter section?

A. To protect against electrical noise interference

B. To increase signal strength

C. To convert AC to DC

D. To reduce power consumption

8. What is the main advantage of using a voltage sensing device over a current sensing device for analog inputs?

A. Higher precision.

B. Faster response time.

C. Lower cost.

D. Easier wiring.

9. The XIO instruction evaluates to true when the addressed memory bit is what value?

A. 1

B. 0

C. -1

D. 2

10. Which description best defines sensors?

A. Devices that measure physical quantities such as temperature, light, pressure, speed, etc.

B. Devices that generate electrical power

C. Actuators that move mechanical parts

D. Signal processors

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Answers

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

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Explanations

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1. Which PLC component is directly responsible for turning field devices on or off?

A. Power supply

B. Input module

C. Output module

D. CPU

The output module is what directly turns field devices on or off. In a PLC, the input module gathers signals from sensors, the CPU runs the program logic, and then the output module drives the actuators by applying or removing power to them. This is how a relay, contactor, motor starter, lamp, or valve is energized or de-energized to achieve the desired action. The power supply simply provides the necessary electrical power to the system, while the CPU handles decision-making and the input module provides the sensed data.

2. An AND gate operates on the same principle as a

A. Parallel circuit

B. Series circuit

C. Open circuit

D. Short circuit

The concept tested is that an AND gate outputs a true result only when all inputs are true. This matches a series circuit where current can flow to the load only if every switch in the path is closed. If any switch is open, the circuit is broken and the load stays off, just like the AND gate output going low when any input is low. In a parallel circuit, current can reach the load through any closed path, which aligns more with an OR gate. An open circuit is simply a broken connection with no current, and a short circuit is an unintended, low-resistance path—neither represents the controlled, all-conditions-needed behavior of an AND gate.

3. Current sink modules are characterized by which statement?

A. Current flows into the field device

B. Current flows out of the field device

C. Current circulates freely in the circuit

D. No current flows through sink modules

Current sink modules pull current from the field devices toward the return path. In a sinking output, the load is connected to the positive supply, and the sink module provides the path to ground. When the output is active, current travels from the supply, through the field device, and into the sink module to ground. That means the current leaves the field device, i.e., it flows out of the field device. If the system were a sourcing output, the current would flow out of the module into the field device (current flows into the field device). The ideas that no current flows or that current circulates freely don't describe a powered sinking path; there is a defined path for current to return to ground when the load is energized.

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4. When is the XIO instruction true with respect to a physical input terminal?

A. There is input voltage applied to the terminal

B. There is no input voltage at the terminal

C. Voltage is alternating

D. Voltage is reversed

XIO checks for the absence of a signal at a physical input. It is true when the input terminal is not energized—there is no input voltage present. This is the opposite of an input that is energized (ON), which would make another instruction that checks for a closed or powered input true. In practical terms, if a sensor or switch applies voltage to the terminal, the input is considered ON and XIO is false; if the sensor is off or the circuit is open, there's no voltage and XIO is true. The important idea is that XIO is about "no voltage," not about alternating or reversed voltage. So the correct condition is that there is no input voltage at the terminal.

5. Which type of relay maintains its contact state after the control coil is energized only momentarily?

A. Latch

B. Momentary

C. Magnetic

D. Reed

A latch (latching) relay is designed to remember its last contact position after a brief energizing pulse. It has two stable states: set and reset. When you send a short pulse to establish a state, the contacts stay in that state even after the control coil is de-energized, until you issue the opposite pulse to switch it again. This memory aspect is what makes it ideal when you want a circuit to remain on or off without keeping power applied to the coil. In contrast, a standard momentary relay requires continuous current to hold its contacts in the energized state, and magnetic or reed relays describe the actuation mechanism or a different type of switch, not the memory behavior. The defining idea here is that the latch stores its state until explicitly changed.

6. Which action is commonly performed by a programming device?

A. Loading a new program into the PLC

B. Replacing the PLC CPU hardware

C. Reconfiguring I/O hardware in the field

D. Providing plant-wide network security

The main idea is that a programming device's job is to deliver and deploy software to the PLC so it can run new or updated control logic. You typically write or edit the program on a computer, connect to the PLC, and download that program into the PLC's memory. Once loaded, the PLC's CPU executes the new logic, allowing you to implement changes in how the plant is controlled and tested safely before going live. Replacing the PLC CPU hardware is a hardware maintenance task, not the standard programming workflow. Reconfiguring I/O hardware in the field involves changing physical connections or module configurations, which is hardware-focused and not the primary function of loading software. Providing plant-wide network security spans IT/OT security responsibilities and uses broader tools beyond simply loading a program. So, loading a new program into the PLC is the action a programming device is primarily used for.

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7. For the AC discrete input module circuit schematic, what is the purpose of the filter section?

A. To protect against electrical noise interference

B. To increase signal strength

C. To convert AC to DC

D. To reduce power consumption

The filter section is there to keep the input signal clean in a noisy industrial environment. AC inputs can pick up a lot of high frequency noise and transients from motors, drives, switching power supplies, or nearby equipment. The filter—often an RC network (and sometimes an inductor)—acts as a low pass filter, letting the intended low-frequency input signal through while attenuating fast spikes and noise. This helps prevent false triggers or erratic input readings and reduces EMI coupling back into the controller. It isn't meant to boost signal strength, convert AC to DC (that's handled by the rectifier stage), or reduce power consumption.

8. What is the main advantage of using a voltage sensing device over a current sensing device for analog inputs?

A. Higher precision.

B. Faster response time.

C. Lower cost.

D. Easier wiring.

The main idea is that how quickly a signal is captured depends on the path it takes to reach the ADC. A voltage input lets the field signal be read directly by the analog-to-digital converter, usually with fewer delay-causing elements, so changes in the signal appear in the measurement faster. A current loop, on the other hand, requires a transmitter to drive current through a loop and then through a shunt in the input, adding extra circuit dynamics, capacitance, and a settling time that can slow the response to quick changes. Because of these extra steps and the loop's inherent dynamics, voltage sensing typically offers a faster response time than current sensing. While precision, cost, or wiring can vary with the setup, the standout advantage for fast updates is the quicker response of voltage inputs.

9. The XIO instruction evaluates to true when the addressed memory bit is what value?

A. 1

B. 0

C. -1

D. 2

XIO is a normally closed examine-if-contact. It evaluates to true when the addressed memory bit is OFF (0). In ladder logic, a bit being 0 means the condition is not active, so the NC (normally closed) contact remains closed and allows the rung to energize. If the bit becomes 1 (ON), the contact opens and the rung would not complete. So the value that makes XIO true is 0.

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10. Which description best defines sensors?

A. Devices that measure physical quantities such as temperature, light, pressure, speed, etc.

B. Devices that generate electrical power

C. Actuators that move mechanical parts

D. Signal processors

Sensors are devices that detect physical quantities and convert them into signals that can be read by a system. They measure things like temperature, light, pressure, and speed, turning a real-world condition into data the control system can use. This describes the core function of sensing: measurement and transduction into a usable signal. The other roles described don't match sensing: generating electrical power is the job of a power source or generator, not a sensor; actuators move mechanical parts in response to a signal; signal processors handle and refine signals rather than measuring physical quantities themselves.

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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://programmablelogiccontroller.examzify.com

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

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