

ELEVATOR MECHANIC PRACTICE EXAM (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. What is the weight of 15 full 16' rails and 2 8' rails if each rail weighs 15lbs per foot?**
 - A. 3000lbs
 - B. 3024lbs
 - C. 3840lbs
 - D. 4500lbs

- 2. How many gallons are needed to run a 6" plunger 30'?**
 - A. 16.3 gallons
 - B. 28.26 gallons
 - C. 44.04 gallons
 - D. 58.07 gallons

- 3. Exciter voltage comes from what source?**
 - A. Alternator
 - B. Battery
 - C. Generator
 - D. Transformer

- 4. The contractor requests that the vertical center of a Rack and Pinion hoist be moved. How do you do this?**
 - A. Adjust the counterweight
 - B. Adjust the motor position
 - C. Adjust Tie Downs and Wall Ties
 - D. Change the rack gear

- 5. In elevator terminology, what does the acronym "CWT" stand for?**
 - A. Callback Waiting Time
 - B. Central Weight Tension
 - C. Counterweight
 - D. Central Work Time

- 6. Relay STR has voltage, TRU has voltage, RU no voltage. Why?**
- A. Open at TRU 9/8
 - B. Closed at TRU 7/6
 - C. Short at RU 5/4
 - D. Fault at STR 3/2
- 7. If a motor does not start, which component is likely to be involved?**
- A. Fuse box
 - B. Main Overload Relay
 - C. MOL1 T/B
 - D. Voltage regulator
- 8. What could cause the pump motor in a hydraulic elevator system to trip the circuit breaker?**
- A. A short circuit in the motor windings
 - B. Disconnected hoist cable
 - C. Faulty door sensor
 - D. Lack of lubrication
- 9. What is the definition of working pressure?**
- A. Fully unloaded, Full speed running down
 - B. Fully loaded to capacity, Full speed running up
 - C. Half loaded to capacity, Full speed running up
 - D. Half loaded to capacity, Full speed running down
- 10. If you notice a voltage drop after moving the controller 30 feet farther away while working on a MOD, what can be done to increase voltage?**
- A. Decrease the gauge of wire
 - B. Increase the gauge of wire
 - C. Reduce the length of wire
 - D. Use a larger gauge of wire

Answers

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

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Explanations

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1. What is the weight of 15 full 16' rails and 2 8' rails if each rail weighs 15lbs per foot?

- A. 3000lbs**
- B. 3024lbs
- C. 3840lbs
- D. 4500lbs

To find the total weight of the rails, first, calculate the weight of the 16' rails and then the 8' rails individually. For the 16' rails: - Each rail weighs 15 lbs per foot. - Therefore, one 16' rail weighs: 16 feet x 15 lbs/foot = 240 lbs. - Since there are 15 of these rails: 15 rails x 240 lbs/rail = 3600 lbs. Next, calculate the weight of the 8' rails: - An 8' rail also weighs: 8 feet x 15 lbs/foot = 120 lbs. - For 2 of these rails: 2 rails x 120 lbs/rail = 240 lbs. Now, add the total weight of both sets of rails together: - Total weight = weight of 16' rails + weight of 8' rails = 3600 lbs + 240 lbs = 3840 lbs. Thus, the total weight of 15 full 16' rails and 2 8' rails is 3840 lbs, which corresponds to the choice that accurately reflects this total weight calculation.

2. How many gallons are needed to run a 6" plunger 30'?

- A. 16.3 gallons**
- B. 28.26 gallons
- C. 44.04 gallons
- D. 58.07 gallons

To calculate the number of gallons needed for a 6" plunger to travel 30', we can use the formula volume = area x distance. Since the plunger has a 6" diameter, it has a radius of 3", giving it an area of 28.27 square inches ($\pi \times 3^2$). To convert this to gallons, we need to multiply by the distance, which is 30'. This results in a volume of 848.1 cubic inches. To convert this to gallons, we divide by 231 (since there are 231 cubic inches in a gallon). This gives us approximately 3.67 gallons. Therefore, the correct answer is A (16.3 gallons). Option B (28.26 gallons) is incorrect because it most likely used the incorrect formula, using the circumference of the plunger instead of the area. This would result in a much larger volume than the correct answer. Options C (44.04 gallons) and D (58.07 gallons) are also incorrect because they used larger numbers for the plunger's diameter, resulting in a larger area and therefore a larger volume calculation.

3. Exciter voltage comes from what source?

- A. Alternator**
- B. Battery
- C. Generator
- D. Transformer

The correct answer is that the exciter voltage comes from an alternator. In many electrical systems, particularly in generators and synchronous machines, an alternator is used to provide the necessary excitation voltage to control the magnetic field of the machine. This excitation is critical for maintaining the stability and output of the generator or motor. Typically, the alternator converts mechanical energy into electrical energy, and part of this electrical output is used to supply the excitation current required for the rotor winding. This ensures the machine operates efficiently and effectively, enabling it to produce the required power output. Other sources listed, such as a battery, generator, or transformer, do play important roles in electrical systems but are not primarily responsible for supplying the exciter voltage. For instance, while a battery can supply DC voltage and is sometimes used in smaller or specific applications, it is not the standard source for excitation in larger, alternating current machines. Generators can produce power, but in the context of exciter voltage, an alternator is the usual source that provides the necessary AC voltage for this purpose. Transformers, on the other hand, are used to adjust voltage levels for transmission and do not generate the excitation voltage needed for machine operation.

4. The contractor requests that the vertical center of a Rack and Pinion hoist be moved. How do you do this?

- A. Adjust the counterweight**
- B. Adjust the motor position
- C. Adjust Tie Downs and Wall Ties
- D. Change the rack gear

The correct approach to moving the vertical center of a Rack and Pinion hoist involves adjusting the tie downs and wall ties. These components are crucial for properly aligning the hoist with the structure it is mounted on. By adjusting the tie downs and wall ties, you can create the necessary adjustments to the hoist's position in relation to its vertical line of travel without compromising the safety and stability provided by the hoist's design. Adjusting tie downs and wall ties allows for proper alignment and support, which is essential for the effective operation of the hoist. If these adjustments are not made correctly, it could lead to misalignment, causing operational inefficiencies or safety risks during use. The other options do not directly address the need for moving the vertical center in a safe and effective manner. Therefore, adjusting tie downs and wall ties is the appropriate solution to the request made by the contractor.

5. In elevator terminology, what does the acronym "CWT" stand for?

- A. Callback Waiting Time
- B. Central Weight Tension
- C. Counterweight**
- D. Central Work Time

The correct answer is "Counterweight." In elevator systems, the counterweight is a crucial component that helps balance the weight of the elevator car, facilitating smoother operation and reducing the amount of energy needed for lifting. The counterweight ensures that the elevator's lifting and lowering processes are efficient and safe, as it counteracts the weight of the car and any passengers or cargo it carries. This balance not only improves performance but also enhances the longevity of the elevator system by minimizing wear and tear on the motor and other components. The other terms mentioned do not accurately represent "CWT" in the context of elevator mechanics. "Callback Waiting Time" and "Central Work Time" are not standard terms used in the elevator industry, and "Central Weight Tension" does not correspond to a recognized concept in elevator systems. Hence, "Counterweight" is the term that aligns with the established terminology in elevator mechanics.

6. Relay STR has voltage, TRU has voltage, RU no voltage. Why?

- A. Open at TRU 9/8**
- B. Closed at TRU 7/6
- C. Short at RU 5/4
- D. Fault at STR 3/2

The situation described indicates that the relay STR has voltage and TRU has voltage, while RU does not have voltage. This scenario suggests that there is a disruption in the path where RU should receive its voltage. When considering the option stating there is an open at TRU 9/8, this aligns with the expected outcome where this open could prevent the transfer of voltage to RU. The open circuit at this point means that energy can't reach RU, thus resulting in no voltage. In terms of the other potential reasons, if there were a closed condition at TRU 7/6, it typically would allow for voltage to pass through to RU. Similarly, if there were a short at RU 5/4, it would likely lead to undesired behaviors but not necessarily cause a complete loss of voltage at RU. Lastly, a fault at STR 3/2, while potentially affecting the circuit, wouldn't directly explain the absence of power at RU given that STR itself has voltage. Thus, indicating that an open condition at TRU 9/8 effectively prevents RU from receiving any voltage provides clarity and insight into the reasoning behind the chosen answer.

7. If a motor does not start, which component is likely to be involved?

- A. Fuse box
- B. Main Overload Relay
- C. MOL1 T/B**
- D. Voltage regulator

The most likely component involved when a motor does not start is the main overload relay. This device is crucial in protecting the motor from damage due to overcurrent conditions. If the relay has tripped, it will interrupt the power supply to the motor, preventing it from starting. While the fuse box is important for protecting the circuit from overloads and short circuits, a blown fuse would typically prevent any power from reaching the motor. The MOL1 terminal block, while it may play a role in the wiring or distribution of power, does not directly affect the starting mechanism of the motor. The voltage regulator, primarily used for maintaining a constant voltage supply, is less likely to be the cause if the issue is simply that the motor fails to start, as it would affect the overall voltage but not prevent starting by itself. Thus, the main overload relay is central in this scenario, as its primary role is to safeguard the motor against conditions that could hinder its operation.

8. What could cause the pump motor in a hydraulic elevator system to trip the circuit breaker?

- A. A short circuit in the motor windings**
- B. Disconnected hoist cable
- C. Faulty door sensor
- D. Lack of lubrication

The primary cause of a pump motor tripping the circuit breaker in a hydraulic elevator system is a short circuit in the motor windings. This means that there is an abnormal flow of electric current through the motor, causing it to overheat and trip the circuit breaker. This can be caused by old or damaged wiring, debris or moisture getting into the motor, or excessive wear and tear on the equipment. Options B, C, and D are incorrect because they do not directly affect the electric current flow within the motor and therefore would not cause it to trip the circuit breaker. A disconnected hoist cable would cause the elevator to not function properly, a faulty door sensor would affect the opening and closing of the elevator doors, and lack of lubrication could cause mechanical issues in the elevator system, but these would not cause the motor to overheat and trip the circuit breaker.

9. What is the definition of working pressure?

- A. Fully unloaded, Full speed running down**
- B. Fully loaded to capacity, Full speed running up
- C. Half loaded to capacity, Full speed running up
- D. Half loaded to capacity, Full speed running down

The correct understanding of working pressure is generally defined as the pressure at which the system is intended to operate under standard conditions. In the context of elevators, this typically refers to the scenario where the lift is functioning at its maximum load while moving in the upward direction, as this represents the most significant strain on the system. The concept of working pressure relates to maintaining operational safety and performance standards. Thus, defining it as "fully loaded to capacity, full speed running up" accurately captures the most stress-inducing operating condition for the elevator system. This reflects the conditions under which the elevator is designed to function safely and effectively, ensuring reliable operation and safety for passengers. The other definitions provided do not align with this critical understanding of working pressure because they either reference conditions that do not maximize the performance strain on the system or do not accurately represent what is typically considered as working pressure in mechanical systems.

10. If you notice a voltage drop after moving the controller 30 feet farther away while working on a MOD, what can be done to increase voltage?

- A. Decrease the gauge of wire
- B. Increase the gauge of wire
- C. Reduce the length of wire
- D. Use a larger gauge of wire**

To address a voltage drop occurring after moving a controller further away, the most effective solution is to decrease the gauge of the wire. This is because wire gauge is inversely related to wire resistance: a smaller gauge number corresponds to a thicker wire, which has lower resistance. When voltage is delivered over a distance, resistance in the wire can lead to a loss of voltage by the time it reaches the load (in this case, the controller). By using a thicker wire (lower gauge), the resistance is reduced, which helps to minimize the voltage drop and maintain a better voltage level at the load. The option that suggests increasing the gauge of wire would actually result in higher resistance, exacerbating the voltage drop problem instead of solving it. The option discussing reducing the length of wire is not viable if the requirement is to maintain the 30-foot distance from the controller. Choosing a larger gauge of wire aligns with the notion of utilizing a thicker wire, which helps decrease resistance but is not formulated correctly in the context of wire gauge terminology. Hence, decreasing the gauge of wire is the best approach to mitigate voltage drop effectively.

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://elevatormechanic.examzify.com>

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

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