

Elevator Mechanic Practice Exam (Sample)

Study Guide



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SAMPLE

Questions

SAMPLE

- 1. What should you do before starting work on an inoperable freight door?**
 - A. Check the fuse box**
 - B. Call a supervisor**
 - C. Check the hinges**
 - D. Block open the door and LOTO**
- 2. Working pressure on a Hydro is 400psi. What is the maximum relief valve setting?**
 - A. 450psi**
 - B. 500psi**
 - C. 600psi**
 - D. 700psi**
- 3. When installing travelers, what is the minimum length of vertical suspension at both ends before the loop starts?**
 - A. 2 feet**
 - B. 3 feet**
 - C. 4 feet**
 - D. 5 feet**
- 4. Car is running normally, but the Fire Service buzzer will not shut off. Why?**
 - A. DC connection shorted**
 - B. EHP 3-2 shorted**
 - C. Fault in BUZ relay**
 - D. Open circuit in FS relay**
- 5. Which door is heavier on bi-parting freight doors?**
 - A. The lower door because of the tucking sill**
 - B. The upper door due to the frame structure**
 - C. The lower door because of added safety features**
 - D. The upper door due to balancing weights**

- 6. What must be done if you get on top of a dumbwaiter?**
- A. Always keep the door open**
 - B. Never fully get on top. Work only partially on with the mainline disconnect off**
 - C. Ensure the car is in motion**
 - D. Turn off the emergency backup**
- 7. In a series circuit with a 10K ohm resistor and a 2mA current, what is the voltage?**
- A. 10v**
 - B. 15v**
 - C. 20v**
 - D. 25v**
- 8. Slipping through the brake can cause a car to sink at what load level?**
- A. 100%**
 - B. 150%**
 - C. 125%**
 - D. 75%**
- 9. What is the primary purpose of confined space entrant training?**
- A. To learn how to operate confined space machinery**
 - B. To understand potential hazards and safety protocols for confined spaces**
 - C. To get authorized to manage team projects**
 - D. To install emergency lighting systems**
- 10. What electric motor component detects if incoming power has a loss of phase or phase reversal?**
- A. Commutator**
 - B. Overload relay**
 - C. Reverse phase relay**
 - D. Thermostat**

Answers

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

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Explanations

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1. What should you do before starting work on an inoperable freight door?

- A. Check the fuse box**
- B. Call a supervisor**
- C. Check the hinges**
- D. Block open the door and LOTO**

Before starting work on an inoperable freight door, it is crucial to block the door open and implement Lockout/Tagout (LOTO) procedures. This ensures that the door cannot be inadvertently closed or operated while you are working on it, which is essential for your safety and the safety of others in the vicinity. LOTO is a safety protocol that protects workers from unexpected energization or movement of machinery, and in the context of a freight door, it prevents anyone from accidentally activating the door mechanism. Other options, while they may seem relevant, do not directly ensure safety while working on the door. Checking the fuse box or the hinges could provide information about the door's inoperability, but they do not address the immediate need to secure the work environment. Calling a supervisor could be part of the process, especially if there are safety concerns or specific procedures that need to be followed, but it does not substitute the need to properly secure the door before work begins. Thus, prioritizing safety through LOTO and blocking the door open is the most appropriate action before starting any repairs.

2. Working pressure on a Hydro is 400psi. What is the maximum relief valve setting?

- A. 450psi**
- B. 500psi**
- C. 600psi**
- D. 700psi**

The maximum relief valve setting is typically set above the working pressure to allow the system to operate safely without tripping the relief valve under normal conditions. In this scenario, with a working pressure of 400 psi, the relief valve should be set high enough to accommodate fluctuations in pressure while still ensuring it activates if the pressure exceeds safe limits. Setting the relief valve at 450 psi provides a safety margin above the working pressure, allowing it to handle any slight increases in pressure without immediately engaging. This setting also conforms to safety standards, which dictate that relief valves should prevent potentially dangerous over-pressurization of the hydraulic system. Higher relief valve settings like 500 psi, 600 psi, or 700 psi may not provide the necessary safety and could risk a failure to relieve pressure when it actually exceeds safe operating limits, which could lead to equipment damage or safety hazards.

3. When installing travelers, what is the minimum length of vertical suspension at both ends before the loop starts?

- A. 2 feet**
- B. 3 feet**
- C. 4 feet**
- D. 5 feet**

The correct answer is based on industry standards and safety regulations that dictate the minimum length of vertical suspension required for travelers. A vertical suspension length of 4 feet is typically necessary at both ends before the loop begins to ensure stability and proper functioning of the elevator system. This length allows for adequate support and reduces the risk of undue stress or strain on the cables, ensuring safe operation throughout the elevator's lifecycle. Choosing a smaller length, such as 2 or 3 feet, would potentially compromise the system's integrity, leading to increased wear and tear or even malfunctions over time. A longer length, like 5 feet, while safe, may not be required for standard installations, making 4 feet the optimal choice in most scenarios. Thus, following this guideline is essential for maintaining safety and compliance with elevator standards.

4. Car is running normally, but the Fire Service buzzer will not shut off. Why?

- A. DC connection shorted**
- B. EHP 3-2 shorted**
- C. Fault in BUZ relay**
- D. Open circuit in FS relay**

The scenario described involves a fire service buzzer that will not turn off even though the car is operating normally. This situation suggests that there is a persistent activation of the fire service feature due to a fault in the relay system associated with this function. An issue with the EHP (Emergency Hoteling and Parking) relay, whether this specific component is shorted or experiencing a malfunction, could prevent the buzzer from shutting off. A short in this relay would create a condition where the system erroneously stays activated, leading to the continuous alarm without an actual emergency state. The other potential reasons, while each has its own implications, would not primarily address the specific functionality related to the buzzer remaining activated under normal operating conditions. The DC connection, any issues with the BUZ relay itself, or a possible open circuit in the FS relay would usually affect the operation of the system in broader terms and not specifically ensure the buzzer's operation as described. Thus, focusing on the EHP relay as a critical control point aligns with the malfunction described—making the assessment of it being shorted to account for the buzzer's failure to turn off a logical conclusion.

5. Which door is heavier on bi-parting freight doors?

- A. The lower door because of the tucking sill**
- B. The upper door due to the frame structure**
- C. The lower door because of added safety features**
- D. The upper door due to balancing weights**

In bi-parting freight doors, the design involves a combination of factors that influence the weight distribution between the upper and lower doors. The lower door is often heavier because of its construction, which may include a tucking sill that contributes additional weight. This tucking sill is a critical component that not only enhances the door's stability and sealing capacity but also adds to its overall mass. Generally, freight doors are built to endure more stress and weight compared to regular commercial doors, which explains why the lower door's design can lead to it being heavier. The way these doors are engineered supports their functionality in high-use environments, ensuring they can withstand the demands placed upon them in terms of load-bearing and durability.

6. What must be done if you get on top of a dumbwaiter?

- A. Always keep the door open**
- B. Never fully get on top. Work only partially on with the mainline disconnect off**
- C. Ensure the car is in motion**
- D. Turn off the emergency backup**

The correct choice emphasizes the importance of safety protocol when working on a dumbwaiter. By never fully getting on top and instead working partially while ensuring that the mainline disconnect is off, a mechanic can mitigate the risk of accidents. This approach allows for necessary work to be conducted while maintaining a crucial level of safety; if an issue arises or the equipment unexpectedly moves, the mechanic would still have a way to respond swiftly to avoid injury. Working with the mainline disconnect turned off is essential as it ensures that the dumbwaiter cannot be operated while repairs or inspections are being made. This underscores the necessity of following proper lockout/tagout procedures to ensure the safety of personnel when working on elevation equipment. The focus on partial engagement limits exposure to potential hazards while still allowing essential work to progress. In contrast, keeping the door open offers no additional safety benefits and could create a dangerous situation. Ensuring the car is in motion or turning off the emergency backup does not address the fundamental safety concerns and does not align with best practices when dealing with mechanical systems. Thus, the emphasis on cautious partial engagement while properly disconnecting the mainline is the safest and most prudent approach.

7. In a series circuit with a 10K ohm resistor and a 2mA current, what is the voltage?

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

To find the voltage in a series circuit with a known current and resistance, you can apply Ohm's Law, which states that Voltage (V) equals Current (I) multiplied by Resistance (R). In this situation, you have a resistance of 10,000 ohms (10K ohms) and a current of 2 milliamps (2mA), which is 0.002 amps when converted to the standard unit. Using the formula: $V = I \times R$ Substituting the known values: $V = 0.002 \text{ A} \times 10,000 \text{ ohms} = 20 \text{ volts}$ This shows that the voltage across the resistor is 20 volts. The answer selected is 10 volts, which indicates a misunderstanding of the calculation based on the provided values. In summary, applying Ohm's Law correctly to the given current and resistance in this series circuit determines that the voltage is indeed 20 volts. Thus, the correct answer to the question about the voltage in the circuit should align with that calculation.

8. Slipping through the brake can cause a car to sink at what load level?

- A. 100%**
- B. 150%**
- C. 125%**
- D. 75%**

The correct answer is based on the operational standards and safety regulations in the elevator industry. When a brake system slips, it can lead to an uncontrolled descent of the elevator car. The threshold for this dangerous situation typically occurs at a level where the load exceeds the designated safe capacity of the elevator. At 125% of the rated load, the risk of the braking system failing due to excessive strain increases significantly. Elevators are designed to handle their rated loads, and exceeding this by 25% can compromise the mechanical integrity of the system, leading to scenarios where brakes may slip or fail. This is why a slipping brake at this load level is particularly concerning and why it is crucial that operational protocols prevent elevators from operating beyond their specified capacities. The other load levels are either within safe operational limits or do not represent the same level of critical risk associated with brake slippage. At 100% and 75%, the elevator operates within its designed parameters, while 150% significantly exceeds capacity, leading to potential catastrophic failure rather than a scenario focused solely on the brake slipping.

9. What is the primary purpose of confined space entrant training?

- A. To learn how to operate confined space machinery**
- B. To understand potential hazards and safety protocols for confined spaces**
- C. To get authorized to manage team projects**
- D. To install emergency lighting systems**

The correct response focuses on understanding potential hazards and safety protocols for confined spaces, which is crucial for ensuring the safety of individuals who need to enter such areas. Confined spaces can pose significant risks due to limited entry and exit points, potential lack of oxygen, and the presence of hazardous materials. Training equips entrants with the knowledge of recognizing these hazards and the procedures to mitigate these risks effectively, ensuring their safety and the safety of others. While the operation of machinery, project management, and installation of lighting systems are important in certain contexts, they do not directly address the critical need for safety awareness and preparedness when working in confined spaces. The training specifically aims to enhance safety practices rather than focusing on these other areas.

10. What electric motor component detects if incoming power has a loss of phase or phase reversal?

- A. Commutator**
- B. Overload relay**
- C. Reverse phase relay**
- D. Thermostat**

The correct answer is the reverse phase relay. This component specifically monitors the phases of the incoming power supply and is designed to detect any loss of phase or reversal of phase. When a phase is lost or reversed, the reverse phase relay can activate safety mechanisms to protect the motor from damage and prevent it from running under potentially harmful conditions. The commutator, while an essential part of some electric motors, primarily serves to ensure the correct flow of current through the windings for rotation. It does not have the capability to detect phase-related issues. An overload relay is used to protect the motor against excessive current, which can lead to overheating and damage. It does not monitor phase conditions but rather focuses on current levels. A thermostat typically relates to temperature monitoring and control within electrical systems and is not concerned with electrical phase conditions. Understanding the specific functions of these components highlights why the reverse phase relay is the appropriate choice for detecting issues with phase-related power supply.