Florida Certificate of Competency – Elevator Technician Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

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Questions

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1. What is the primary material used for constructing hoist cables?

A. plastic

B. fiber

C. steel wires

D. rubber

2. Do valley wires contact the sheave in elevator systems?

A. Yes, always

B. No, they do not

C. Only under specific conditions

D. Only when overloaded

3. When replacing governor ropes, what is the recommended type of rope to use?

A. Bright uncoated ropes

B. Natural fiber ropes

C. Preformed ropes

D. Galvanized ropes

4. Which standard covers inspection and testing procedures for escalators?

A. ASME A17.1

B. ASME A17.2

C. ASME A90.1

D. ASME A17.3

5. Do the crown wires of an elevator rope make contact with the sheave?

A. True

B. False

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6. Which of the following is a common characteristic of hydraulic elevators?

A. They usually have a machine room at the top

B. They are generally slower than traction elevators

C. They require less building height

D. All of the above

7. What is the recommendation regarding the use of high voltage meggers on elevator electrical equipment?

A. It is recommended on a quarterly basis

B. It is not allowed

C. It is recommended

D. It is recommended on a weekly basis

8. Are visual signaling requirements necessary for "FIRE RECALL" switches?

A. Yes

B. No

C. Only if audible signaling is present

D. Yes, but only for elevators above a certain height

9. What does a moving walk represent?

A. The rate of travel with rated load on it

B. The rate of travel without rated load on it

C. The angle of inclination during travel

D. The speed of the walk when fully operational

10. In a tandem cylinder installation, what is true about the rupture valves?

A. They should be independent

B. They are all interconnected

C. They should share the same valve

D. One valve suffices for both cylinders

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Answers

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

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Explanations

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1. What is the primary material used for constructing hoist cables?

A. plastic

B. fiber

C. steel wires

D. rubber

The primary material used for constructing hoist cables is steel wires. Steel wires are favored for their high tensile strength, durability, and resistance to wear, making them ideal for the heavy loads and constant stress encountered in elevator systems. They are designed to support the weight of the elevator car, as well as the additional loads that may be applied during operation. The use of steel wires allows for the safe and reliable movement of the elevator, ensuring that it can operate effectively over time without compromising structural integrity. In contrast, materials like plastic and rubber do not possess the necessary strength or durability for this application, while fiber, although strong in some contexts, cannot match the performance characteristics of steel wires in terms of load-bearing capacity and longevity under stress.

2. Do valley wires contact the sheave in elevator systems?

A. Yes, always

B. No, they do not

C. Only under specific conditions

D. Only when overloaded

Valley wires do not contact the sheave in elevator systems. In a properly designed elevator system, the valley wires, which are usually located in the groove of the sheave, are intended to function as part of the supportive framework that guides the cables and allows for smooth operation. However, the design and operation of an elevator system ensure that these wires maintain a proper distance from the sheave to prevent excessive wear, friction, or malfunction. It's important to understand that the sheave is designed to interact with the hoisting cables and other components that provide the necessary mechanical advantage to move the elevator car. If valley wires were to contact the sheave, it could lead to mechanical failure or safety concerns due to the potential for increased wear and tear. By keeping the valley wires separate from direct contact with the sheave, the system promotes longevity and reliable functionality.

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3. When replacing governor ropes, what is the recommended type of rope to use?

A. Bright uncoated ropes

B. Natural fiber ropes

C. Preformed ropes

D. Galvanized ropes

The recommended type of rope to use when replacing governor ropes is preformed ropes. Preformed ropes are specifically designed for applications in elevators and hoisting equipment due to their enhanced stability and resistance to distortion during installation and use. Their construction provides a uniform diameter and helps maintain the rope's shape under load, which is essential for reliable elevator operation. Using preformed ropes ensures that they fit properly within the governor sheaves, thereby maintaining operational efficiency and safety. Additionally, they are engineered to withstand the specific stresses encountered in elevator systems, making them more durable than other types of ropes. Choosing other rope types, such as natural fiber ropes or bright uncoated ropes, may not provide the strength, durability, or performance required for elevator applications. Galvanized ropes, while resistant to corrosion, may not meet the specialized needs of governor operations in terms of flexibility and load handling compared to preformed options.

4. Which standard covers inspection and testing procedures for escalators?

A. ASME A17.1

B. ASME A17.2

C. ASME A90.1

D. ASME A17.3

The standard that specifically addresses inspection and testing procedures for escalators is ASME A17.2. This standard outlines the requirements for periodic inspection and testing of escalators, ensuring that they operate safely and effectively in compliance with established safety regulations. It provides guidance for elevators and escalators, detailing the methods and frequency of inspections needed to maintain proper functioning and safety standards. By focusing on the inspection and testing aspects, ASME A17.2 plays a crucial role in safeguarding public safety and ensuring the reliability of escalators in various settings, such as commercial buildings and transportation hubs. This emphasis on detailed procedures for evaluation and maintenance helps technicians adhere to best practices within the industry.

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5. Do the crown wires of an elevator rope make contact with the sheave?

A. True

B. False

The crown wires of an elevator rope are indeed designed to make contact with the sheave. This is because the crown wires play a critical role in the lifting mechanism of the elevator system. They provide the necessary strength and flexibility needed for effective load transfer between the sheave and the hoisting cable. When the crown wires are in contact with the sheave, they ensure that the load is evenly distributed, helping to reduce wear on both the rope and the sheave itself. This contact is essential for the proper functioning of the elevator, as it allows the sheave to grip the rope securely, enabling smooth and efficient operation. The design of the sheave and the arrangement of the crown wires work together to maintain stability and ensure that the elevator operates safely, particularly under varying loads.

6. Which of the following is a common characteristic of hydraulic elevators?

A. They usually have a machine room at the top

B. They are generally slower than traction elevators

C. They require less building height

D. All of the above

Hydraulic elevators have several distinct characteristics that set them apart from traction elevators. One notable feature is that they typically require less building height, making them suitable for low-rise buildings. This is primarily due to the fact that hydraulic elevators do not necessitate a machine room at the top of the hoistway, which is a common requirement for traction elevators. Instead, their machinery is often located at the base or in a dedicated room adjacent to the elevator shaft. Additionally, hydraulic elevators are generally slower than traction elevators. This is because their systems rely on hydraulic fluid to move the elevator car, which can limit the speed compared to the cable-driven mechanism of traction elevators. Overall, these elements highlight that hydraulic elevators are designed with specific operational principles making them ideal for certain applications, especially in low to mid-rise buildings where less height is available. The combination of these characteristics justifies the conclusion that they indeed share these common traits.

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7. What is the recommendation regarding the use of high voltage meggers on elevator electrical equipment?

A. It is recommended on a quarterly basis

B. It is not allowed

C. It is recommended

D. It is recommended on a weekly basis

The recommendation regarding the use of high voltage meggers on elevator electrical equipment is that it is not allowed. This is primarily due to the potential for damaging sensitive electrical components within elevator systems. High voltage testing can result in unintended consequences, such as insulation breakdown or stress damage to circuits and components that are not designed to handle such elevated voltages. Additionally, using high voltage meggers can create safety hazards for technicians and personnel working on or around the equipment. Elevators require precise and careful testing methodologies that align with manufacturer specifications and industry standards to ensure safe operation and longevity of the equipment. Hence, alternatives that utilize lower testing voltages are typically advocated in practice.

8. Are visual signaling requirements necessary for "FIRE RECALL" switches?

A. Yes

B. No

C. Only if audible signaling is present

D. Yes, but only for elevators above a certain height

Visual signaling requirements for "FIRE RECALL" switches are not mandated as part of the standard regulatory requisites. The reasoning behind this is that the primary function of the "FIRE RECALL" system is to ensure safety during fire emergencies, allowing elevators to respond appropriately to fire conditions by returning to a designated level, typically the ground floor, and making them inoperative to prevent them from being used in a potentially hazardous situation. In this context, audible signaling may be sufficient to alert individuals within the vicinity of the elevator system regarding its status, particularly since the focus during a fire emergency is on timely and effective communication through sound. Therefore, visual signals are not deemed as a necessary requirement for "FIRE RECALL" operations, which prioritizes the operational effectiveness and safety protocol over additional visual alerts. This understanding aligns with safety regulations that aim to maintain simplicity and efficacy during emergency scenarios without imposing additional visual signaling requirements that might complicate or confuse the emergency procedures in place.

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9. What does a moving walk represent?

A. The rate of travel with rated load on it

B. The rate of travel without rated load on it

C. The angle of inclination during travel

D. The speed of the walk when fully operational

A moving walk, often seen in airports or large commercial buildings, represents the rate at which it travels with a rated load on it. This measurement is crucial for understanding how the moving walk will perform under normal operating conditions where it is carrying passengers and their luggage. Evaluating a moving walk's performance with the rated load provides insights into its energy efficiency, safety features, and capacity to handle high foot traffic, which is essential for proper design and operational planning. For those unfamiliar, the rated load refers to the maximum weight that the moving walk is designed to carry safely during its operation. This characteristic ensures that the walk can operate effectively without exceeding its design limitations, thus ensuring reliability and user safety. By focusing on the walk's performance with this designated load, technicians can better assess maintenance needs, enhance the user experience, and ensure compliance with safety regulations.

10. In a tandem cylinder installation, what is true about the rupture valves?

A. They should be independent

B. They are all interconnected

C. They should share the same valve

D. One valve suffices for both cylinders

In a tandem cylinder installation, it is crucial for the rupture valves to be independent to ensure safety and functionality. This design allows for each cylinder to have its own rupture valve that functions independently. If one cylinder experiences a failure or rupture, the independent rupture valve can effectively manage the situation without being influenced by the condition of the other cylinder. This redundancy is essential in maintaining system integrity and safety, especially in scenarios that may involve high-pressure operations. The independence ensures that if one valve fails, it does not compromise the operation of the other cylinder's valve, thus minimizing the risk of catastrophic failure. The possibility of interconnected valves, sharing a valve, or relying on a single valve for both cylinders could lead to complications where a failure in one area could affect the other, potentially jeopardizing safety and operational reliability. Therefore, having independent rupture valves is a sound engineering practice that emphasizes safety in hydraulic systems involving tandem cylinders.

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