Basic Engineering Common Core (BECC) 3 Practice Test (Sample)

Study Guide

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Questions

1. **What aspect of ship safety does compartmentation primarily enhance?**
   - **A. Fire safety**
   - **B. Structural integrity**
   - **C. Damage control**
   - **D. Crew comfort**

2. **Which damage control repair kit contains message blanks, pens, flashlights, tape measures, dogging wrenches, and a crescent wrench?**
   - **A. Maintenance kit**
   - **B. Emergency kit**
   - **C. Inv. kit**
   - **D. Repair kit**

3. **When is the halon discharged alarm pressure switch activated?**
   - **A. When the system is reset**
   - **B. By the primary pump activation**
   - **C. By the CO2 pressure**
   - **D. When temperature exceeds a threshold**

4. **A person can enter a space where Halon 1301 has been discharged, without wearing a breathing apparatus if the space has been ventilated at high speed for at least 15 minutes and what else?**
   - **A. Gas Free Tested (GFT)**
   - **B. Completely sealed**
   - **C. Documented inspection**
   - **D. Supervised entry**

5. **Which of the following is not a type of valve in the AFFF system?**
   - **A. Powercheck**
   - **B. Service Valve**
   - **C. Flow Control Valve**
   - **D. Pressure Release Valve**

6. What is the standard length (in feet) of a navy fire hose?

A. 30 ft

B. 50 ft

C. 75 ft

D. 100 ft

7. Which of the following is true about CO2 in fire suppression systems?

A. It is a heavy gas

B. It is not efficient for indoor use

C. It is odorless

D. It promotes combustion

8. Which of the following is true about the use of CO2 extinguishers?

A. They can be used on all types of fires

B. They are effective for electrical fires

C. They are not suitable for magnesium fires

D. They can cool hot surfaces

9. During flight deck operations, who typically communicates fire hazards to non-firefighting personnel?

A. The on-scene leader

B. Fire prevention officer

C. Safety officer

D. Plugman

10. Why must Carbon dioxide (CO2) tubing assemblies have loops?

A. For aesthetic purposes

B. To reduce pressure loss

C. To allow for expansion and contraction

D. So the loop has a diameter of at least 4 in.

Answers

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

Explanations

1. What aspect of ship safety does compartmentation primarily enhance?

A. Fire safety

B. Structural integrity

C. Damage control

D. Crew comfort

Compartmentation enhances damage control on a ship by dividing the vessel into separate, isolated sections or compartments. This structural design allows for more effective management of incidents such as flooding or fire, as the failure or damage in one compartment can be contained and does not necessarily compromise the integrity of the entire ship. This means that if one area is compromised, the remaining compartments can remain intact, providing crew members time to contain the situation and maintain the seaworthiness of the ship. In terms of ship safety, while it also contributes to fire safety and can aid in structural integrity, its primary role is to ensure that any damage sustained, whether through accidents or other incidents, can be managed effectively. By having multiple compartments, ships are equipped to better withstand unforeseen events and enhance overall survivability at sea.

2. Which damage control repair kit contains message blanks, pens, flashlights, tape measures, dogging wrenches, and a crescent wrench?

A. Maintenance kit

B. Emergency kit

C. Inv. kit

D. Repair kit

The damage control repair kit that includes message blanks, pens, flashlights, tape measures, dogging wrenches, and a crescent wrench is typically categorized as an inventory (Inv.) kit. This kit is designed to facilitate effective communication and coordination during damage control operations, ensuring that personnel can document situations, take precise measurements, and have the necessary tools readily available for repair tasks. Such an inventory kit is essential in a maritime or engineering context, where quick access to these items can significantly streamline the damage control process. The message blanks and pens allow for notes and instructions to be communicated clearly, while tools like the dogging wrenches and crescent wrench are vital for securing and repairing equipment. In contrast, a maintenance kit is generally focused on routine upkeep, an emergency kit typically contains items needed for immediate crisis situations rather than repair tasks, and a standard repair kit would usually be more specialized to specific repair functions, potentially lacking the broader range of documentation and communication tools found in the inventory kit.

3. When is the halon discharged alarm pressure switch activated?

A. When the system is reset

B. By the primary pump activation

C. By the CO2 pressure

D. When temperature exceeds a threshold

The halon discharged alarm pressure switch is activated by the CO2 pressure. This is essential for the functioning of the fire suppression system. When the halon system is engaged, it relies on the pressure of the CO2 to determine operational status and ensure that the system is ready to discharge halon effectively. The pressure switch monitors the CO2 pressure in the system, which indicates whether the halon can be safely released to suppress a fire. The other choices do not accurately represent the primary function of the halon discharged alarm pressure switch. For instance, while the system reset is important for maintenance and preparedness, it does not directly trigger the alarm pressure switch. Similarly, primary pump activation is related to the operation of water or other types of firefighting systems, rather than being relevant to halon systems specifically. Finally, temperature thresholds pertain more to fire detection systems rather than to the activation of the halon discharged alarm pressure switch itself.

4. A person can enter a space where Halon 1301 has been discharged, without wearing a breathing apparatus if the space has been ventilated at high speed for at least 15 minutes and what else?

A. Gas Free Tested (GFT)

B. Completely sealed

C. Documented inspection

D. Supervised entry

In the context of entering a space where Halon 1301 has been discharged, the requirement for the area to be Gas Free Tested (GFT) after ventilation is crucial for ensuring safety. Halon 1301 is a fire suppression agent that displaces oxygen, and even after the area has been ventilated, there are still potential hazards that need to be assessed to ensure the absence of dangerous concentrations of the gas or other toxic gases that may be present. By conducting a Gas Free Test, a qualified individual can measure the atmospheric conditions in the space, ensuring that the levels of Halon 1301 and oxygen are within safe limits. This testing confirms that it is safe for personnel to enter without additional respiratory protection. The focus is not solely on ventilation but making sure that the environment is tested and verified as safe for human entry. While other choices may involve steps or measures relevant to safety, they do not specifically address the necessity of testing the air quality after ventilation, which is essential before entering the space. Thus, requiring Gas Free Testing after high-speed ventilation supports a comprehensive safety protocol necessary for protecting individuals in potentially hazardous environments.

5. Which of the following is not a type of valve in the AFFF system?

A. Powercheck

B. Service Valve

C. Flow Control Valve

D. Pressure Release Valve

The answer identifies a type of valve that is not typically found in an Aqueous Film-Forming Foam (AFFF) system. In such systems, valves are essential for controlling the flow of foam and ensuring that it is applied correctly during firefighting operations. The Powercheck valve is designed to allow the flow of suppressants while preventing backflow, thus maintaining system effectiveness. The Service valve is used to isolate sections of the system for maintenance or inspection. The Flow Control valve plays a critical role in regulating the amount of foam concentrate that mixes with water to create the effective fire-fighting foam. In contrast, while a Pressure Release valve is a common component in many pressurized systems to prevent overpressure situations, it is not specifically categorized as a type of valve within the context of AFFF systems. This context helps establish the specific roles of each valve type in relation to foam systems, making it clear that the Pressure Release valve does not fit within the common operational framework of AFFF applications.

6. What is the standard length (in feet) of a navy fire hose?

A. 30 ft

B. 50 ft

C. 75 ft

D. 100 ft

The standard length of a Navy fire hose is typically 50 feet. This standardization allows for efficient handling, quick deployment, and effective firefighting strategies on naval vessels, where space and weight are crucial considerations. The 50-foot length strikes a balance between reach and maneuverability, enabling personnel to effectively manage fires in various naval environments, including confined spaces on ships. This length is also compatible with standard firefighting equipment and tactics, facilitating interoperability among various units and branches of service. Understanding these specifications is essential for effective fire response training and operational readiness in naval settings.

7. Which of the following is true about CO2 in fire suppression systems?

A. It is a heavy gas

B. It is not efficient for indoor use

C. It is odorless

D. It promotes combustion

Carbon dioxide (CO2) is indeed an odorless gas, which is one of its significant characteristics, especially in the context of fire suppression systems. This property makes it suitable for use in various applications, including fire extinguishing systems, because it does not alert occupants with a smell that might create panic during a fire incident. In a fire suppression context, CO2 works by displacing oxygen in the environment, thus preventing combustion. Its application is especially useful in confined spaces or areas with sensitive equipment, where water or foam could cause damage. Because CO2 is non-combustible and does not introduce any additional particles or odor, it allows for better visibility and minimizes contamination in the area being protected. Regarding the other options, while CO2 is heavier than air, it is essential in understanding its confinement and distribution in a space, and its use indoors, particularly in places with electronic equipment, is quite efficient; thus, stating it is not efficient for indoor use would be misleading. Additionally, CO2 does not promote combustion, as its primary function in a suppression system is to inhibit fire by reducing the available oxygen.

8. Which of the following is true about the use of CO2 extinguishers?

A. They can be used on all types of fires

B. They are effective for electrical fires

C. They are not suitable for magnesium fires

D. They can cool hot surfaces

The statement about CO2 extinguishers not being suitable for magnesium fires is correct due to the unique characteristics of magnesium as a combustible metal. Magnesium fires burn at extremely high temperatures and can produce flammable gases when exposed to carbon dioxide. CO2 extinguishers work by displacing oxygen to suffocate the fire, but in the case of magnesium, the chemical reaction can still sustain the combustion despite the lack of oxygen. Thus, CO2 is ineffective for extinguishing fires involving magnesium, which means it is crucial to use an appropriate extinguishing agent, such as dry powder, specifically designed for metal fires. The other options may seem plausible but do not accurately reflect the capabilities of CO2 extinguishers. They are not suitable for all types of fires, particularly fires involving flammable metals. While CO2 extinguishers are effective for electrical fires due to their non-conductive nature, they cannot cool hot surfaces, as they primarily displace oxygen rather than lower the temperature of the burning material.

9. During flight deck operations, who typically communicates fire hazards to non-firefighting personnel?

A. The on-scene leader

B. Fire prevention officer

C. Safety officer

D. Plugman

The on-scene leader plays a crucial role during flight deck operations, especially when it comes to managing safety and hazards, including fire hazards. This individual is typically responsible for directing firefighting efforts and coordinating the response of personnel on the scene. As the leader, they have the authority and responsibility to communicate pertinent information, including the risks associated with fire hazards, to non-firefighting personnel. This ensures that all staff are aware of the dangers and can take appropriate precautions to maintain safety during operations. The fire prevention officer primarily focuses on implementing safety protocols and preventive measures, but they may not always be present during immediate operations or incidents. The safety officer is involved in overseeing overall safety policies and procedures, but their role might not include direct communication about immediate fire hazards during specific flight deck operations. The term "plugman" typically refers to a role associated with managing fluid and gas connections, which is distinct from fire hazard communication.

10. Why must Carbon dioxide (CO2) tubing assemblies have loops?

A. For aesthetic purposes

B. To reduce pressure loss

C. To allow for expansion and contraction

D. So the loop has a diameter of at least 4 in.

The correct answer is that loops in carbon dioxide (CO2) tubing assemblies are necessary to allow for expansion and contraction. As CO2 gas moves through the tubing, temperature changes can cause it to expand or contract. If the tubing were rigid and did not have any loops, the pressure within the tubing could increase significantly as the gas expands, potentially leading to a risk of damage or failure of the tubing assembly. Loops provide a flexible mechanism that allows the tubing to accommodate these changes in volume without excessive pressure build-up. They also help maintain the integrity of the tubing system by preventing kinks or stress that could happen if the tubing were completely straight and rigid. The other options do not accurately represent the functional need for loops in CO2 tubing. Aesthetic considerations do not contribute to the safety or operational efficacy of the system. Reducing pressure loss is important but is not the primary function of the loops; pressure loss can be managed in other ways, such as with proper pipe sizing or avoiding sharp bends. Finally, while there may be specifications regarding the diameter of loops for safety or operational reasons, the requirement for the loop to be at least 4 inches in diameter is not intrinsic to the fundamental purpose of allowing for natural gas movement and thermal expansion