

## Engineering Safety

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The component shown in the illustration would be installed in which of the following types of fire detection systems?

Illustration SF-0004

**Fixed temperature**

**Illustrations:** SF0004\_WM\_100318

If the items shown in the illustration are burning, this fire would be a Class \_\_\_\_\_. Illustration SF-0001  
**"A"**

**Illustrations:** SF0001\_WM\_100218

See REF011

In figure 1 of the illustration, fire would spread to compartment "B" by \_\_\_\_\_. Illustration SF-0013  
**conduction**

**Illustrations:** SF0013\_WM\_100318

See REF016

A person manning a fire hose under pressure with an all-purpose nozzle attached, should be aware that the nozzle is most difficult to control when the handle position is changed from \_\_\_\_\_.

**shut to solid stream**

**Illustrations:** ALLPURPOSENOZZELWM

See REF2083

The fire extinguishing agent dispensed by the unit shown in the illustration is produced by \_\_\_\_\_. Illustration SF-0020

**educting mechanical foam through "D" and mixing it with water and air in chamber "E"**

**Illustrations:** SF0020\_WM\_100318

See REF2082

The fire extinguishing equipment shown in the illustration is a large \_\_\_\_\_.

**dry chemical hose reel system**

**Illustrations:** SF0009\_WM\_100318

To operate a carbon dioxide extinguisher having the type of head shown in the illustration, you would \_\_\_\_\_.

Illustration SF-0008

**pull pin and open valve**

**Illustrations:** SF0008\_WM\_100318

In the illustration shown, the sea painter is identified as item number \_\_\_\_\_.

**7**

**Illustrations:** SF0043\_WM\_100318

The equipment shown in the illustration is a \_\_\_\_\_.

**canister-type gas mask**

**Illustrations:** SF0012\_WM\_OLD

The wooden shoring shown in the illustration is bearing against the hatch coaming and is supporting a load in the direction indicated by the arrows. Which of the following statements is correct for the this condition? Illustration SF-0018

**Shore "B" will support the load without it cracking.**

**Illustrations:** SF0018\_WM\_100318

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**Illustrations:** SF0018\_WM\_100318

Which of the methods shown in the illustration is the correct way to fit shoring? Illustration SF-0016

**A**

**Illustrations:** SF0016\_WM\_100318

Which of the methods shown in the illustration is the correct way to fit shoring? Illustration SF-0016

**A**

**Illustrations:** SF0016\_WM\_100318

Using a sea anchor with the survival craft will \_\_\_\_\_.

**reduce your drift rate**

**Illustrations:** SEAANCHOR

See REF116

Using a sea anchor when in a life raft will \_\_\_\_\_.

**reduce the drift rate of the life raft**

**Illustrations:** SEAANCHOR

See REF116

When lowering lifeboats as the vessel is pitching in heavy seas, a good practice is to rig frapping lines \_\_\_\_\_.

**fore and aft with a lead of about 45° to the boat**

**Illustrations:** D016SA\_WM\_110818

See REF105

If you see an individual fall overboard, you should \_\_\_\_\_.

**hail 'Man Overboard'**

**throw a life ring overboard**

**pass the word to the bridge**

**All of the above.**

**Illustrations:** WILLIAMSON\_TURN, ANDERSON\_TURN, SCHARNOW\_TURN

See REF020

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***All of the above.***

**Illustrations:** WILLIAMSON\_TURN, ANDERSON\_TURN, SCHARNOW\_TURN  
See REF020

Following a grounding, you can best determine that a SLACK fuel oil tank has been holed by \_\_\_\_\_.  
***sounding the tank***

See REF1992

Following a grounding, you can best determine that a SLACK fuel oil tank has been holed by \_\_\_\_\_.  
***sounding the tank***

See REF1992

What is the maximum reliable shelf life of a filter gas mask canister if the seal is unbroken?  
***5 years from the date of manufacture***

Most lifeboats are equipped with \_\_\_\_\_.  
***unbalanced rudders***

The hand brake of a lifeboat winch is \_\_\_\_\_.  
***applied by dropping the counterweighted lever***

To activate an air regeneration canister on a survival craft, you \_\_\_\_\_.  
***tear off the tabs on the canister***

Annual servicing of a hand portable CO2 fire extinguisher includes \_\_\_\_\_.  
***weighing the cylinder and recharging if weight loss exceeds 10% of the weight of the charge***

The fire main system should be flushed with fresh water whenever possible to \_\_\_\_\_.  
***help destroy marine growth***

It is necessary to cool the bulkheads and decks surrounding a compartment where there is a fire in order to \_\_\_\_\_.  
***prevent the fire from spreading by the conduction of heat***

See REF016

Burning wood is considered to be which of the listed classes of fire?

***Class A***  
See REF011

Which of the hazards listed is of a primary concern, other than fire damage, associated with a class C fire?  
***Electrocution or shock***

Paints and solvents used aboard a vessel should be \_\_\_\_\_.  
***returned to the paint locker after each use***

See REF327

High concentrations of hydrogen sulfide gas are most dangerous to personnel because they can \_\_\_\_\_.  
***paralyze your breathing system***

See REF2004

After an injury, which of the following can be determined by examining the condition of a victim's pupils?  
**Whether or not the brain is functioning properly.**

First aid treatment for small cuts and open wounds is to \_\_\_\_\_.  
**stop the bleeding, clean, medicate, and cover the wound**  
See REF2102

Severe airway burns will cause \_\_\_\_\_.  
**complete obstruction of respiratory passages**

Which of the following conditions is a symptom of heat stroke?  
**hot and dry skin, high body temperature**

If you wish to initiate a station-to-station call over a sound-powered telephone circuit, what is the correct procedure?  
**Select the station you wish to call with the rotary selector switch, turn the hand-crank a few revolutions, depress the button on the handset, and listen for your party to answer the call.**

A Crude Oil Wash (COW) system is considered as \_\_\_\_\_.  
**a Butterworth system using crude oil instead of water as the cleaning medium**

A ullage reading is the distance from a given point at the \_\_\_\_\_.  
**top of the sounding tube down to the surface of the liquid**

To prevent oil from escaping into the sea when ballasting through the cargo piping system, you should FIRST \_\_\_\_\_.  
**start the cargo pump, then open sea suction valves**

After measuring the length to which a section of shoring should be cut, you should cut the shoring \_\_\_\_\_.  
**approximately 1/2 inch shorter than measured length to allow for the use of wedges**

In the event of a grounding, which tanks should be sounded to determine any evidence of holing?  
**Slack tanks and empty tanks should be sounded. Full tanks need not be sounded.**

It is generally not advisable to drive a wedge into a crack occurring in the hull because wedges \_\_\_\_\_.  
**tend to open the crack**

You have abandoned ship and are in charge of a life raft. How much water per day should you permit each occupant to drink after the first 24 hours?  
**1 pint**

Why is an upper limit switch used when raising the lifeboat?  
**To prevent the davits from pulling up against the stops.**

When a rescue vessel approaches a survival craft in heavy seas, the person in charge of the survival craft should \_\_\_\_\_.  
**wait for calmer weather before transferring personnel**

A squeeze-grip type carbon dioxide portable fire extinguisher has been partially discharged. It should be \_\_\_\_\_.  
**labeled empty and recharged as soon as possible**

The physical difference of the water spray patterns developed by the high velocity tip and low velocity applicator is due to \_\_\_\_\_.  
**the method of breaking up the water stream**

While fighting a fire, in order to utilize two hoses from a single 'wye' gate attached to a hydrant outlet, you need only turn the valve handle \_\_\_\_\_.

**on each leg of the "Y" 90°**

See REF2083

In the event of a fire, the doors to a stair tower must be closed to prevent the spread of fire by \_\_\_\_\_.

**convection**

See REF016

A fire that has developed in a pile of rubber gasket material would be classified as a \_\_\_\_\_.

**class A**

See REF011

A class "D" fire would involve the burning of \_\_\_\_\_.

**magnesium**

See REF009

Which of the following procedures reduces the possibility of an interior ventilation duct fire from rapidly spreading?

**Keeping the duct interior clean.**

If it is necessary to remove a victim from a life threatening situation, the person giving first aid must \_\_\_\_\_.

**avoid subjecting the victim to any unnecessary disturbance during movement**

A person reports to you with a fishhook in his thumb. To remove it you should \_\_\_\_\_.

**push the barb through, cut it off, then remove the hook**

The most effective first aid treatment for chemical burns is to immediately \_\_\_\_\_.

**flood the affected area with water**

See REF2104

Which of the listed conditions is a symptom of sun stroke?

**Temperature is high, pulse is strong and rapid, and skin is hot and dry.**

By definition, combustible liquids are liquids which \_\_\_\_\_.

**have a flash point of 80°F or higher**

See REF094

In order for you to operate your vessel's crude oil wash system, the cargo tanks to be washed must be \_\_\_\_\_.

**inerted**

During topping off of bunker tanks, the loading rate must be personally supervised by the \_\_\_\_\_.

**person in charge**

Water ballast placed in a tank that has been crude oil washed, but not water rinsed, shall be regarded as \_\_\_\_\_.

**dirty ballast**

In an emergency, a hole in the hull below the waterline, not over three inches in diameter, can be temporarily sealed by \_\_\_\_\_.

**using a soft wooden plug**

An acceptable method of temporarily sealing a crack formed in the hull of a vessel is to \_\_\_\_\_.

**apply a patch of sheet packing backed by a strong back or shoring**

Which of the following devices allows the user to remain in an oxygen deficient space for the longest period of time without interruption?

**Direct compressed air supply**

The purpose of the four water pockets, located on the underside at each corner of the raft, is to \_\_\_\_\_.  
**act as stabilizers by filling with sea water as soon as raft is inflated and in an upright position**

The purpose of the wire stretched between the lifeboat davit heads is to \_\_\_\_\_.  
**support the manropes**

While retrieving the survival craft, the engine should be stopped \_\_\_\_\_.  
**when the craft clears the water**

See REF409

If a fire broke out in an automation console, you would first secure the power and then proceed to use which of the listed hand portable fire extinguishers?

**CO2**

See REF333

Which of the following statements is correct regarding the fog applicators used in conjunction with the combination nozzle?  
**On container ships, an applicator termed a bayonet or piercing type utilizes a sharp tip for cutting and penetrating the metal skin of a container.**

Which of the following components provides a direct source of sea water for the fire main system?

**Sea chest suction**

You notice smoke coming from an open laundry room doorway, which smells like electrical insulation. After activating the fire alarm, which of the following would be the lowest action priority?

**Break out the nearest fire hose.**

A class "B" fire develops on the weather deck amidships of a moored tank vessel. The fire party should man the \_\_\_\_\_.

**windward monitor and direct the foam onto a vertical surface while standing by with a charged hose to protect the monitor operator with water fog if needed**

See REF326

A class "D" fire would involve the burning of \_\_\_\_\_.

**magnesium**

See REF009

Which of the following procedures reduces the possibility of an interior ventilation duct fire from rapidly spreading?

**Keeping the duct interior clean.**

Which of the following methods is a convenient and effective system of examining the body of an injury victim?

**Compare the corresponding parts of the body.**

See REF2099

A person reports to you with a fishhook in his thumb. To remove it you should \_\_\_\_\_.

**push the barb through, cut it off, then remove the hook**

Basic emergency care for an electrical burn is to \_\_\_\_\_.

**cover the burned area with a clean cloth and transport the patient to a medical facility**

See REF357

Which of the following heat related illnesses would be considered the most life threatening?

**Heat stroke**

By definition, an example of a flammable liquid is \_\_\_\_\_.

**gasoline**

See REF094

Both crude oil washing and water washing use direct impingement to remove residue from tanks. Crude oil washing has an additional advantage, in utilizing \_\_\_\_\_.

**the solvent effect of the crude oil**

When the scuppers are plugged and an oil spill occurs on deck, you should \_\_\_\_\_.

**use absorbent material, such as sawdust, to clean up the spill**

Wooden shoring is used in shipboard damage control to \_\_\_\_\_.

**support a damaged bulkhead in position**

It is generally not advisable to drive a wedge into a crack occurring in the hull because wedges \_\_\_\_\_.

**tend to open the crack**

The wooden plug fitted tightly in the vent of a damaged tank may prevent the tank from \_\_\_\_\_.

**filling completely**

See REF303

Clean air standards referred to as "Grade D" apply to compressed air for use in \_\_\_\_\_.

**filling open circuit breathing systems**

The canopy of your life raft should \_\_\_\_\_.

**go into place as the raft is inflated**

The purpose of the wire stretched between the lifeboat davit heads is to \_\_\_\_\_.

**support the manropes**

Seawater may be used for drinking water \_\_\_\_\_.

**under no circumstance**

You have just extinguished an oil fire on the floor plates of the engine room with a 15 pound CO2 extinguisher. Which of the listed dangers should you now be preparing to handle?

**Reflashing of the fire.**

Low velocity water fog is used in firefighting as a \_\_\_\_\_.

**smothering agent**

**barrier against radiant heat**

**cooling agent**

**All of the above.**

See REF2084

The principle personnel hazard unique to Halon fire extinguishers is \_\_\_\_\_.

**inhaling toxic vapors produced when exposed directly to a flame for extended periods**

See REF2085

Which of the following statements is true concerning carbon dioxide when used as a fire extinguishing agent?

**Its smothering effect is excellent for class B fires.**



A class "B" fire develops on the weather deck amidships of a moored tank vessel. The fire party should man the \_\_\_\_\_.

**windward monitor and direct the foam onto a vertical surface while standing by with a charged hose to protect the monitor operator with water fog if needed**

A fire involving aluminum powder would be a class \_\_\_\_\_.

**"D" fire**

See REF009

When welding or burning aboard a vessel, you must be certain that the space \_\_\_\_\_.

**contains no explosive fumes  
has no oil or flammable material in the area  
is properly vented  
All of the above.**

While you are fighting a fire in a smoke-filled compartment one of your shipmates falls sustaining a severe laceration and ceases breathing. Your FIRST response should be to \_\_\_\_\_.

**remove him from the compartment**

What type of wound is generally associated with a scraping away of the skin and may be very painful?

**Abrasion**

If a patient has an electrical burn, you would check for breathing, pulse, and \_\_\_\_\_.

**look for a second burn, which may have been caused by the current leaving the body**

In which of the following heat related illnesses has the body lost its ability to regulate the body core temperature?

**Heat stroke**

An LNG carrier has an approved type of gas detecting system to detect methane leaks in the \_\_\_\_\_.

**cargo handling rooms  
barrier spaces  
boiler burner supply piping  
All of the above.**

The component in an inert gas system used for cleaning the gas of solid and sulfur combustion products, while simultaneously cooling the inert gas, is called the \_\_\_\_\_.

**scrubber**

See REF165

Which of the precautions listed should be observed when taking on diesel fuel?

**Prohibit smoking in the area.**

The lengthening of a crack formed in the shell plating of a ship may be prevented by \_\_\_\_\_.

**drilling a hole at each end of the crack**

Your vessel has run aground and upon taking fuel oil tank soundings, you find that a fuel tank level has increased. You therefore should suspect \_\_\_\_\_.

**a crack in the hull portion of the fuel tank**

See REF1992

When a helicopter is lifting personnel from an enclosed lifeboat, the other individuals in the boat should \_\_\_\_\_.

**remain seated inside to provide body weight for stability**

Which fire extinguisher is most prone to freezing when stowed in low temperatures?

**Foam**

See REF2078

Water applied as a 'fog' can be more effective than water applied as a 'solid stream', because \_\_\_\_\_.  
**a given amount of water can absorb more heat when it is in the form of fog**  
**it reduces the total amount of water that must be pumped into the ship to fight a given fire**  
**it does not have to hit the seat of fire to be effective**  
**All of the above.**

Which extinguishing agent is most likely to allow reflash as a result of not cooling the fuel below its ignition temperature?  
**CO2**

See REF012

All of the following are part of the fire triangle EXCEPT \_\_\_\_\_.

**electricity**

See REF315

A fire in the paint locker would probably be \_\_\_\_\_.

**Class B**

See REF326

A magnesium fire would be classified as a \_\_\_\_\_.

**class D**

See REF009

A fire is considered 'under control' when \_\_\_\_\_.

**the fire is contained and no longer spreading**

When administering chest compression during CPR, at what part of the victim's body should the pressure be applied?

**Lower half of the sternum**

You have found a person laying prone and not breathing. An electric wire is touching the victim. Which of the actions listed is the FIRST thing you should do?

**Shut off power or remove the wire from the victim.**

What type of wound is most susceptible to a tetanus (lockjaw) infection?

**Puncture**

If someone suffers a heart attack and has ceased breathing, you should \_\_\_\_\_.

**immediately start CPR**

See REF350

In which of the following heat related illnesses has the individual lost the ability to lose heat through the mechanism of sweating?

**Heat stroke**

Span gas is used aboard liquefied natural gas carriers to \_\_\_\_\_.

**calibrate the gas leak detectors**

See REF233

How does an inert gas system on a tanker function to prevent explosions in cargo tanks?

**Inert gas dilutes the flammable vapor and air concentrations to keep them below the lower explosive limit.**

See REF235

When you have completed bunkering operations, the hoses should be \_\_\_\_\_.

**drained into drip pans or tanks**

After an emergency shoring installation has been completed, the \_\_\_\_\_.  
**shoring should be frequently inspected for looseness**

An acceptable method of temporarily sealing a crack formed in the hull of a vessel is to \_\_\_\_\_.  
**apply a patch of sheet packing backed by a strong back or shoring**

In a compartment that has been completely flooded with water, the greatest pressure will be exerted \_\_\_\_\_.  
**along the bottom of any bulkhead**

The external flotation bladder of an immersion suit should be inflated \_\_\_\_\_.  
**after you enter the water**  
See REF054

Immediately after abandoning a vessel, lookouts should be posted aboard liferafts to look for \_\_\_\_\_.  
**survivors in the water**

In order for the automatic lifeboat drain to operate properly \_\_\_\_\_.  
**the cage must be free of rubbish or the ball may not seat properly**

A hand portable CO2 fire extinguisher is effective on burning oil only \_\_\_\_\_.  
**if applied promptly**

An extinguishing agent which effectively cools, dilutes combustible vapors and provides a heat and smoke screen is \_\_\_\_\_.  
**water fog**

As a firefighting medium, CO2 can be dangerous under certain conditions as it can cause \_\_\_\_\_.  
**freeze burns and blistering**  
See REF2086

The upper explosive limit (UEL) of a mixture of flammable vapors and air is defined as \_\_\_\_\_.  
**that concentration above which the mixture is too rich to burn**  
See REF170

Which of the fire extinguishing agents listed can be used to effectively combat a class "B" fire?  
**All of the above**  
See REF121

"Dry Powder" fire extinguishers, which contain a mixture of graphite and sodium chloride as the extinguishing agent, are generally used to fight which type of fire?  
**Class D**

The Muster List ("Station Bill") shows each crew lifeboat station, their duties during abandonment, basic instructions, and \_\_\_\_\_.  
**all emergency signals**  
See REF2095

Before CPR is started on the victim, you should \_\_\_\_\_.  
**establish an open airway**  
See REF350

Artificial respiration may be necessary in cases of \_\_\_\_\_.

- drowning**
- poisoning**
- electrocution**
- All of the above.**

See REF2100

A tourniquet should be used to control bleeding only \_\_\_\_\_.

- when all other means have failed**

If a person gets battery acid in their eye while filling a battery, they should FIRST wash the eye with \_\_\_\_\_.

- water**

What strategy for avoiding heat exhaustion is most likely to result in more severe pain as associated with heat cramps?

- Drinking excessive water lost during profuse sweating without replacing the salt lost.**

Petroleum vapors are dangerous \_\_\_\_\_.

- at all times due to their toxicity**

See REF2057

The primary function of a "flue gas type" inert gas system is to \_\_\_\_\_.

- supply conditioned gas with reduced oxygen content**

To avoid excessive pressures in the fuel oil filling system during bunkering, you should \_\_\_\_\_.

- reduce the loading rate when topping off**

Which of the following shoring materials is a portable beam designed to support a damaged structure?

- Shore**

A hole in the hull above the waterline may be temporarily patched with \_\_\_\_\_.

- blankets**
- pillows**
- mattresses**
- All of the above.**

Progressive flooding in the engine room may be minimized by securing watertight boundaries and \_\_\_\_\_.

- pumping out flooded compartments**

If for any reason it is necessary to abandon ship while far at sea, it is important for the crew members to \_\_\_\_\_.

- remain together in the area because rescuers will start searching at the vessel's last known position**

The most important reason for taking anti-seasickness pills as soon as possible after entering a life raft is to \_\_\_\_\_.

- prevent loss of body moisture by vomiting**

In heavy seas the helmsman should steer the survival craft \_\_\_\_\_.

- into the seas**

The state of charge of a stored pressure type dry chemical fire extinguisher can be readily determined by \_\_\_\_\_.

- visual inspection of the pressure gage**

Properly stowed fire hose is either faked or rolled into a rack with the \_\_\_\_\_.

- nozzle end arranged to be easily run out to the fire**

The source of power for the CO2 discharge alarm siren is obtained from \_\_\_\_\_.

- the flow of CO2 under pressure**

One of the disadvantages of using carbon dioxide to extinguish a fire in an enclosed space is \_\_\_\_\_.

***prolonged exposure to high concentrations of CO2 gas causes suffocation***

See REF2086

Which of the fire extinguishing agents listed can be used to effectively combat a class "B" fire?

***CO2***

***Foam***

***Dry chemical***

***All of the above.***

See REF121

Fires are grouped into which of the listed categories?

***Class A, B, C, and D***

See REF012

You are attempting to administer CPR to a victim. While blowing into the victim's mouth, it is apparent that no air is getting to the lungs. Which of the following actions should you take?

***Re-tip the head and try again.***

If vomiting occurs during a resuscitation effort, the best immediate procedure to follow is \_\_\_\_\_.

***turn the patient's body to the side, sweep out the mouth and resume CPR***

See REF2101

What method of controlling severe bleeding is preferred and normally attempted first?

***Direct pressure applied to wound***

If a person gets something in his eye and you observe that it is not embedded, you can \_\_\_\_\_.

***remove it with a moist cotton-tipped applicator***

Physical exertion on the part of a person who has fallen into cold water can \_\_\_\_\_.

***increase the rate of heat loss from the body***

See REF2107

Which of the following hazards is associated with the handling of petroleum products?

***Fire***

***Explosion***

***Asphyxiation***

***All of the above.***

When securing the operation of an inert gas system, the final step should be \_\_\_\_\_.

***secure the salt water supply to the scrubber***

See REF165

During fueling operations oil is detected in the water adjacent to your vessel. If however, it is determined to be from some source other than your vessel, you should \_\_\_\_\_.

***notify the Coast Guard***

Which of the following shoring materials is a short flat block that is placed under the end of a shore for the purpose of distributing pressure?

***Shole***

In a compartment that has been completely flooded, the greatest pressure will be exerted \_\_\_\_\_.

***along the bottom of any bulkhead***

See REF1991

Your ship has run aground and it is necessary to determine whether or not a compartment has flooded. Therefore, you should \_\_\_\_\_.

**tap the bulkhead with a hammer to check for a water level**

See REF1990

Which of the following statements is TRUE concerning life jackets?

**Lifejackets are designed to turn an unconscious person's face clear of the water.**

In order to retrieve an inflatable life raft and place it on deck, you should heave on the \_\_\_\_\_.  
**towing bridle**

The survival craft's engine is fueled with \_\_\_\_\_.  
**diesel oil**

In a cartridge-operated dry chemical type fire extinguisher, when the CO2 cartridge is activated, the dry chemical is released from the extinguisher \_\_\_\_\_.

**with the squeeze-grip on/off nozzle at the end of the hose**

If the threads and gasket of a fire hose coupling are in good condition, the minimum mechanical advantage necessary for making a watertight connection to another hose coupling, can be developed with \_\_\_\_\_.

**your hands**

After extinguishing a paint locker fire using the fixed CO2 system, the next immediate action is for the space to be \_\_\_\_\_.

**left closed with ventilation off until all boundaries are cool**

The advantage of using a dry chemical fire extinguishing agent is \_\_\_\_\_.

**its good stability and non-toxicity**

See REF015

The spreading of fire as a result of heat being carried through a vessel's ventilation system, is an example of heat transfer by \_\_\_\_\_.

**convection**

See REF016

A galley grease fire would be classified as \_\_\_\_\_.

**Class B**

See REF326

Which of the listed sources of ignition may cause fuel vapors to ignite?

**An open and running motor**

**Loose wiring**

**Static electricity**

**All of the above.**

In a typical automatic fire alarm system, which of the listed actions will cause an indication of a fire to be given in the annunciator cabinet?

**The fire alarm test push-button is operated.**

**A rise in temperature activating a heat detector.**

**A manual fire alarm box is activated.**

**All of the above.**

In order to initiate CPR on a drowning victim, \_\_\_\_\_.

**begin mouth-to-mouth ventilations**

See REF2097

The rescuer can best provide an airtight seal during mouth-to-mouth resuscitation by pinching the victim's nostrils and \_\_\_\_\_.

**applying his mouth tightly over the victim's mouth**

See REF349

A person has suffered a laceration of the arm. Severe bleeding has been controlled by using a sterile dressing and direct pressure. Which of the following actions should be taken next?

**Apply a pressure bandage over the dressing.**

See REF354

A crew member has suffered possible frostbite to the toes of both feet. You should \_\_\_\_\_.

**immerse the feet in warm water**

See REF2105

The most effective warming treatment for a crew member suffering from hypothermia is \_\_\_\_\_.

**a warm water bath**

See REF2108

Which of the following methods will reduce the possibility of producing an electrical spark?

**Placing an insulating flange or a section of nonconducting hose in the hose setup.**

**Using a cargo hose with a built in electrical bonding wire.**

**Connecting a bonding wire between the shore side piping and the vessel.**

**All of the above.**

What information can be obtained from a marine chemist's certificate on a tank barge?

**The tanks which are safe to enter when the certificate was issued.**

The most critical part of the bunkering operations, which can result in an oil spill, is when the \_\_\_\_\_.

**tanks are being topped off**

See REF2016

Which of the following shoring materials is a long bar or beam used to distribute the pressure of a shore?

**Strong back**

In a compartment that has been completely flooded, the greatest pressure will be exerted \_\_\_\_\_.

**along the bottom of any bulkhead**

What should you do when the alarm bell on a self-contained breathing apparatus sounds?

**Immediately evacuate the contaminated area.**

Kapok lifejackets require proper care and should NOT be \_\_\_\_\_.

**stowed near open flame or where smoking is permitted**

**used as seats, pillows, or foot rests**

**left on open decks**

**All of the above.**

See REF412

While adrift in an inflatable life raft in hot, tropical weather \_\_\_\_\_.

**deflating the floor panels may help to cool personnel**

With the sprinkler system and air system on, and all hatches shut, the survival craft will be protected from \_\_\_\_\_.

**a fire and toxic environment**

You are fighting a class "B" fire with a portable dry chemical extinguisher. The discharge should be directed \_\_\_\_\_.  
**at the seat of the fire, starting near the edge**

See REF121

Fire hoses located at protected fire stations must always be \_\_\_\_\_.  
**connected to the fire hydrant**

When fighting a machinery space fire, you should operate a fixed CO2 system by opening the control valve to the space protected and \_\_\_\_\_.

**operating a separate control to release CO2**

Dry chemical extinguishing agents extinguish a fire by \_\_\_\_\_.

**breaking up the molecular chain reaction**

See REF015

To prevent the spread of fire by convection you should \_\_\_\_\_.

**close all openings to the area**

See REF016

The class of fire on which a blanketing effect is essential to extinguish the fire is \_\_\_\_\_.

**class B**

See REF151

A fire can be extinguished by removing \_\_\_\_\_.

**the oxygen**

**the fuel**

**the heat**

**Any of the above.**

See REF2092

Fire detecting systems on merchant vessels may be arranged to sense \_\_\_\_\_.

**ionized particles**

**smoke**

**rate of temperature rise**

**All of the above.**

The MOST important element in administering CPR is \_\_\_\_\_.

**starting the treatment quickly**

See REF2098

When administering mouth to mouth rescue breathing to an adult, you should breathe at the rate of how many breaths per minute?

**12**

In all but the most severe cases, bleeding from a wound should be controlled by \_\_\_\_\_.

**applying direct pressure**

See REF354

A crew member has suffered possible frostbite to the toes of both feet. You should \_\_\_\_\_.

**immerse the feet in warm water**

Persons who have swallowed a non-petroleum based poison are given large quantities of warm, soapy water or warm salt water to \_\_\_\_\_.

**induce vomiting**



Which of the following methods will reduce the possibility of producing an electrical spark?

**Placing an insulating flange or a section of non-conducting hose in the hose setup.**

**Using a cargo hose with a built in electrical bonding wire.**

**Connecting a bonding wire between the shore side piping and the vessel.**

**All of the above.**

If a cargo tank has not been certified as gas free, \_\_\_\_\_.

**breathing apparatus should always be used**

Small oil spills on deck can be prevented from contaminating any waters by \_\_\_\_\_.

**plugging all scuppers and drains**

See REF2019

Which of the following shoring materials is used to tightly make up the difference in length of a shore cut slightly shorter than the measured distance for required length and must be frequently checked for tightness?

**Wedge**

A flat block placed under the end of a shore for the purpose of distributing pressure is referred to as a \_\_\_\_\_.

**shole**

See REF1993

Which unit will provide excellent mobility to the wearer in an unsafe atmosphere and provide oxygen to sustain life?

**A self-contained breathing apparatus**

See REF1994

The sea painter on a rescue boat should be led \_\_\_\_\_.

**forward and outside of all obstructions**

See REF365

The air spaces in the floor of an inflatable raft will provide protection against \_\_\_\_\_.

**warm water temperatures**

**cold water temperatures**

**tears in the outside skin of bottom of the raft**

**All of the above.**

Who is responsible for lowering the survival craft?

**Helmsman**

When fighting an oil or gasoline fire, which of the listed fire extinguishing agents should NEVER be sprayed directly into the fire?

**Dry chemical**

To properly maintain fire hoses, you should \_\_\_\_\_.

**thoroughly drain them after each use**

What would be the most probable cause for a high pressure alarm to be activated in a Low Pressure CO2 fixed fire extinguishing system?

**The tank cooling system has malfunctioned.**

The most common cooling agent used for fighting fires on tank vessels is \_\_\_\_\_.

**water**

See REF129

Radiation can cause a fire to spread by \_\_\_\_\_.

**the transfer of heat across an unobstructed space**

See REF016

Which of the listed burning materials would be described as a class "B" fire?

- Lube oil**
- Acetylene**
- Grease**
- All of the above.**

Good housekeeping on a vessel prevents fires by \_\_\_\_\_.

**eliminating potential fuel sources**

See REF327

An oxygen indicator will detect \_\_\_\_\_.

**an oxygen deficiency in a space**

See REF157

You are preparing to administer closed chest cardiac massage on a victim of electric shock. Which of the following actions is NOT a recommended procedure?

**Giving cardiac massage without artificial respiration.**

In any major personal injury, first aid is to include the treatment of the injury and what additional treatment?

**Treatment for traumatic shock**

See REF355

Bleeding from a vein may be ordinarily controlled by \_\_\_\_\_.

**applying direct pressure to the wound**

See REF2103

Part of the treatment for frostbite of the feet is the rapid rewarming of the cold injury. What is the preferred temperature of rewarming when using the wet rapid rewarming method?

**Immersing the feet in an adequate amount of water maintained between 104oF to 107.6oF.**

What is the alarm signal for a fire emergency or fire drill onboard a merchant ship?

**Continuous blast of the whistle for not less than 10 seconds supplemented by the continuous ringing of the general alarm bells for not less than 10 seconds.**

When checking the level of a volatile liquid in a tank on the weather deck of a tank vessel, you should position yourself \_\_\_\_\_.

**at a right angle to the wind direction**

See REF2007

A tank or compartment is "gas free" when there is an absence of dangerous concentrations of \_\_\_\_\_.

**flammable or toxic gases**

See REF2009

The most common type of containment device for spilled oil on the water is the use of \_\_\_\_\_.

**booms**

See REF2059

Your ship has run aground and it is necessary to determine whether or not a compartment has flooded. Therefore, you should \_\_\_\_\_.

**tap the bulkhead with a hammer to check for a water level**

See REF1990

The most basic fire prevention rule is to practice "Good housekeeping" This means keeping your vessel clean and ship shape. Including the interior of all ventilation ducts.

#### REF331

Spontaneous combustion or spontaneous ignition is a type of combustion which occurs by self-heating (increase in temperature due to exothermic internal reactions), followed by thermal runaway (self heating which rapidly accelerates to high temperatures) and finally, autoignition. Spontaneous combustion can occur when a substance with a relatively low ignition temperature (hay, straw, peat, etc.) begins to release heat. This may occur in several ways, either by oxidation in the presence of moisture and air, or bacterial fermentation, which generates heat. The heat is unable to escape (hay, straw, peat, etc. are good thermal insulators), and the temperature of the material rises. The temperature of the material rises above its ignition point (even though much of the bacteria are destroyed by ignition temperatures). Combustion begins if sufficient oxidizer, such as oxygen, and fuel are present to maintain the reaction into thermal runaway.

#### REF333

Fires are divided into five different "classes"- A, B, C, D, and LFG. These classes indicate either the type of fuel involved or special dangers. The class also indicates the type of extinguishing agent to use and certain techniques that should or should not be used on that fire. The first step in fighting a Class C fire is to secure (i.e., turn off) electrical power to the equipment or circuits on fire. Class C fires are those in or around electrical equipment, gear, or wiring. The reason these fires are placed in a separate class is because they add the danger of electrical shock to persons in the area. Water-based agents cannot be used on this type of fire because water conducts electrical current. However, low velocity fog can be used .

#### REF349

In the mouth-to-mouth method, which is recommended whenever possible, you must establish an airtight seal. This normally is done by pinching the victim's nostrils and applying your mouth tightly over the victim's mouth. Blow your breath into the victim at a rate of 12 to 15 times a minute, removing your mouth between breaths to allow exhaling. The victim's chest should rise during breathing and fall during exhaling. If this doesn't happen, reposition the victim's head and chin and be sure you have sealed the nose and mouth.

#### REF350

Cardiopulmonary resuscitation (CPR) is a lifesaving technique useful in many emergencies, including heart attack or near drowning, in which someone's breathing or heartbeat has stopped. In 2010, the American Heart Association updated its guidelines to recommend that everyone — untrained bystanders and medical personnel alike — begin CPR with chest compressions. It's far better to do something than to do nothing at all if you're fearful that your knowledge or abilities aren't 100 percent complete. Remember, the difference between your doing something and doing nothing could be someone's life. Here's advice from the American Heart Association: \* Untrained. If you're not trained in CPR, then provide hands-only CPR. That means uninterrupted chest compressions of about 100 a minute until paramedics arrive (described in more detail below). You don't need to try rescue breathing. \* Trained, and ready to go. If you're well trained and confident in your ability, begin with chest compressions instead of first checking the airway and doing rescue breathing. Start CPR with 30 chest compressions before checking the airway and giving rescue breaths. \* Trained, but rusty. If you've previously received CPR training but you're not confident in your abilities, then just do chest compressions at a rate of about 100 a minute. (Details described below.) The above advice applies to adults, children and infants needing CPR, but not newborns. CPR can keep oxygenated blood flowing to the brain and other vital organs until more definitive medical treatment can restore a normal heart rhythm. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few minutes. A person may die within eight to 10 minutes. To learn CPR properly, take an accredited first-aid training course, including CPR and how to use an automatic external defibrillator (AED). Before you begin Before starting CPR, check: \* Is the person conscious or unconscious? \* If the person appears unconscious, tap or shake his or her shoulder and ask loudly, "Are you OK?" \* If the person doesn't respond and two people are available, one should call 911 or the local emergency number and one should begin CPR. If you are alone and have immediate access to a telephone, call 911 before beginning CPR — unless you think the person has become unresponsive because of suffocation (such as from drowning). In this special case, begin CPR for one minute and then call 911 or the local emergency number. \* If an AED is immediately available, deliver one shock if instructed by the device, then begin CPR. Remember to spell C-A-B In 2010, the American Heart Association changed its long-held acronym of ABC to CAB — circulation, airway, breathing — to help people remember the order to perform the steps of CPR. This change emphasizes the importance of chest compressions to help keep blood flowing through the heart and to the brain. Circulation: Restore blood circulation with chest compressions 1. Put the person on his or her back on a firm surface. 2. Kneel next to the person's neck and shoulders. 3. Place the heel of one hand over the center of the person's chest, between the nipples. Place your other hand on top of the first hand. Keep your elbows straight and position your shoulders directly above your

hands. 4. Use your upper body weight (not just your arms) as you push straight down on (compress) the chest at least 2 inches (approximately 5 centimeters). Push hard at a rate of about 100 compressions a minute. 5. If you haven't been trained in CPR, continue chest compressions until there are signs of movement or until emergency medical personnel take over. If you have been trained in CPR, go on to checking the airway and rescue breathing. Airway: Clear the airway 1. If you're trained in CPR and you've performed 30 chest compressions, open the person's airway using the head-tilt, chin-lift maneuver. Put your palm on the person's forehead and gently tilt the head back. Then with the other hand, gently lift the chin forward to open the airway. 2. Check for normal breathing, taking no more than five or 10 seconds. Look for chest motion, listen for normal breath sounds, and feel for the person's breath on your cheek and ear. Gasping is not considered to be normal breathing. If the person isn't breathing normally and you are trained in CPR, begin mouth-to-mouth breathing. If you believe the person is unconscious from a heart attack and you haven't been trained in emergency procedures, skip mouth-to-mouth rescue breathing and continue chest compressions. Breathing: Breathe for the person Rescue breathing can be mouth-to-mouth breathing or mouth-to-nose breathing if the mouth is seriously injured or can't be opened. 1. With the airway open (using the head-tilt, chin-lift maneuver), pinch the nostrils shut for mouth-to-mouth breathing and cover the person's mouth with yours, making a seal. 2. Prepare to give two rescue breaths. Give the first rescue breath — lasting one second — and watch to see if the chest rises. If it does rise, give the second breath. If the chest doesn't rise, repeat the head-tilt, chin-lift maneuver and then give the second breath. Thirty chest compressions followed by two rescue breaths is considered one cycle. 3. Resume chest compressions to restore circulation. 4. If the person has not begun moving after five cycles (about two minutes) and an automatic external defibrillator (AED) is available, apply it and follow the prompts. Administer one shock, then resume CPR — starting with chest compressions — for two more minutes before administering a second shock. If you're not trained to use an AED, a 911 operator may be able to guide you in its use. Use pediatric pads, if available, for children ages 1 through 8. Do not use an AED for babies younger than age 1. If an AED isn't available, go to step 5 below. 5. Continue CPR until there are signs of movement or emergency medical personnel take over. To perform CPR on a child The procedure for giving CPR to a child age 1 through 8 is essentially the same as that for an adult. The differences are as follows: \* If you're alone, perform five cycles of compressions and breaths on the child — this should take about two minutes — before calling 911 or your local emergency number or using an AED. \* Use only one hand to perform heart compressions. \* Breathe more gently. \* Use the same compression-breath rate as is used for adults: 30 compressions followed by two breaths. This is one cycle. Following the two breaths, immediately begin the next cycle of compressions and breaths. \* After five cycles (about two minutes) of CPR, if there is no response and an AED is available, apply it and follow the prompts. Use pediatric pads if available. If pediatric pads aren't available, use adult pads. Continue until the child moves or help arrives. To perform CPR on a baby Most cardiac arrests in babies occur from lack of oxygen, such as from drowning or choking. If you know the baby has an airway obstruction, perform first aid for choking. If you don't know why the baby isn't breathing, perform CPR. To begin, examine the situation. Stroke the baby and watch for a response, such as movement, but don't shake the baby. If there's no response, follow the CAB procedures below and time the call for help as follows: \* If you're the only rescuer and CPR is needed, do CPR for two minutes — about five cycles — before calling 911 or your local emergency number. \* If another person is available, have that person call for help immediately while you attend to the baby. Circulation: Restore blood circulation 1. Place the baby on his or her back on a firm, flat surface, such as a table. The floor or ground also will do. 2. Imagine a horizontal line drawn between the baby's nipples. Place two fingers of one hand just below this line, in the center of the chest. 3. Gently compress the chest about 1.5 inches (about 4 cm). 4. Count aloud as you pump in a fairly rapid rhythm. You should pump at a rate of 100 compressions a minute. Airway: Clear the airway 1. After 30 compressions, gently tip the head back by lifting the chin with one hand and pushing down on the forehead with the other hand. 2. In no more than 10 seconds, put your ear near the baby's mouth and check for breathing: Look for chest motion, listen for breath sounds, and feel for breath on your cheek and ear. Breathing: Breathe for the infant 1. Cover the baby's mouth and nose with your mouth. 2. Prepare to give two rescue breaths. Use the strength of your cheeks to deliver gentle puffs of air (instead of deep breaths from your lungs) to slowly breathe into the baby's mouth one time, taking one second for the breath. Watch to see if the baby's chest rises. If it does, give a second rescue breath. If the chest does not rise, repeat the head-tilt, chin-lift maneuver and then give the second breath. 3. If the baby's chest still doesn't rise, examine the mouth to make sure no foreign material is inside. If the object is seen, sweep it out with your finger. If the airway seems blocked, perform first aid for a choking baby. 4. Give two breaths after every 30 chest compressions. 5. Perform CPR for about two minutes before calling for help unless someone else can make the call while you attend to the baby. 6. Continue CPR until you see signs of life or until medical personnel arrive.

#### REF354

If possible, before you try to stop severe bleeding, wash your hands to avoid infection and put on synthetic gloves. Don't reposition displaced organs. If the wound is abdominal and organs have been displaced, don't try to push them back into place — cover the wound with a dressing. For other cases of severe bleeding, follow these steps: 1. Have the injured person lie down and cover the person to prevent loss of body heat. If possible, position the person's head slightly lower than the trunk or elevate the legs. This position reduces the risk of fainting by increasing blood flow to the brain. If possible,

elevate the site of bleeding. 2. While wearing gloves, remove any obvious dirt or debris from the wound. Don't remove any large or more deeply embedded objects. Don't probe the wound or attempt to clean it at this point. Your principal concern is to stop the bleeding. 3. Apply pressure directly on the wound until the bleeding stops. Use a sterile bandage or clean cloth and hold continuous pressure for at least 20 minutes without looking to see if the bleeding has stopped. Maintain pressure by binding the wound tightly with a bandage (or a piece of clean cloth) and adhesive tape. Use your hands if nothing else is available. If possible, wear rubber or latex gloves or use a clean plastic bag for protection. 4. Don't remove the gauze or bandage. If the bleeding continues and seeps through the gauze or other material you are holding on the wound, don't remove it. Instead, add more absorbent material on top of it. 5. Squeeze a main artery if necessary. If the bleeding doesn't stop with direct pressure, apply pressure to the artery delivering blood to the area of the wound. Pressure points of the arm are on the inside of the arm just above the elbow and just below the armpit. Pressure points of the leg are just behind the knee and in the groin. Squeeze the main artery in these areas against the bone. Keep your fingers flat. With your other hand, continue to exert pressure on the wound itself. 6. Immobilize the injured body part once the bleeding has stopped. Leave the bandages in place and get the injured person to the emergency room as soon as possible. If you suspect internal bleeding, call 911 or your local emergency number. Signs of internal bleeding may include: \* Bleeding from body cavities, such as the ears, nose, rectum or vagina \* Vomiting or coughing up blood \* Bruising on neck, chest, abdomen or side (between ribs and hip) \* Wounds that have penetrated the skull, chest or abdomen \* Abdominal tenderness, possibly accompanied by rigidity or spasm of abdominal muscles \* Fractures \* Shock, indicated by weakness, anxiety, thirst or skin that's cool to the touch

#### REF355

Shock may result from trauma, heatstroke, blood loss, an allergic reaction, severe infection, poisoning, severe burns or other causes. When a person is in shock, his or her organs aren't getting enough blood or oxygen, which if untreated, can lead to permanent organ damage or death. Various signs and symptoms appear in a person experiencing shock: \* The skin is cool and clammy. It may appear pale or gray. \* The pulse is weak and rapid. Breathing may be slow and shallow, or hyperventilation (rapid or deep breathing) may occur. Blood pressure is below normal. \* The person may be nauseated. He or she may vomit. \* The eyes lack luster and may seem to stare. Sometimes the pupils are dilated. \* The person may be conscious or unconscious. If conscious, the person may feel faint or be very weak or confused. Shock sometimes causes a person to become overly excited and anxious. If you suspect shock, even if the person seems normal after an injury: \* Call 911 or your local emergency number. \* Have the person lie down on his or her back with feet about a foot higher than the head. If raising the legs will cause pain or further injury, keep him or her flat. Keep the person still. \* Check for signs of circulation (breathing, coughing or movement). If absent, begin CPR. \* Keep the person warm and comfortable. Loosen belt and tight clothing and cover the person with a blanket. Even if the person complains of thirst, give nothing by mouth. \* Turn the person on his or her side to prevent choking if the person vomits or bleeds from the mouth. \* Seek treatment for injuries, such as bleeding or broken bones.

#### REF357

The danger from an electrical shock depends on the type of current, how high the voltage is, how the current traveled through the body, the person's overall health and how quickly the person is treated. Call 911 or your local emergency number immediately if any of these signs or symptoms occur: \* Cardiac arrest \* Heart rhythm problems (arrhythmias) \* Respiratory failure \* Muscle pain and contractions \* Burns \* Seizures \* Numbness and tingling \* Unconsciousness While waiting for medical help, follow these steps: \* Look first. Don't touch. The person may still be in contact with the electrical source. Touching the person may pass the current through you. \* Turn off the source of electricity, if possible. If not, move the source away from you and the person, using a nonconducting object made of cardboard, plastic or wood. \* Check for signs of circulation (breathing, coughing or movement). If absent, begin cardiopulmonary resuscitation (CPR) immediately. \* Prevent shock. Lay the person down and, if possible, position the head slightly lower than the trunk, with the legs elevated. After coming into contact with electricity, the person should see a doctor to check for internal injuries, even if he or she has no obvious signs or symptoms. Caution \* Don't touch the person with your bare hands if he or she is still in contact with the electrical current. \* Don't get near high-voltage wires until the power is turned off. Stay at least 20 feet away — farther if wires are jumping and sparking. \* Don't move a person with an electrical injury unless the person is in immediate danger.

#### REF365

You must secure a life raft's sea painter to a permanent object on deck using a "weak link". The force exerted by a life raft's buoyancy, break the weak link, and free the life raft if the ship sinks.

#### REF409

§ 108.550 Survival craft launching and recovery arrangements: General.

REF412

Cork was the first material for these “modern” life preservers, followed by kapok fiber. Introduced in the early 20th century, kapok was subsequently banned for being flammable and losing buoyancy. Even so, it was reapproved in 1918; cork life preservers were heavy and bulky, and kapok could be added to watertight pockets for better flexibility and comfort. In 1928, Vestris, a British passenger steamer, sank, and many lives were lost. The following year an International Convention for Safety of Life at Sea convened, noting that many of the dead had been found floating face-down. Kapok was seen as superior because it kept the heads of unconscious victims above water.

REF539

Rescue equipment for a pumproom, or any space that may contain contaminated or oxygen-deficient air, includes a self-contained breathing apparatus, a harness, and a lifeline that is longer than twice the depth of the pumproom. Also, have someone standby outside the space being entered. To remember the signals for using a lifeline, recall the word "OATH" that stands for: O= OK-I pull. A = Advance -feed me slack - 2 pulls . T = Take up -retrieve slack - 3 pulls. H = Help - 4 pulls .