Federal Communications Commission (FCC) Element 1 Practice Test (Sample)

Study Guide

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Questions

1. Who determines when a ship station may transmit routine traffic destined for a coast or government station?

A. Shipboard radio officers may transmit traffic when it will not interfere with ongoing radiocommunications.

B. The order and time of transmission and permissible type of message traffic is decided by the licensed on-duty operator.

C. Ship stations must comply with instructions given by the coast or government station.

D. The precedence of conventional radiocommunications is determined by FCC and international regulation.

2. On what frequency would a vessel normally call another ship station when using a radiotelephony emission?

A. Only on 2182 kHz in ITU Region 2.

B. On 2182 kHz or Ch-16, unless the station knows that the called vessel maintains a simultaneous watch on another intership working frequency.

C. On the appropriate calling channel of the ship station at 15 minutes past the hour.

D. On the vessel's unique working radio channel assigned by the Federal Communications Commission.

3. What is the primary purpose of bridge-to-bridge communications?

A. Search and rescue emergency calls only.

B. All short-range transmission aboard ship.

C. Navigational communications.

D. Transmission of Captain's orders from the bridge.

4. Radio watches for compulsory radiotelephone stations will include which of the following?

A. VHF channel 22a continuous watch at sea.

B. 121.5 MHz continuous watch at sea.

C. VHF channel 16 continuous watch.

D. 500 kHz.

5. What is a primary concern when using a vessel's SSB communication system?

A. Interference with other ships' signals.

B. Power output consistency during use.

C. Presence of background noise during transmissions.

D. Adherence to communication protocols during emergencies.

6. To set-up the MF/HF transceiver for a TELEX call to a coast station, the operator must:

A. Select J3E mode for proper SITOR operations

B. Select F1B mode or J2B mode, depending on the equipment manufacturer

C. Select F1B/J2B modes or J3E mode, depending on whether ARQ or FEC is preferred

D. None of the above

7. Which vessels are required to operate under GMDSS?

A. All vessels capable of international voyages.

B. SOLAS Convention ships of 300 gross tonnage or more.

C. Vessels operating outside of the range of VHF coastal radio stations.

D. Coastal vessels of less than 300 gross tons.

8. When is it legal to transmit high power on Channel 13?

A. Failure of vessel being called to respond.

B. In a blind situation such as rounding a bend in a river.

C. During an emergency.

D. All of these.

9. What is the COSPAS-SARSAT system?

A. A global satellite communications system for users in the maritime, land and aeronautical mobile services.

B. An international satellite-based search and rescue system.

C. A broadband military satellite communications network.

D. A Wide Area Geostationary Satellite program (WAGS).

10. At what point does a SART begin transmitting?

A. It immediately begins radiating when placed in the "on" position.

B. It must be manually activated.

C. If it has been placed in the "on" position, it will respond when it has been interrogated by a 9-GHz RADAR signal.

D. If it has been placed in the "on" position, it will begin transmitting immediately upon detecting that it is in water.

Answers

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

Explanations

1. Who determines when a ship station may transmit routine traffic destined for a coast or government station?

A. Shipboard radio officers may transmit traffic when it will not interfere with ongoing radiocommunications.

B. The order and time of transmission and permissible type of message traffic is decided by the licensed on-duty operator.

C. Ship stations must comply with instructions given by the coast or government station.

D. The precedence of conventional radiocommunications is determined by FCC and international regulation.

The determination of when a ship station may transmit routine traffic destined for a coast or government station centers on the compliance with directives issued by the coast or government station itself. This means that a ship station must follow the instructions provided, which may include guidance on timing, types of messages, and any necessary procedures for ensuring that transmissions do not collide with established communications. The primary focus rests on the overall communication protocol and the importance of maintaining clear and effective channels of communication. It is crucial that ship stations remain aligned with the operations and requests of coast or government stations to avoid disruptions, particularly in busy maritime environments. Following these instructions helps to ensure that routine traffic can be transmitted efficiently while minimizing the risk of interference with other important communications. Other choices may touch upon relevant considerations, like the role of licensed operators and the general rules of priority, but the key is that compliance with the direct guidance of the coast or government station is paramount for operational efficiency and safety.

2. On what frequency would a vessel normally call another ship station when using a radiotelephony emission?

A. Only on 2182 kHz in ITU Region 2.

B. On 2182 kHz or Ch-16, unless the station knows that the called vessel maintains a simultaneous watch on another intership working frequency.

C. On the appropriate calling channel of the ship station at 15 minutes past the hour.

D. On the vessel's unique working radio channel assigned by the Federal Communications Commission.

When vessels use radiotelephony emissions to communicate with each other, they typically start their calls on a designated calling frequency. In this context, the appropriate frequencies are 2182 kHz and Channel 16 (Ch-16), which is specifically allocated for this purpose in maritime communication protocols. These frequencies are recognized internationally for distress and calling purposes, enabling ships to make contact with one another. The practice is standardized to ensure that vessels can reliably reach one another, particularly when it comes to safety and emergency communications. The vessel attempting to call another ship would ordinarily initiate the conversation on one of these channels unless it has prior knowledge that the vessel it wishes to contact is monitoring a different working frequency. This allows for efficient communication and coordination among vessels in close proximity. The mention of the other options clarifies why they are less appropriate: the reference to a unique working radio channel assigned by the FCC does not encompass the international conventions guiding maritime communication; therefore, it is not a universally applicable method for calling another vessel. The choice of calling at a specific time, such as 15 minutes past the hour, does not align with established maritime communication practices either, as calls are made as needed without a prescribed timing. Lastly, limiting the call to only 218

3. What is the primary purpose of bridge-to-bridge communications?

A. Search and rescue emergency calls only.

B. All short-range transmission aboard ship.

C. Navigational communications.

D. Transmission of Captain's orders from the bridge.

The primary purpose of bridge-to-bridge communications is navigational communications. This type of communication is essential for ensuring safety at sea, allowing vessels to exchange vital information related to navigation, such as location, intended maneuvers, weather conditions, and potential hazards. These interactions help prevent collisions and facilitate more efficient maritime traffic management. Navigational communications are integral to maintaining situational awareness among operators on different vessels, thus enhancing safety on the water. Bridge-to-bridge communications serve as a critical tool for coordination among ships, providing timely updates and critical information that aid in navigation. Other options, while they touch on aspects of maritime operations, do not encapsulate the broader and more essential role of bridge-to-bridge communications in promoting safe navigation across maritime environments.

4. Radio watches for compulsory radiotelephone stations will include which of the following?

A. VHF channel 22a continuous watch at sea.

B. 121.5 MHz continuous watch at sea.

C. VHF channel 16 continuous watch.

D. 500 kHz.

The correct answer is that radio watches for compulsory radiotelephone stations will include VHF channel 16 continuous watch. This frequency is designated as an international distress frequency and is used for emergency communications. All vessels equipped with VHF radiotelephones are required to monitor this channel at all times to ensure they can receive distress calls and assist in emergencies. VHF channel 16 serves as a standardized channel where any vessel or station can initiate a distress call or communicate safety information. The requirement to monitor VHF channel 16 helps enhance maritime safety by ensuring that all parties are aware of emergencies and can respond quickly. While VHF channel 22a has specific uses, it is not mandated for continuous watch in emergencies, and 121.5 MHz is primarily used for emergency locator beacons rather than regular maritime communications. Similarly, 500 kHz was historically used for maritime safety and distress communications but has largely been phased out in favor of more modern frequencies like VHF channel 16. Therefore, continuous monitoring of VHF channel 16 is essential for compliance with safety regulations and effective emergency response at sea.

5. What is a primary concern when using a vessel's SSB communication system?

A. Interference with other ships' signals.

B. Power output consistency during use.

C. Presence of background noise during transmissions.

D. Adherence to communication protocols during emergencies.

The primary concern when using a vessel's SSB (Single Sideband) communication system relates to the potential for interference with other ships' signals. SSB systems operate in the high-frequency (HF) band, where many vessels may be communicating simultaneously. This crowded spectrum increases the likelihood of overlapping signals, which can result in unwanted interference. Keeping a clear communication line is crucial for safety, as unexpected interruptions can lead to miscommunication, particularly in emergency situations. Proper tuning and operating at the correct frequency are essential practices to minimize interference and ensure reliable communication. While factors such as power output consistency, background noise, and adherence to communication protocols are important considerations in the overall operation of SSB, they do not directly address the overarching concern of maintaining clear communication without disrupting other vessels. Therefore, the risk of interference becomes a priority when utilizing this communication technology at sea.

6. To set-up the MF/HF transceiver for a TELEX call to a coast station, the operator must:

A. Select J3E mode for proper SITOR operations

B. Select F1B mode or J2B mode, depending on the equipment manufacturer

C. Select F1B/J2B modes or J3E mode, depending on whether ARQ or FEC is preferred

D. None of the above

To successfully set up an MF/HF transceiver for a TELEX call to a coast station, the operator must engage the appropriate modes that align with the operational requirements of the equipment being used. Selecting the F1B mode indicates the use of frequency-shift keying (FSK) for the teleprinter operations, which is essential for TELEX communication. J2B mode, on the other hand, is used for amplitude modulation of the two-sideband signal, which could also be utilized depending on what the specific manufacturer has designed into their equipment. While J3E mode might also be relevant for certain types of communications, especially in high-frequency transmissions, it is not exclusively specified for standard TELEX functions. Therefore, the choice that focuses specifically on F1B or J2B modes directly ties to the requirements and operational capabilities for effective TELEX communications across the established coast station facilities. The flexibility to operate between the two modes based on the equipment manufacturer ensures compatibility and proper functionality. Other options may present variations of mode selections, but they do not specifically emphasize the proper operational methodologies necessary for effective TELEX calling to a coast station using the transceiver.

7. Which vessels are required to operate under GMDSS?

A. All vessels capable of international voyages.

B. SOLAS Convention ships of 300 gross tonnage or more.

C. Vessels operating outside of the range of VHF coastal radio stations.

D. Coastal vessels of less than 300 gross tons.

The correct answer highlights that vessels covered under the Global Maritime Distress and Safety System (GMDSS) regulations are primarily those that fall under the guidelines of the International Convention for the Safety of Life at Sea (SOLAS). Specifically, vessels that are required to operate under the GMDSS include SOLAS Convention ships that are 300 gross tonnage or more. These vessels are mandated to have the necessary communication equipment to ensure safety at sea, especially when navigating internationally, where seamless communication can be critical during emergencies. The SOLAS Convention sets standards not only for safety equipment but also for the training and certification of personnel who operate this equipment, which underscores the importance of ensuring that larger ships are equipped to handle potential distress situations effectively. The choice concerning all vessels capable of international voyages may seem broad and inclusive, but it is the specific gross tonnage and SOLAS requirements that delineate which vessels must adhere to GMDSS guidelines. Additionally, while vessels operating outside VHF coastal radio station ranges and coastal vessels of less than 300 gross tons are important, they do not meet the mandatory GMDSS coverage criteria set forth by existing maritime laws regarding SOLAS.

8. When is it legal to transmit high power on Channel 13?

A. Failure of vessel being called to respond.

B. In a blind situation such as rounding a bend in a river.

C. During an emergency.

D. All of these.

Transmitting high power on Channel 13 is permitted during several critical situations to ensure safety and effective communication. In the context of maritime regulations, this channel is primarily used for ship-to-ship communications, especially in navigational scenarios. When a vessel being called fails to respond, using high power can help ensure that the call reaches the intended listener, which is crucial for safe navigation and coordination. In blind situations, like rounding a bend in a river, high power can enhance the ability to communicate with nearby vessels, thus preventing potential collisions and facilitating safer navigation in areas where visibility is limited. Most importantly, transmitting high power during an emergency is essential for broadcasting urgent information to nearby vessels or rescue services. Emergencies can occur unexpectedly, and the ability to communicate clearly and effectively can be the difference between safety and disaster. All of these scenarios necessitate the use of high power to maximize the chances of successful communication in critical and potentially hazardous situations. This comprehensive understanding of when and why high power transmission is appropriate reinforces the importance of effective communication protocols in maintaining safety at sea.

9. What is the COSPAS-SARSAT system?

A. A global satellite communications system for users in the maritime, land and aeronautical mobile services.

B. An international satellite-based search and rescue system.

C. A broadband military satellite communications network.

D. A Wide Area Geostationary Satellite program (WAGS).

The COSPAS-SARSAT system is accurately described as an international satellite-based search and rescue system. It was developed through a collaboration between multiple countries and organizations to provide a means for distress signal detection and localization for individuals in emergencies, including those at sea and in remote areas. The system consists of a network of satellites that receive signals from emergency beacons, which are designed to alert search and rescue services to a person's location in need of assistance. This system plays a critical role in enhancing safety for maritime, aviation, and terrestrial users by ensuring that distress signals are quickly sent to rescue authorities, facilitating a more efficient response. The focus is on international coordination, allowing for a global reach that benefits users regardless of their location. The other options do not accurately capture the primary function and purpose of COSPAS-SARSAT. While satellite communications systems can include various functions, COSPAS-SARSAT is specifically geared towards search and rescue operations. Similarly, the reference to a military network or a geostationary satellite program does not pertain to the COSPAS-SARSAT system's mission, which is focused solely on humanitarian assistance and emergency response.

10. At what point does a SART begin transmitting?

A. It immediately begins radiating when placed in the "on" position.

B. It must be manually activated.

C. If it has been placed in the "on" position, it will respond when it has been interrogated by a 9-GHz RADAR signal.

D. If it has been placed in the "on" position, it will begin transmitting immediately upon detecting that it is in water.

A Search and Rescue Transponder (SART) is a device used primarily in maritime situations to help search and rescue teams locate ships in distress. The correct choice states that if the SART has been placed in the "on" position, it will respond when it has been interrogated by a 9-GHz RADAR signal. This highlights the way SART devices are designed to operate: they do not continuously transmit a signal but instead wait to be activated by an external RADAR signal. Once the SART detects this specific RADAR signal, it responds by transmitting a series of distinctive pulsing signals that are easily identifiable on RADAR displays. This response mechanism allows SARTs to conserve power and ensures that they only transmit when needed to alert potential rescuers of a vessel in distress, enhancing their effectiveness in search and rescue operations. Options that involve immediate transmission when turned on or requiring manual activation do not accurately represent the operational design of a SART, as its primary function is to react to specific RADAR inquiries rather than emitting a continuous signal or needing manual intervention to activate its transmitting capabilities.