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OPTIMISM

SAFETY@SEA



Workbook
Effective Implementation of ISM Code

Enhancing Maritime Safety Through Knowledge and Innovation.

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Project Number: 2023-1-SE01-KA220-HED-000161161

Authors and Affiliations

Reza Ziarati[1]
[1] Center for Factories of the Future (C4FF), Alingsås, Sweden
Email: reza.ziarati@c4ff.se

German de Melo[2]*
[2] Faculty of Nautical Studies of Barcelona, Polytechnic University of Catalonia, Pla de Palau 18, 08003 Barcelona, Spain
Email: german.de.melo@upc.edu

Heikki Koivisto[3]
[3] Satakunta University of Applied Sciences, Rauma, 26100, Finland
Email: heikki.koivisto@samk.fi

Captain Nuri Kayacan[4]
[4] Alasonya Denizcilik Tic Ltd Sti,Istanbul
Email: nuri@alasonya.com.tr

Janusz Uriasz[5]
[5] Institute of Maritime Technology, Faculty of Navigation, Maritime University of Szczecin, Wały Chrobrego 1–2, 70-500 Szczecin, Poland
Email: j.uriasz@pm.szczecin.pl

Lakhvir Singh[6]
[6] Center for Factories of the Future (C4FF), UK
Email: lakhvir.singh@c4ff.co.uk

Amirehsan Barzegarsedigh[7]
[7] Center for Factories of the Future (C4FF), UK
Email: amir.sed@c4ff.co.uk

Vanessa Makar[8]
[8] Center for Factories of the Future (C4FF), Alingsås, Sweden
Email: vanessa@c4ff.se

Aris Chronopoulos[9]
[9] IDEC S.A., 96 Iroon Polytechniou Avenue, 18536 Piraeus, Greece
Email: aris@idec.gr

Juan A. Moreno[10]
[10] Faculty of Nautical Studies of Barcelona, Polytechnic University of Catalonia, Pla de Palau 18, 08003 Barcelona, Spain

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Contents

Authors and Affiliations 2
Introduction 4
Chapter 1: Introduction to ISM Code 5
Chapter 2: Learning from Accidents 10
Chapter 3: Learning from Inspections and Audits 16
Chapter 4: Risk Based Approach 19
Chapter 5: Safety Assessment Gap Evaluation (SAGE) 24
Chapter 6: VR Application 31

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Introduction

Dear Learner,

The OPTIMISM Training Programme employs an innovative and validated approach to self-assessment, developed and endorsed by Professor Martin Ziarati[1]. This method is designed to enhance your self-awareness, accuracy, and confidence in your understanding of the material.

When answering each question, please also indicate your confidence level, whether it is above 50% or below 50%. Your score for each question should then be determined as follows:

- Correct answer with confidence above 50%: +1 point
- Correct answer with confidence below 50%: +0.5 points
- Incorrect answer with confidence above 50%: –1 point
- Incorrect answer with confidence below 50%: 0 points

This self-assessment method encourages not only accuracy but also reflection on your confidence and decision-making process. It helps identify areas where further study is needed while rewarding cautious and reflective learning.

[1] https://marifuture.org/Publications/Papers/Valicaiton_of_MC_and_TF_Questions.pdf

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Chapter 1: Introduction to ISM Code

1. What is the primary purpose of the ISM Code?

A. Increase ship speed and reduce emissions
B. Provide international standards for safe management and pollution prevention
C. Replace SOLAS and MARPOL regulations
D. Standardize crew wages

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. Which international convention first adopted the ISM Code?

A. MARPOL
B. SOLAS
C. STCW
D. MLC

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. Which of the following constitutes a pillar of the IMO?

A. SOLAS
B. STCW
C. MARPOL

D. All of above are correct

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. The ISM Code was made mandatory for SOLAS class vessels by which year?

A. 1994
B. 1995
C. 1998
D. 2005

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. What does SMS stand for in the context of the ISM Code?

A. Ship Management Software
B. Safety Management System
C. Ship Maintenance Standards
D. Safety Monitoring Schedule

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

6. Who is responsible for providing the Document of Compliance to the company?

A. Port State Control
B. Class Society
C. Flag Administration or Recognized Organization
D. Shipyard

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

7. Which certificate confirms that a ship complies with the SMS requirements?

A. ISO Certificate
B. Flag Endorsement
C. Classification Certificate
D. Safety Management Certificate

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

8. What is the primary function of the Designated Person Ashore (DPA)?

A. Approve cargo manifest
B. Link between ship and shore, monitor safety and marine environment protection
C. Support the ship agents
D. Enforce ISPS code

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

9. Which of the following is NOT a component of an effective SMS?

A. Internal audit procedures
B. Port inspection list
C. Top tier policy manual
D. Procedures manual

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

10. According to ISM, who has overriding authority in matters related to onboard safety?

A. Chief Engineer
B. Ship's Master
C. Designated Person Ashore
D. Safety Officer

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

13. How often must the Flag State verify a ship's Safety Management System (SMS)?

A. Every year
B. Every 2.5 to 3 years
C. Every 5 years
D. Every port call

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

14. What must every ISM-compliant ship carry onboard?

A. A copy of ISO 9001
B. Environmental declaration
C. Relevant documentation of SMS
D. Port clearance log

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

15. The term "non-conformity" refers to:

A. A major accident onboard
B. Deviation from ISM Code requirements
C. Port inspection deficiencies
D. Loss of cargo

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

16. What should a company do when a non-conformity is found?

A. Ignore it
B. Take corrective action
C. File it for future reference
D. Report it to the administration

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

17. Which of the following is a responsibility of the Company under the ISM Code?

A. Prepare navigational charts
B. Hire tug services
C. Provide shore-based support and adequate resources
D. Conduct cargo stowage plan

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

18. What is the maximum period for an Interim Safety Management Certificate?

A. 3 months
B. 6 months
C. 12 months
D. Until next dry dock

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

19. What is the ISM Code's view on training for new personnel?

A. It is mandatory and must include safety and environmental familiarization
B. It is optional and company-specific
C. It applies only to officers
D. It should be delivered every two years

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

20. How often must the Document of Compliance undergo annual verification?

A. Every 6 months
B. Every 2 years
C. Once every year within a 3-month window
D. Never

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

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Chapter 2: Learning from Accidents

1. **According to the C4FF taxonomy (Figure 2.1), a failure to weigh containers leading to a stability issue, as seen in Review 1, would primarily be classified under which two domains?**
   A. Nature and System Work Environment Error
   B. System Work Environment Error and Psychological/Physiological Behavioural (PPS)
   C. Psychological/Physiological Behavioural (PPS) and Nature
   D. Quality Assurance (QA) Error and non-QA Errors (Mistake)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. **In the fatal enclosed space incident (Review 2), the crew entered a tank without gas freeing or carrying a detector. This action represents a clear failure in which specific 'Personal' and 'Organizational' factors?**
   A. Inadequate personal fitness (B1) and Commercial Pressures (D7)
   B. Lack of motivation (B5) and Inadequate system design (A3)
   C. Inadequate competence/skills (B4) and Inadequate supervision (D3)
   D. Forgetfulness (B10) and Issues with procurement (A4)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. **The collision in Review 3 was attributed to the Master and 2nd Chief lacking Bridge Resource Management (BRM) training. This deficiency falls primarily under which 'Leadership' sub-category in Table 3?**
   A. Inadequate leadership of operational tasks (C3)
   B. Inadequate leadership and personnel management (C1)
   C. Inadequate risk assessment, inadequate team composition (C2)
   D. Inadequate manning (C4)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. **In Review 10, a vessel grounded after a blackout because a fan belt ordered 9 months prior was never delivered. This reflects a critical failure in which two 'Organizational' and 'Work Environment' areas?**
   A. Inappropriate policy manual (D1) and Inadequate system design (A3)
   B. Inadequate supervision (D3) and Inappropriate work environment/ergonomics (A2)

C. Insufficient resources for safe operations (D6) and Issues with procurement/purchasing (A4)
D. Problems with safety culture (D4) and Bad weather (A1)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. **The lifeboat drill accident (Review 4), where wire slings failed, points to an ISM non-conformity related to maintenance and familiarity with equipment. According to the C4FF flowchart (Figure 2.3), if this is identified as an ISM-related incident, what would be the next logical step in the analysis?**
   A. Determine if it was a management-related fault like poor supervision.
   B. Can an ISM element be identified?
   C. Check for non-compliance with policies, procedures, or plans.
   D. Conclude it was an unexpected machine/system failure.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

6. **In Review 18, a crew member was fatally crushed by a falling hatch cover because a 'Specific Risk Assessment' was not properly conducted for a malfunctioning crane. The failure to account for the crane's known hydraulic deficiency is a breakdown in which domain?**
   A. Psychological/Physiological Behavioural (PPS)
   B. System Work Environment Error
   C. Quality Assurance (QA) Error
   D. Nature

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

7. **The text states that the principles of 'Compliance with specification' and 'Fitness for purpose' are the strengths of BS/ISO/EN standards. How does this relate to the ISM Code?**
   A. The ISM Code is based on these principles, applying them to maritime safety management systems to ensure they are both correctly documented and effective in practice.
   B. These principles apply only to manufacturing and were found to be unsuccessful in the maritime sector.
   C. The ISM Code uses 'Compliance with specification' but rejects 'Fitness for purpose' as too subjective for maritime operations.
   D. The ISM Code replaces these principles with a focus solely on crew training.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

8. **In Review 19, a third officer's legs were amputated during a mooring operation. The report cites 'Ignoring hazards and being inattentive to risks' and failure to follow the 'Effective Mooring' publication. This is a combination of what two types of failures?**
   A. An Error in the policy manual and a Mistake in crew judgment.
   B. A failure in Communication and a Manning issue.
   C. A failure due to Nature and a Commercial Pressure issue.
   D. A System Design flaw and a failure in Procurement.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

9. **What common theme connects the man overboard incident in heavy weather (Review 5) and the mooring operation accident (Review 19)?**
   A. Both were caused primarily by equipment malfunction.
   B. Both incidents resulted from non-standard communication methods.
   C. Both were directly caused by a lack of crew manning.
   D. Both incidents highlighted a critical failure in conducting an adequate risk assessment before or during the operation.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

10. **In Review 7, an explosion occurred because the temperature of Styrene Monomer was not monitored, despite a CDI inspector's vetting. The report notes this as a non-compliance with clear instructions. Using the Baines Simmons flowchart (Figure 2.2), how would this action be analysed if the crew *knew* the rules but disregarded them?**
    A. It would be classified as Crew-Related because the correct plan of action was not selected.
    B. It would be classified as an 'Exception Rule Breaking' situation.
    C. It would lead to the question 'Was the consequence as intended?' to check for sabotage.
    D. It would be classified as a Company-Related fault.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

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11. The text mentions a survey revealing decreasing job security and that insurers 'dig deeper into the quality of crewing.' How does this trend potentially impact maritime safety?

A. It has no impact, as crewing quality is strictly regulated by the IMO minimums.
B. It leads to better technology on board, reducing the need for high-quality crewing.
C. It guarantees that only the most qualified and engaged crew are hired, increasing safety.
D. It could increase human errors due to cost-cutting measures, fatigue, and a lack of crew engagement.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

12. In the accident involving the falling hatch cover (Review 18), the investigation revealed a violation of Procedures No. 36 & 37. This is a direct example of a failure in which part of the Quality Assurance (QA) domain in Figure 2.1?

A. Procedures
B. Documentation (Maintenance)
C. Plans
D. Policies

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

13. Several reviews, including the collision in the narrow channel (Review 11) and the grounding after a blackout (Review 20), mention 'poor team operation' or a lack of BRM. This highlights the importance of which 'Personal' factor?

A. Poor team operation, working towards different goals, no cross-checking (B7)
B. Incorrect perception, motion illusion (B8)
C. Ineffective communication, language differences (B6)
D. Inadequate personal fitness (B1)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

14. In Review 15, a chief mate died after a fall because the crew considered the official SMS procedures 'unworkable'. What does this situation indicate about the company's Safety Management System?

A. The company successfully prioritized safety by having a documented procedure.
B. The crew did not have the proper PPE, which is a procurement issue.
C. The SMS was perfect, but the crew was negligent.
D. The SMS failed the 'Fitness for purpose' principle.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

15. What is the primary purpose of accident investigation reports in the maritime industry, according to the text?

A. To assign blame to the crew or company for insurance purposes.
B. To ensure accidents do not occur again by identifying root causes and preventive measures.
C. To provide data for academic studies by institutions like Strathclyde University.
D. To specifically identify and document every ISM Code deficiency.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

16. The fatal phosphine gas incident (Review 12) occurred even though the vessel had a 'gas free certificate'. What critical lesson does this offer about safety documentation?

A. A gas free certificate guarantees a space is safe to enter under all circumstances.
B. The only reliable safety measure is wearing Breathing Apparatus for every enclosed space entry.
C. The problem was that the multi-gas meter did not have the correct sensors, which is solely a procurement failure.
D. Documentation like certificates can create a false sense of security and should not replace direct, real-time atmospheric testing before entry.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

17. In the case of the collision with the quay (Review 16), a malfunction was 'accompanied by human error in the execution of the propulsion control transfer procedure'. This highlights the importance of which Work Environment factor?

A. Inadequate system design (A3)
B. Lack of visibility, excessive noise or vibration (A1)
C. Poor human–machine interface, automation issues (A2)
D. Issues with procurement/purchasing (A4)

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

18. According to Table 3's analysis of 40 accidents, which category of root causes had the highest frequency of occurrence?

A. Work Environment
B. Leadership
C. Organizational
D. Personal

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

19. The text states that in 'almost all cases there were deficiencies due to Human Vulnerabilities, Decision Making and Communication'. In which sub-domain of the C4FF Model (Figure 2.1) are these three factors located?

A. They are spread across Policies, Procedures, and Plans.
B. They are part of the 'System Work Environment Error' domain.
C. They are directly under the 'non-QA Errors (Mistake)' domain.
D. They are listed under 'Personal/Team' and 'Leadership/Supervision' but not connected to a single domain.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

20. A key conclusion from Tables 1 and 2 is that while the majority of safety issues are QA related, non-QA issues play a major role. What does this imply?

A. non-QA issues are far more important than QA issues, so companies should focus only on crew behaviour.
B. Having a perfect Safety Management System on paper is enough to prevent most accidents.
C. Improving documentation and procedures (QA) is important, but it will not eliminate accidents without also addressing human factors like decision-making, competence, and supervision (non-QA).
D. Maritime accidents are almost always caused by either a system failure or a human failure, but never both.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

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Chapter 3: Learning from Inspections and Audits

Section A – Multiple Choice (5 Questions)

1. According to Paris MoU (2019–2021), what proportion of all deficiencies were ISM Code related?

A. 7%

B. 11%

C. 15%

D. 20%

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. In 2024, what was the detention rate reported by Paris MoU?

A. 3.43%.

B. 3.81%

C. 4.03%

D. 4.25%

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. Which of the following ISM Code deficiencies is classified as crew-related mistake?

A. Ship Maintenance

B. Non-compliance with rules and regulations

C. Shipboard operations

D. Inadequate drills

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. Which of the following was identified as a systemic weakness by the UK MAIB in relation to audits?

A. Excessive documentation

B. Lack of international regulations

C. Insufficient consideration of company experience and ownership

D. Too many certificates to verify

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. What does "paper compliance" under the ISM Code refer to?

A. Using outdated SMS manuals

B. Keeping SMS documentation without genuine implementation

C. Failure to provide training certificates

D. Writing audit reports manually

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

Section B – Application/Scenario-Based (15 Questions)

6. During a PSC inspection, an inspector finds *four ISM-related deficiencies* on a vessel. What does this indicate about the company's SMS, and what is the likely outcome?

7. A ship has not conducted an internal audit for 18 months. Which ISM requirement has been violated, and why is this critical?

8. As an auditor, you find that inspection routines are missing for critical equipment. Which ISM clause does this breach, and what risk does it pose?

9. A vessel records drills regularly, but when questioned, crew members cannot explain their emergency duties. How would you classify this deficiency and why is it serious?

10. In 2024, Paris MoU reported 665 detentions out of 16,508 inspections. Calculate the detention rate and explain whether it matches the published figure.

11. Compare the overlap between ISM audit non-conformities and accident root causes. Provide one example of a deficiency that appears in both datasets.

12. A shipping company copies another company's SMS without adapting it to its own operations. Identify the systemic issue and describe two possible consequences.

13. A ship fails to keep valid safety certificates on board, including SMC and IAPP. What ISM Code requirements are violated, and why would this be a serious finding?

14. During audit preparation, you discover the Master has not reviewed the SMS for two years. Which ISM clause is breached, and what is the auditor's next step?

15. You are auditing a tanker where maintenance documents are incomplete, and the enhanced survey program has not been carried out. Which ISM areas are non-compliant?

16. A vessel has repeated deficiencies from past audits that were never addressed. What does this reveal about the company's safety culture, and what corrective action would you recommend?

17. During an audit, you find that crew risk assessments exist but there are no safeguards implemented. Identify the clause violated and propose a corrective recommendation.

18. A ship has changed ownership and flag state recently. What should an auditor focus on during the ISM audit, and why?

19. A company claims to have implemented "KPIs for safety performance" but only tracks the number of inspections. Suggest two additional KPIs they should adopt to properly measure ISM implementation.

20. As an ISM auditor, you notice that senior officers cannot identify the designated person ashore (DPA). What does this indicate, and how should it be addressed?

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Chapter 4: Risk Based Approach

Part 1: Multiple Choice Questions (MCQs)

1. According to the chapter, a "dynamic risk assessment" is another name for which level of the risk assessment process?

a) Level 1: Company-level generic risk assessment

b) Level 2: Task-based risk assessment

c) Level 3: Toolbox talk

d) Level 4: Personal assessment of risk

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. The "Substitution Test" is a tool used to support which of the following concepts?

a) Failure Mode, Effect and Criticality Analysis (FMECA)

b) A Just Culture

c) The Fitness Triangle

d) Proactive hazard-reporting

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. In the context of the "Quality Coin" model, what does "Fitness for Purpose" primarily assess?

a) Whether the crew has the correct certifications for the job.

b) Strict adherence to the procedures written in the company's SMS manual.

c) Whether the implemented safety measures are effective and practical in real-world conditions.

d) The results of Port State Control (PSC) inspections.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. The chapter identifies a major gap in many companies' risk assessments, with 62% of survey respondents not currently including the risk of:

a) Cyber security threats.

b) Piracy and armed robbery.

c) Crew fatigue from excessive emails.

d) Bullying and harassment.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. What are the two core elements that define "risk" as described in the chapter?

a) The hazard's source and its potential target.

b) The likelihood of harm and the potential severity of that harm.

c) The cost of prevention and the cost of an incident.

d) The known factors and the unknown uncertainties.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

6. Which of the following is NOT listed as one of the key principles for the duties of shipowners under S.I. 1997/2962, Reg. 5?

a) The evaluation of unavoidable risks and taking action to reduce them.

b) Giving individual protective measures priority over collective ones.

c) The adaptation of procedures to take account of new technology.

d) Combating risks at source.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

7. According to Jan Horck's perspective, what is the most fundamental way to reduce risk and improve safety standards in the long term?

a) Increasing the frequency of ISM audits and PSC inspections.

b) Better education and training through Maritime Education and Training (MET) institutions.

c) Implementing more advanced electronic control systems for the SMS.

d) Stricter enforcement of penalties for non-compliance.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

8. The "Fitness Triangle" conceptual model highlights the critical alignment of which three components?

a) Audits, Inspections, and Vetting.

b) Technology, Manning Levels, and Budgets.

c) Jobs, People, and Plans/Procedures.

d) Likelihood, Severity, and Control Measures.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

9. FMECA (Failure Mode, Effect and Criticality Analysis) is presented as a useful technique for which specific application of risk assessment?

a) Identifying potential emergency shipboard situations.

b) Identifying key shipboard operations.

c) Planning toolbox talks for non-routine jobs.

d) Identifying critical equipment and systems for maintenance.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

10. When a manager uses the "just culture decision tree" in response to a crew member's error, what is the LEAST extreme reactive action listed?

a) Dismissal.

b) Formal warning.

c) Coaching/mentoring.

d) Re-assigning duties.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

Part 2: Situational Questions

1. Scenario: You are the Chief Officer. A junior officer makes a mistake during a cargo calculation, which is caught before any cargo is transferred. The junior officer is visibly distressed by their error. **Question:** Using the principles of a "Just Culture," how would you investigate this event and what would your approach be in managing the junior officer's behaviour?

2. Scenario: A new, complex piece of navigation equipment has been installed on the bridge. The Master is concerned that while the crew has been shown how to use it for normal operations, they may not be prepared for malfunctions. **Question:** Drawing on Jan Horck's arguments and the chapter's section on "Education: Challenges and Solutions," what specific types of training would you recommend to address this "little knowledge is dangerous" problem?

3. Scenario: Your vessel has just experienced a near-miss incident in a busy shipping lane due to a misunderstanding between the bridge team and the pilot. No damage or injury occurred. **Question:** As the Safety Officer, describe the steps you would take to ensure this event contributes to "Effective Knowledge Management" both on your vessel and across the company's fleet.

4. Scenario: A routine job is planned: three crew members are to paint a section of the bulkhead in the engine room. This is a task that has been done hundreds of times. **Question:** Explain how you would apply the four-level risk assessment process to this task, justifying why each level is still relevant even for a "routine" job.

5. Scenario: During a Port State Control inspection, an officer finds that a specific maintenance procedure in your SMS manual is impractical to follow with the tools available on board. Your ship receives a deficiency. **Question:** How does this situation illustrate the difference between "Compliance" and "Fitness for Purpose" as described by the Quality Coin model? What should the company's response be?

6. Scenario: You are leading a toolbox talk for an enclosed space entry. One of the crew members is new to the vessel and their English is limited. **Question:** What specific actions must you take during the toolbox talk to ensure this crew member is fully included, understands the risks, and can participate safely, as per the chapter's guidance?

7. Scenario: The company's generic risk assessment for "Working at Height" (Level 1) exists. You now need to plan for a specific job: replacing a faulty radar scanner on the mast tomorrow. The weather forecast is marginal. **Question:** What specific, time-sensitive factors must your "Task-Based Risk Assessment" (Level 2) for this job consider that the generic one cannot?

8. Scenario: After a major machinery failure, the investigation reveals that the root cause was a deviation from procedure by an experienced engineer. During the interview, the engineer states, "We always do it that way, it's faster and it's never been a problem before." **Question:** How would you apply the "Substitution Test" to help determine the appropriate management response in this case?

9. Scenario: Your company is trying to improve SMS compliance. The management is debating between streamlining the SMS to make it simpler and increasing the number of internal audits. **Question:** Based on the survey findings presented in the chapter, what would be the single most valued method for improving SMS compliance, and what other key methods should they also consider?

10. Scenario: An AB on deck notices a small, unsecured toolbox left near a walkway in an area where others are working. It poses a minor trip hazard. **Question:** Describe how an empowered seafarer, supported by a strong safety culture and an understanding of personal risk assessment (Level 4), should react in this situation. What does this immediate action prevent?

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Project Number: 2023-1-SE01-KA220-HED-000161161

Chapter 5: Safety Assessment Gap Evaluation (SAGE)

1. According to Element 1, what is one way that senior managers demonstrate a clear commitment to implementing the Safety Management System (SMS)?

a. Reviewing mission statements, high-level policies, and incident data.

b. Conducting annual crew bonuses.

c. Participating in weekly onboard safety drills.

d. Creating quarterly company newsletters.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. What is a key requirement for personnel when developing instructions and procedures, as per Element 1A?

a. They must have at least five years of experience in the role.

b. They must be proficient in at least two languages.

c. They must be consulted and involved in the joint development process.

d. They must be a certified Master or Chief Engineer.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. According to Element 2, what is a key part of the formal familiarization process for newly recruited key shore-based personnel?

a. Familiarization with only their specific job description.

b. Training in advanced navigation software.

c. Familiarization with the SMS, HSSE policies, and business ethics.

d. A mandatory three-month probationary period at sea.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. What is a documented procedure for vessel personnel selection, recruitment, and promotion, as stated in Element 3?

a. A review of their social media profiles.

b. An assessment of their political affiliations.

c. A proficiency check in a common working language.

d. A check on their credit history.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. Element 3A states that procedures ensure that working and rest hours for all personnel are in line with what?

a. Company financial targets.

b. The International Convention on STCW and applicable Flag State requirements.

c. The vessel's trading pattern and cargo type.

d. The Master's discretion.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

6. In Element 4, what is the purpose of a defect reporting system?

a. To track defects from failure to repair.

b. To create a log of all vessel modifications.

c. To report all near misses to shore management.

d. To generate daily weather reports.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

7. As per Element 4A, what procedure is required when it is not possible to complete planned maintenance on critical equipment as scheduled?

a. A formal incident report must be filed.

b. Senior management must be informed.

c. A risk assessment must be conducted, and senior management approval obtained.

d. The equipment must be repaired by a third-party contractor.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

8. According to Element 5, what is a key component of procedures to ensure safe navigation?

a. Strict adherence to the Master's personal judgment.

b. Berth-to-berth passage planning and electronic aids to navigation.

c. Using only paper charts and publications.

d. Avoiding navigation in restricted visibility.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

9. What is one way to ensure effective bridge resource management, as mentioned in Element 5?

a. Implementing a system that prevents disruption and distraction on the bridge.

b. Requiring a minimum of three officers on the bridge at all times.

c. Restricting communication with the shore office.

d. Using only the Master's verbal commands.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

10. According to Element 6, what do procedures for cargo, ballast, tank cleaning, and bunkering operations include?

a. A detailed list of all possible incidents.

b. The roles and responsibilities of the designated person in charge.

c. Instructions on how to bypass safety systems.

d. A list of all previous port state control deficiencies.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

11. According to Element 6A, what is a key part of the planned maintenance system for mooring and anchoring equipment?

a. Testing the hydraulic, steam, or electrical drive systems.

b. Polishing the anchor chain.

c. Ensuring all ropes are dry before use.

d. Keeping a log of all mooring locations.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

12. What is the purpose of the management of change procedure, according to Element 7?

a. To ensure all changes are approved by the company CEO.

b. To assess the impact of a proposed change, including safety and environmental implications.

c. To prevent any changes from being implemented.

d. To only address permanent changes to a vessel.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

13. According to Element 8, what must the incident investigation and analysis procedures be detailed enough to do?

a. Assign blame to the personnel involved.

b. Accurately establish the root causes of an incident.

c. Ensure no external parties are informed.

d. Only focus on major incidents.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

14. As per Element 9, what is the purpose of a documented permit to work system?

a. To control the risks associated with hazardous tasks.

b. To track employee working hours.

c. To authorize all personnel to perform any task.

d. To ensure all maintenance is performed on time.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

15. What does Element 10 state an environmental protection policy should include?

a. A commitment to minimizing the environmental impact of operations.

b. A plan to reduce costs associated with waste disposal.

c. A target to eliminate all emissions within five years.

d. A list of all environmental regulations.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

16. What does Element 11 require a shore-based emergency response plan to have?

a. A list of all external resources.

b. A detailed log of all previous incidents.

c. Clearly defined roles and responsibilities for each team member.

d. A commitment to never use external resources.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

17. According to Element 12, what should the inspection format be at least equivalent to?

a. The format used by the flag state.

b. The vessel inspection reports issued by industry bodies like OCIMF or CDI.

c. The company's internal audit checklist.

d. The International Safety Management (ISM) Code.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

18. As per Element 13, what must a company's procedures be able to do to identify security threats?

a. Conduct weekly drills and exercises.

b. Obtain and review current security-related information from appropriate sources.

c. Ensure all personnel are trained in physical security measures.

d. Hire a security consultant for every voyage.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

19. Element 14 states that the company should have a group responsible for Human Element matters. What is a key responsibility of this group?

a. To produce and maintain a Human Performance Development Plan.

b. To conduct all incident investigations.

c. To manage the company's financial performance.

d. To oversee the vessel maintenance schedule.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

20. According to Element 14, what is a key aspect of an Error Management System (EMS)?

a. To assign blame for all errors.

b. To support the company in achieving operational excellence by informing a strategic plan for improvement.

c. To penalize personnel who report errors.

d. To only investigate major incidents.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

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Project Number: 2023-1-SE01-KA220-HED-000161161

Chapter 6: VR Application

Introduction: This assessment is designed to evaluate your understanding and practical application of the procedures for entering an enclosed space. It consists of two parts:

- Part 1: Knowledge Assessment: A series of questions to test your core knowledge of safety principles and procedures.
- Part 2: Practical Assessment Simulation: A hands-on simulation where you will perform all pre-entry checks. Your performance will be logged and reviewed in a final report.

Please proceed to Part 1.

Part 1: Knowledge Assessment

Answer the following questions to the best of your ability.

1. You should only enter an enclosed space if it is absolutely necessary for the task.

a) True

b) False

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

2. Why is seeking approval a mandatory step before entry?

a) To log your working hours for the day.

b) To ensure a planned process is followed and all safety measures are in place.

c) To make the work go faster.

d) It is just a formality with no real safety implications.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

3. From the list below, select the four main types of hazards associated with enclosed spaces.

Hazardous Atmospheres
Changing Conditions
Physical Hazards

☐Choking Hazards

☐Falling Hazards

Engulfment Hazards

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

4. When and where should a gas detector be calibrated before use?

a) Inside the enclosed space, just before you start work.

b) It only needs to be calibrated once per year.

c) By a competent person, in a fresh-air environment before entry.

d) Calibration is not needed if the device is new.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

5. What are the ideal atmospheric conditions for safe entry regarding oxygen and Lower Explosive Limit (LEL)?

a) 20.9% Oxygen, >=1% LEL

b) 23.5% Oxygen, <=1% LEL

c) 19.0% Oxygen, >=1% LEL

d) 20.9% Oxygen, <=1% LEL

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

6. Why is continuous ventilation crucial in most enclosed spaces?

a) To help with radio communication.

b) Because hazardous atmospheres can quickly re-form once airflow stops.

c) To blow away dust from the work area.

d) To keep the temperature cool.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

7. After securing entry points by isolating energy sources, what other important action must be taken?

a) Start the work immediately.

b) Display appropriate signage for the duration of the work.

c) Take a coffee break.

d) Ask the bridge for permission to start.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

8. What must be done with the approved work permit before anyone can enter the space?

a) It should be filed in the main office.

b) It must be posted at the entrance to the enclosed space.

c) The person entering should keep it in their pocket.

d) It should be given to the standby person.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

9. What does PPE stand for?

a) Personal Protection Essentials

b) Primary Protective Equipment

c) Personal Protective Equipment

d) Protective Personnel Equipment

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

10. What is the primary function of an Emergency Escape Breathing Device (EEBD)?

a) To allow you to work for hours in a hazardous atmosphere.

b) To provide breathable air for a safe and swift evacuation in an emergency.

c) To filter out bad smells from the air.

d) It is a type of radio for calling for help.

11. What is the very last safety check you must perform immediately before entering the enclosed space?

a) Check your radio battery.

b) Brief the team one more time.

c) Make sure your boots are tied.

d) Test that the emergency alarm system is active and working.

Confidence Level:

More than 50% confident ☐

Less than 50% confident ☐

Part 2: Practical Assessment Simulation

Scenario: You are now on the deck of the ship, standing at the entrance to a cargo hold. Your task is to perform all necessary pre-entry checks and preparations.

Instructions: Using your knowledge and the checklist available on your wrist menu, complete all required procedures. This is an assessment of your ability to apply the training in a real-world context. You may proceed through the steps as you see fit; however, all actions, errors, and omissions will be logged by the system assessor and reviewed in your final performance report.

(The trainee would now complete the interactive simulation.)

Performance Summary Report

Trainee:

Assessor:

Date:

Procedure / Check	Status	Assessor's Notes & Feedback
1. Identify Need for Entry		
2. Seek Approval for Task		
3. Identify Hazards		
4. Calibrate Gas Detector		
5. Test Atmosphere		
6. Ensure Continuous Ventilation		
7. Secure Entry/Exit Points		
8. Place Rescue Equipment		
9. Test Radio Equipment		
10. Post Permits at Entrance		
11. Brief the Team		
12. Don All Required PPE		
13. Test Emergency Alarm		

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Project Number: 2023-1-SE01-KA220-HED-000161161

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Example Performance Summary Report

Procedure / Check	Status	Assessor's Notes & Feedback
1. Identify Need for Entry	Completed Correctly	The task was correctly initiated, establishing a valid reason for entry.
2. Seek Approval for Task	Completed Correctly	Approval sought through the proper channels before proceeding.
3. Identify Hazards	⚠️ Completed Incorrectly	You correctly identified 3 of the 4 main hazard types but missed Engulfment Hazards.
4. Calibrate Gas Detector	Completed Correctly	The gas detector was correctly calibrated in a fresh-air environment.
5. Test Atmosphere	⚠️ Completed Incorrectly	Critical Error: Atmosphere was tested, but entry was prepared with a reading of 3% LEL. Safe entry requires LEL to be <=1%.
6. Ensure Continuous Ventilation	💡 Hint Used	The ventilation hatch was opened, but the hint system was required to find and operate the secondary fan control.
7. Secure Entry/Exit Points	Completed Correctly	Lockout/Tagout procedures were followed and signage was correctly placed.
8. Place Rescue Equipment	❌ Missed	Critical Error: The rescue equipment (stretcher, EEBD, harness) was not staged at the entrance to the cargo hold.
9. Test Radio Equipment	Completed Correctly	Communication check with the bridge was performed successfully.
10. Post Permits at Entrance	Completed Correctly	The approved permit was correctly displayed at the cargo hold entrance.
11. Brief the Team	❌ Missed	You proceeded directly to donning PPE without conducting a final briefing with the standby person about the task and conditions.
12. Don All Required PPE	⚠️ Completed Incorrectly	All PPE was equipped, but in the incorrect sequence. The safety harness was donned *before* the coverall.
13. Test Emergency Alarm	Completed Correctly	The final alarm check was performed before the simulated entry.