



MEO CLASS 2

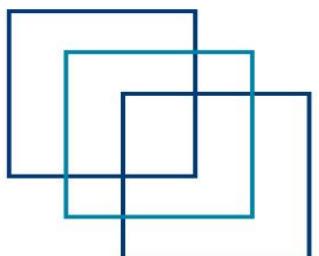
WRITTEN: SSEP

(SHIP SAFETY & ENVIRONMENTAL PROTECTION)

FOR INDIAN COMPETENCY EXAM



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JAN-2025

1. With reference to classification society's survey, explain the following

- Why a Class certificate is issued to a newly built ship after satisfactory completion of survey and sea trials, what is the purpose of a Class certificate? (6)
- Is it necessary to call a Class surveyor after repair or alteration to the ship's structure If so, why? (6)
- Describe the requirement for initial and periodical survey respect to International Load Line. (8)

2012/JUL/08	2013/OCT/07	2023/DEC/01	2025/JAN/01
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2. With reference to chemical tankers:

- Sketch a suitable cargo pumping and stripping system, labelling the component parts and indicating the direction of fluid flow (10)
- State the requirements of the regulations involved to reduce pollution of the sea by chemical tanker cargoes. (10)

2013/MAR/06	2018/OCT/04	2022/APR/09	2025/JAN/02
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3. a) What do you understand by the terms Convention, Protocol, Amendments? State in which order these will be adopted by the IMO?
b) What procedure is nowadays followed for putting the amendments into effect? (10)

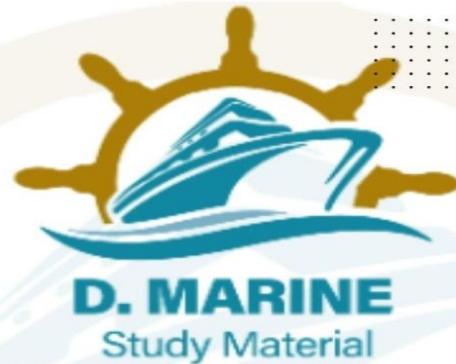
2022/SEP/01 –	2023/JAN/01 –	2023/NOV/01 –	2025/JAN/03
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4. During loading of a petroleum tanker, the incoming cargo forces out from the tank its previous atmospheric contents (air-vapour-inert gas)

- Explain:
 - The dangers of venting during the loading via open tank hatches (5)
 - Why the pressure / vacuum valve is not used venting (5)
- Sketch and describe a patent high velocity vent and state why such device is used. (10)

2022/SEP/06	2025/JAN/04
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5. Discuss the following with respect to International Safety Management (ISM) Code:

- a) Management Review and its agenda (5)
- b) Functional requirement and objectives of code.
- c) Master responsibility and Authority (5)
- d) Certification and periodical verification. (5)

2025/JAN/05	
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6. Ships are provided with an independent diesel or electric or air operated emergency fire pump.

- a) State three areas in which emergency fire pump are commonly installed and give reasons why? (3)
- b) Describe with aid of a simple sketch an air pump or primer used to initiate suction when the fire pump is situated above sea water level. What suction lift would you expect from a single stage pump system? (7)
- c) State the water jet capacity the pump must be capable of and the precaution must be taken sub-zero temperatures. (3)
- d) Using a simple sketch describe with reasons, how the emergency fire pump is connected to the ship's fire main showing position of any isolation valves fitted and location of international shore connection. (7)

2017/DEC/02 -	2018/OCT/03	2007/NOV/	2025/JAN/6
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7.a) As Second Engineer of a new ship, prepare standing orders for all future bunkering operations (5)

b) State why it is very important to obtain a representative sample of heavy fuel bunkers taken and explain how a representative sample is obtained (5)

c). What information is provided in bunker Delivery note (BDN) (5)

d) Requirement of designated sample points for taking in use bunker samples. (5)

2018/NOV/05	2018/SEP/06	2023/APR/07	2025/JAN/07
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8. With regard to minimum requirements for seafarers to work on a ship, as per MLC 2006,

Write short notes on the following: -



- a) Seafarers' employment agreements (5)
- b) Entitlement to leave and repatriation (5)
- c) Seafarer compensation in the event of a ship's loss or foundering (5)
- d) Social Security (5)

2023/MAR/02	2025/JAN/08	
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- 9. a) What different methods are used for preserving ship's hull during service. What type of antifouling coats are used. (8)
- b) State what materials are being banned by international regulation for use in Antifouling coats and the reason for banning.
- c) Discuss briefly how does paint coating on deck differ from that on super structure.

2023/MAR/05 -	2025/JAN/09	
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FEB-2025

1. What statutory certificates need to be carried by an Indian flagged special trade passenger vessel? Name the certificates and state the validity of each of the certificates

(20)

2023/JUL/03	2025/FEB/01
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2. What is understood by risk on board a ship? As a second engineer discuss various methods for hazard identification and assessment of the potential risks on board (20)

2022/AUG/05

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3. a) What is the Carbon Intensity Indicator (CII) and how is it calculated under IMO regulations? Explain its significance in reducing the carbon footprint of ships

(10)



b) What role does the Second Engineer play in ensuring compliance with CII requirements on a ship? Discuss the operational strategies and maintenance practices that the Second Engineer can implement to improve a ship's CII rating. (10)

[**Click Here to See the Answer**](#)

4. With reference to SOLAS CH-XII (Additional safety measures for bulk carriers);

- a) Damage stability requirements for bulk carriers(7)
- b) Structural requirements for bulk carriers(7)
- c) Water ingress alarms:(6)

[**Click Here to See the Answer**](#)

5a) Explain the NOx (Nitrogen Oxides) emission requirements under MARPOL Annex VI including the different NOx Tier limits applicable to marine engines (7)

b) What is the purpose of the NOx Technical File, and what key information does it contain? (6)

c) Describe the methods used to verify that a ship is in compliance with NOx emission limits while in operation (7)

[**Click Here to See the Answer**](#)

6. A new instrument by IMO 'For the Control and Management of ships Ballast Water and sediments' will be in force soon. In relation to this discuss the following

- (a) The need for such a convention
- (b) What are the options available for treatment of Ballast Water, and the methods being used presently?(8)
- (c) What are the responsibilities as a flag State and port State?(6)

[**Click Here to See the Answer**](#)

7.a) Explain the concept of Particularly Sensitive Sea Areas (PSSA) as defined under MARPOL. Describe the criteria used to designate a PSSA and the process involved in its declaration.(10)



h) Discuss the protective measures implemented in PSSAs to safeguard the marine environment from potential pollution and operational discharges from ships (10)

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8. With reference to Maritime Labour Convention (MLC) answer the following

a) Explain the structure of the convention with titles.(10)

b) Briefly, discuss DMLC Part I and II covering welfare measures for seafarers(10)

2024/OCT/05 2025/FEB/08

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9. a) Examine the role of the Safety Management System (SMS) in the implementation of the ISM Code, highlighting its components and significance of continuous improvement(10)

b) Examine the evolution of the ISM Code in response to emerging challenges in the maritime industry, including technological advancements, cyber risks, and environmental sustainability

2023/DEC/05 2024/AUG/09

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MARCH-2025

Q1. What statutory certificates need to be carried by an Indian flagged chemical tanker? Name the certificates and state the validity of each of the certificates. (20)

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Q2. With reference to the Maritime Labour Convention (MLC) 2006, discuss the requirements for seafarers regarding:-

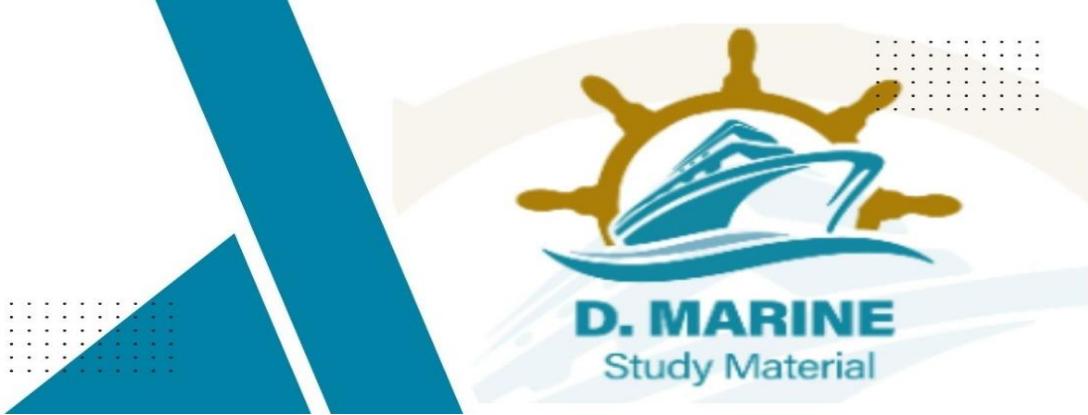
a) young seafarers. (5)

b) Seafarer's Employment agreements. (5)

c) Hours of work and hours of rest. (5)

d) Social Security requirements. (5)

2023/APR/09 2024/APR/05



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Q.3 With regard to ballast water Management Convention, Explain following:

- (a) Ballast water exchange standard. (5)
- (b) Ballast water Performance standard (5)
- (c) Treatment methods for ballast water. (5)
- (d) Approval methods for treatment system using active and non-active substances (5)

2022/SEP/03 **2023/NOV/07**

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Q.4 Explain the cargo hold fire detection system used on ships. Discuss the maintenance procedures for this system and outline the steps taken when a fire is detected in the cargo hold. (20)

[**Click Here to See the Answer**](#)

Q.5 Explain the OPRC (Oil Pollution Preparedness, Response and Cooperation) Convention. Discuss the responsibilities of the Flag State under this convention and list the documents required to be carried on board ship as per its provisions. (20)

[**Click Here to See the Answer**](#)

Q.6 With reference to "ISM Code" write short notes on:

- a) Masters Review,
- b) Requirement and Advantages of Familiarization of seafarer onboard,
- c) Designated Person Ashore (DPA)
- d) Functional requirements for a Safety Management System.

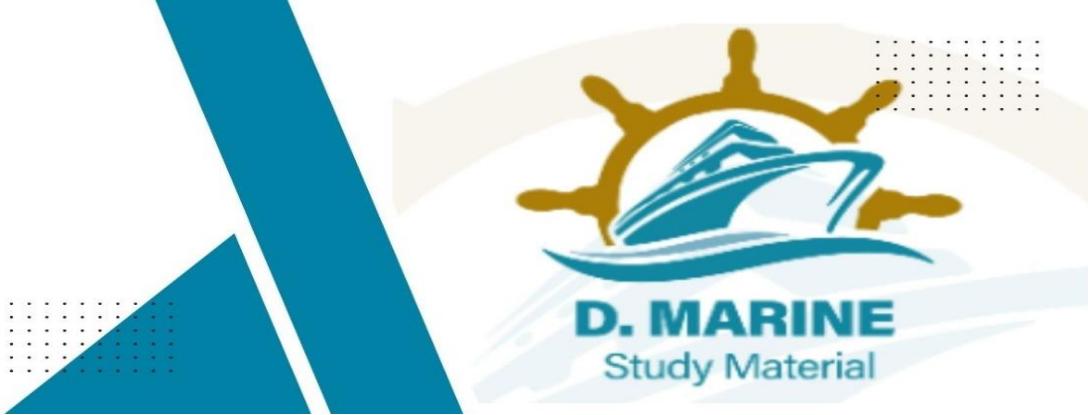
2023/APR/06

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Q.7 a) Draw and Explain flammability diagram. (5)
b) What is critical dilution in flammability diagram? (5)
c) How does inert gas reduce flammability range (5)
d) Describe purging and gas freeing operation of cargo tank in Crude Oil Tanker. (5)

2022/AUG/06 **2023/NOV/05**

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Q.8 a) Briefly describe the environmental impact of NOx and SOx and allowable limitations are per Annex VI of MARPOL in emission control areas and outside emission control areas. (10)

b) Briefly describe methods to control NOx emission. (10)

2022/AUG/01 **2023/NOV/06**

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Q.9 a) Describe the purpose of type approval for oily water separators (OWS) on ships. What criteria must an OWS meet to receive type approval, and why is this important for marine environmental compliance? (10)

b) Explain the main difference between the MEPC 60(33) and MEPC 107(49) standards for oily water separators. How did the updates in MEPC 107(49) enhance the performance requirements and monitoring capabilities for oily water separation, and what additional compliance measures were introduced? (10)

2024/NOV/07

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APRIL-2025

Q.1 Prepare a proposal for safe manning requirements for a ship of your choice taking into account the IMO guidelines on the issue, also considering frequent port calls, rest hour management and high-risk areas. (20)

2019/JUL/06

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Q.2 Differentiate between annual, intermediate, renewal, damage and repair surveys. What are the purposes of each survey onboard? Also, enlist all statutory certificates carried onboard, their issuing authority, and the IMO Convention under which they are issued. (20)

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Q.3 a) Define the meaning of the term "Conditions of Assignment" as applied to ships. (7)

b) State how conditions of assignment contribute towards water integrity of ships. (7)

c) Give reasons why conditions of assignment need periodic inspection, giving specific instances where they can be found to be less than fully effective. (6)

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Q.4 a) State the difference between an audit and survey. (4)

b) State the action taken by a recognized organization carrying out ISM certification on behalf of the Administration towards handling of an ISM certificate in case: (10)

- i) When there is evidence of a major nonconformity
- ii) When nonconformities are found
- iii) When an extension of the Safety Management Certificate is requested for
- iv) When revision of an entry for a certificate is requested for.

c) Under what circumstances may SMC and DOC be invalidated? (6)

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Q.5 a) Explain the objectives and scope of SOLAS Chapter XII. What are the structural and operational safety measures required for bulk carriers carrying high-density cargoes? (10)

b) Discuss the requirements related to the fitting of water ingress alarms and loading/unloading procedures. Why are these measures critical for the safety of bulk carriers? (10)

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6.a) Briefly discuss the purpose and structure of MLC, 2006. (7)

b) What are the health and safety protections offered to seafarers under MLC? (7)

c) Describe the onboard complaint procedures as per MLC. (6)

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Q.7 a) Explain the purpose and objectives of the Ballast Water Management (BWM) Convention. Describe the D-1 and D-2 standards specified under the convention, highlighting the key differences between them. (10)

b) Describe the ballast water exchange methods used on board ships. Explain the three main methods and discuss the precautions and limitations associated with each. (10)

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Q.8 A vessel is due for International Air Pollution Prevention Certificate (IOPP) renewal survey, and the company has instructed to offer this vessel for survey at the next port of call.

a) As a 2nd Engineer Officer of the above-mentioned vessel, what checks would you carry out, and how would you prepare for the IOPP renewal survey? (10)

b) What records, procedures, certificates, etc., will you keep ready for the surveyor's verification? (10)

2024/SEP/04

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Q.9 a) Briefly discuss the types of records that can be maintained electronically under MARPOL and the approval process for Electronic Record Books (ERBs). (10)

b) Highlight the advantages of using ERBs compared to traditional paper-based record books and state the measures required to ensure data integrity and security. (10)

2024/JUL/09

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JUNE-2025

1. Name various statutory Certificates and Documents to be carried on board a Gas carrier trading in Indian coast giving reference to the conventions and justify for their requirement.

2025/JUN/01

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2. The fire protection provided for the propulsion motor and generator of a diesel electric drive vessel is usually one of the following methods:

- (a) Fixed foam extinguisher.
- (b) Fixed CO2 system.
- (c) Steam smothering system.
- (d) Dry Chemical Powder.

Briefly state in a comparative analysis, how each one of these methods has some disadvantages when used with propulsion system as stated above.

2022/APR/03

2025/JUN/02

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3. Give a pragmatic approach of dealing with a sea water leakage from sea chest filter, which is flooding the engine room and which has the potential of causing a serious impairment to vessels stability.

2021/AUG/04

2021/APR/05

2021/JUL/04

2025/JUN/03

2021/JAN/06

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4. With reference to an automatic water sprinkler, fire detecting, alarm and extinguishing system for accommodation spaces:

- (i) Sketch a typical system.
- (ii) Describe the operation of this system.
- (b) State the sources of water available.
- (c) Describe the sprinkler head and its operation.
- (d) State how the temperature rating of the sprinkler head is determined.

2023/SEP/04

2025/JUN/04



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5.a) According to Article 2 of the Maritime Labour Convention (MLC) 2006, what are the essential elements that must be included in a Seafarers Employment Agreement (SEA)? How does the SEA ensure the protection of seafarers' rights?

b) Explain how Collective Bargaining Agreements (CBAs) are used to negotiate and establish the terms and conditions of employment for seafarers under the MLC 2006. How do CBAs contribute to ensuring fair wages, working conditions, and dispute resolution for seafarers?

2024/AUG/05 **2025/JUN/05**

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6a) What is a Particularly Sensitive Sea Area (PSSA) as defined by the International Maritime Organization (IMO), and how does it differ from a Special Area under the MARPOL Convention?

b) What are the six special areas designated by MARPOL, where stricter regulations apply to prevent pollution from ships, and what are the specific requirements for each area?

c) Discuss the criteria for designating a PSSA and a Special Area. What additional protective measures are typically implemented in these regions to safeguard the marine environment?

2024/AUG/06 **2025/JUN/06**

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7. Discuss the following with respect to MARPOL Annex-V:

- a) Domestic waste and operational waste.
- b) Garbage Management plan and record keeping.
- c) Discharge of Garbage outside special areas.
- d) Discharge of Garbage within special areas.

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8.a) What is the Crude Oil Washing (COW) procedure on oil tankers, and how does it enhance the efficiency of cargo operations? Outline the steps involved in the COW process.



b) Discuss the safety precautions that must be observed during Crude Oil Washing to prevent accidents and environmental hazards. Additionally, explain the regulatory requirements governing COW operations as per MARPOL and other relevant guidelines.

2024/AUG/08 **2025/JUN/08**

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9.a) What is the Carbon Intensity Indicator (CII) and how is it calculated under IMO regulations? Explain its significance in reducing the carbon footprint of ships.

b) What role does the Second Engineer play in ensuring compliance with CII requirements on a ship? Discuss the operational strategies and maintenance practices that the Second Engineer can implement to improve a ship's CII rating.

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JULY-2025

1. A large oil fire is slowly spreading in the ship's steering gear compartment. Suggest some procedures and means of extinguishing such fires. Propose a safety notice you would issue to the crew to prevent such fires.

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2. Name various statutory Certificates and Documents to be carried on board Crude Oil Tankers giving a reference to the conventions and justify for their requirement.

2020/FEB/03 **2022/JUL/07** **2025/JUL/02**

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3. With reference to "ISM Code" write short notes on:

- A) Masters overriding Authority;
- B) Requirement and Advantages of Familiarization of seafarer onboard;
- C) Designated Person Ashore (DPA);

D) Functional requirements for a Safety Management system.



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4. State the regular routines carried out on the following system:

- A) Self-contained Breathing apparatus (SCBA).
- B) Accommodation Fixed Fire detection system.

2024/FEB/03 **2025/JULY/04**

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5. With Reference to the Maritime Labour Convention (MLC) 2006, discuss the requirements for seafarers regarding:

- A) Minimum age to work onboard vessels;
- B) Seafarers' Employment Agreements;
- C) Hours of work and hours of rest.

2023/APR/09 **2024/APR/05** **2025/JUL/05**

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6. State the various documents pertaining to a ship that a port state control inspector would ask for during port state control inspection. If your vessel gets detained by the PSC owing to a deficiency, what would be your action for redressal.

2023/AUG/01 **2024/APR/06** **2025/JULY/06**

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7. Prepare a proposal for safe manning requirements for a ship of your choice taking into account the IMO guidelines on the issue, also considering frequent port calls, rest hour management and high-risk areas.

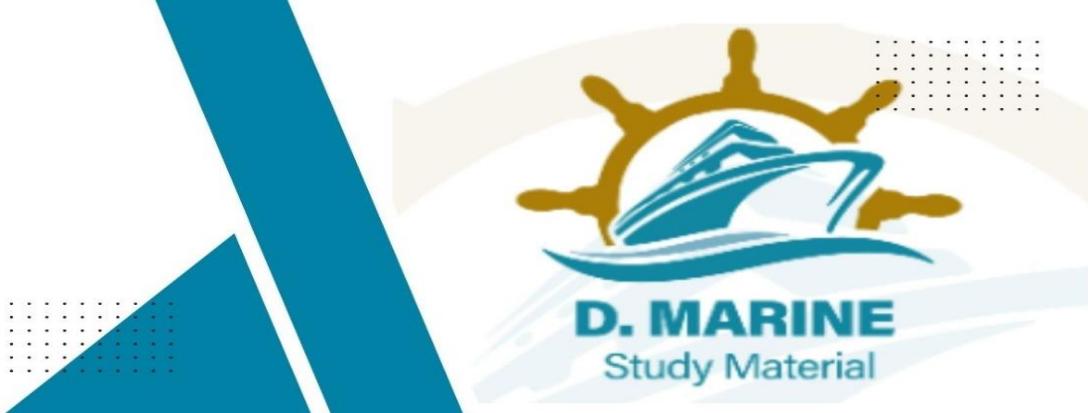
2019/JUL/06 **2025/JULY/07**

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8. Explain the advantages and disadvantages of an inert gas smothering system from flue gasses compared to an inert-gas generator. Explain why an inert gas generator is more advantageous. Why is it unsuitable for use in machinery spaces?

2020/MAR/08 **2022/MAR/01** **2025/JULY/08**

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9. a) What is the Carbon Intensity Indicator (CII) and how is it calculated under IMO regulations? Explain its significance in reducing the carbon footprint of ships.

b) What role does the Second Engineer play in ensuring compliance with CII requirements on a ship? Discuss the operational strategies and maintenance practices that the Second Engineer can implement to improve a ship's CII rating.

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AUG-2025

1. What statutory certificates need to be carried by an Indian Flagged Passenger Ship? Name the certificates and state the validity of each of the certificates.

2023/JUL/03 2025/FEB/01

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2. What is understood by risk on board a ship? As a second engineer discuss various methods for hazard identification and assessment of the potential risks on board.

2023/DEC/02 2025/FEB/02

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3. a) What is the Carbon Intensity Indicator (CII) and how is it calculated under IMO regulations? Explain its significance in reducing the carbon footprint of ships.

b) What role does the Second Engineer play in ensuring compliance with CII requirements on a ship? Discuss the operational strategies and maintenance practices that the Second Engineer can implement to improve a ship's CII rating.



2024/AUG/09

2025/FEB/03

2025/JUN/09

2025/JUL/09

2025/AUG/03

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4. With reference to SOLAS CH-XII (Additional safety measures for bulk carriers);

- a) Damage stability requirements for bulk carriers
- b) Structural requirements for bulk carriers
- c) Water ingress alarms.

2022/SEP/05

2024/MAR/06

2025/FEB/04

2025/AUG/04

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5. a) Explain the NOx (Nitrogen Oxides) emission requirements under MARPOL Annex VI including the different NOx Tier limits applicable to marine engines

- b) What is the purpose of the NOx Technical File, and what key information does it contain?
- c) Describe the methods used to verify that a ship is in compliance with NOx emission limits while in operation.

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6. With reference to free fall life boat of an ocean-going ship write short notes on:

- (a) Periodical maintenance, tests and checks on life boat and releasing gear.
- (b) Secondary means of lowering.
- (c) Lifeboat Drills.

2022/FEB/02

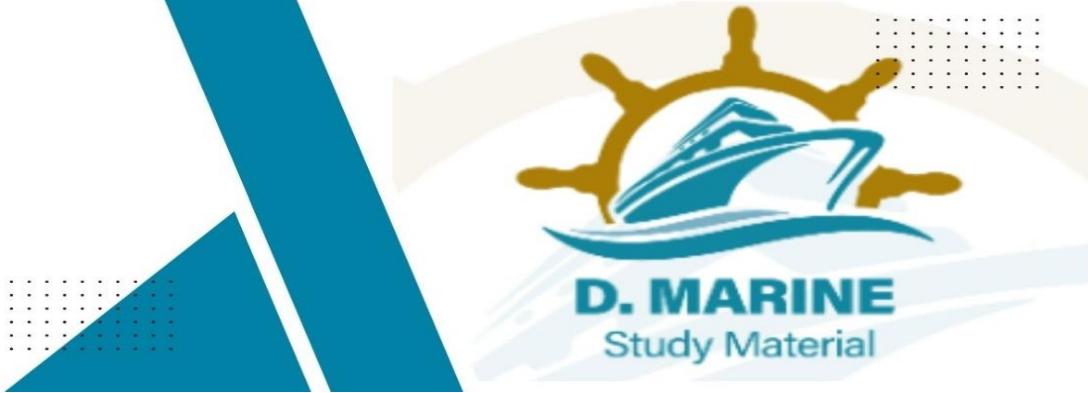
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2023/AUG/06

2024/APR/07

2025/AUG/06

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7.a) Explain the concept of Particularly Sensitive Sea Areas (PSSA) as defined under MARPOL. Describe the criteria used to designate a PSSA and the process involved in its declaration.

b) Discuss the protective measures implemented in PSSAs to safeguard the marine environment from potential pollution and operational discharges from ships.

2025/FEB/07 **2025/AUG/07**

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8. With reference to Maritime Labor Convention (MLC) answer the following:

a) Explain the structure of the convention with titles.

b) Briefly, discuss DMLC Part I and II covering welfare measures for seafarers.

2025/JAN/07 **2025/AUG/07**

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9. a) Examine the role of the Safety Management System (SMS) in the implementation of the ISM Code, highlighting its components and significance of continuous improvement.

b) Examine the evolution of the ISM Code in response to emerging challenges in the maritime industry, including technological advancements, cyber risks, and environmental sustainability

2023/DEC/05 **2024/AUG/09** **2025/AUG/09**

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SEP-2025

1. Explain in detail a fixed gas fire extinguisher system, indicating the quantity of the fire-extinguishing medium, the controls required for the system, installation requirements and training required to bring the system to be readily operated.

2023/SEP/06

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2. Explain the advantages and disadvantages of an inert gas smothering system from flue gasses compared to an inert-gas generator. Explain why an inert gas generator is more advantageous. Why is it unsuitable for use in machinery spaces?

2022/MAR/01

2025/JUL/08

2025/SEP/02

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3. Name various statutory Certificates and Documents to be carried on board Crude Oil Tankers giving a reference to the conventions and justify for their requirement. (20)

2022/JUL/07

2025/JUL/02

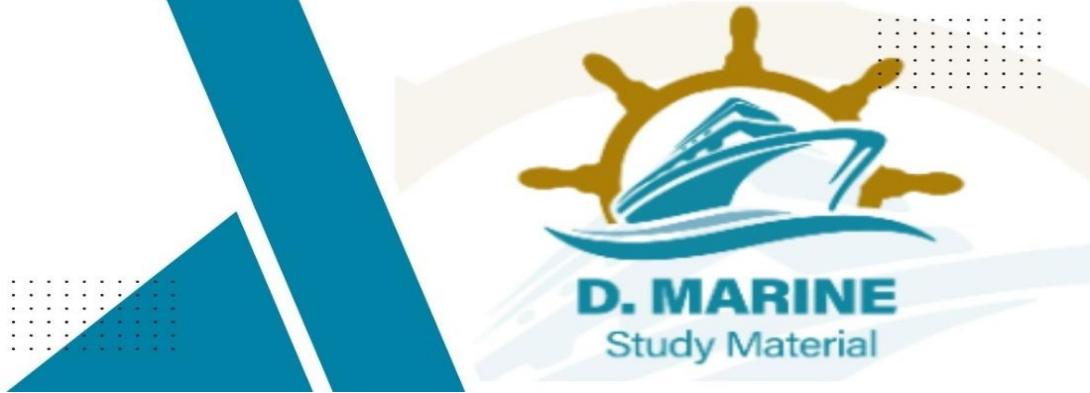
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4. With Reference to the Maritime Labour Convention (MLC) 2006, discuss the requirements for seafarers regarding:

- (a) Seafarer Employment Agreements
- (b) Repatriation;
- (c) Seafarers Wages.

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5. With reference to a periodically unattended machinery space of a dry cargo vessel discuss the requirements for -



- (a) Protection against flooding.
- (b) Control of propulsion machinery from the navigating bridge.

2021/DEC/02 2023/DEC/04 2024/FEB/05

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6. With reference to activated fin stabilizers give reasons why:

- (a) For large vessels such units are preferred to passive tanks;
- (b) These units are preferred for passenger and fast cargo ships;
- (c) Partial rather than maximum damping of ship movement in heavy weather is advisable for reasons other than overstressing of fin stocks and activating gear.

2022/FEB/08 2022/NOV/02 2023/DEC/09

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7. Explain the principle of port State control and give in detail the verification the port State control Officer may carry out with particular reference to the following:

- (a) Emergency generator
- (b) Main Switchboard
- (c) Lifeboat
- (d) Oily water Separator
- (e) Navigational lighting.

2020/JAN/07 2021/FEB/03

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8. You have to instruct a newly joined fifth engineer to bring 5 liters of Carbon-remover from 20 litre drum. Explain him:

- a) Precautions to be taken while handling.
- b) Measures to be taken if:
 - i) Chemical contacts his skin.
 - ii) Chemical contacts his eyes.



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9. Write reference to gravity life boat davits; state the purpose of the following

- (a) Centrifugal brake.
- (b) Dead man's handle.
- (c) Davit limit switch.

2022/MAR/09 2025/SEP/09

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OCT-2025

1. Prepare a proposal for safe manning requirements for a ship of your choice taking into account the IMO guidelines on the issue, also considering frequent port calls, rest hour management and high-risk areas. (20)

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2. Explain the principle of Port State Control and give in detail the verification the Port State Control Officer (PSCO) may carry out with particular reference to the following:

- (a) Emergency generator (4)
- (b) Auxiliary steering gear (4)
- (c) Lifeboat engine (4)
- (d) Bilge pumps (4)
- (e) SOPEP (4)

2021/NOV/07 2022/JUL/08 2025/SEP/07

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3.a) Define the meaning of the term "Conditions of Assignment" as applied to ships. (7)

b) State how conditions of assignment contribute towards water integrity of ships. (7)

c) Give reasons why conditions of assignment need periodic inspection, giving specific instances where they can be found to be less than fully effective. (6)

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4. Name various statutory Certificates and Documents to be carried on board Gas Tankers, giving a reference to the conventions and justify for their requirement. (20)

[**Click Here to See the Answer**](#)

5.a) Explain the objectives and scope of SOLAS Chapter XII. What are the structural and operational safety measures required for bulk carriers carrying high-density cargoes? (10)

b) Discuss the requirements related to the fitting of water ingress alarms and loading/unloading procedures. Why are these measures critical for the safety of bulk carriers? (10)

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6.a) Briefly discuss the purpose and structure of MLC, 2006. (7)

b) What are the health and safety protections offered to seafarers under MLC? (7)

c) Describe the onboard complaint procedures as per MLC. (6)

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7.a) Explain the purpose and objectives of the Ballast Water Management (BWM) Convention. Describe the D-1 and D-2 standards specified under the convention, highlighting the key differences between them. (10)

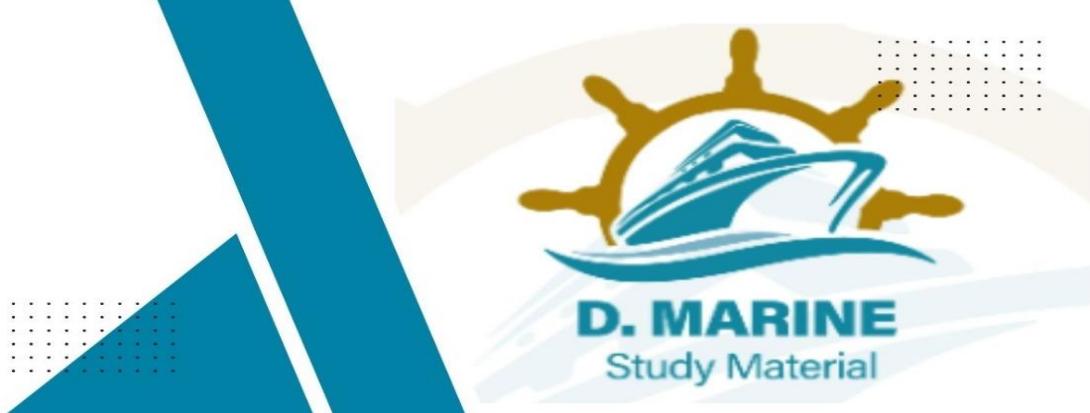
b) Describe the ballast water exchange methods used on board ships. Explain the three main methods and discuss the precautions and limitations associated with each. (10)

2025/APR/07 2025/OCT/07

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8. A vessel is due for international Air Pollution Prevention Certificate renewal survey and company instructed to offer this vessel for survey at next port of call.

a) As a 2nd Engineer officer of above-mentioned vessel, what all checks you carry out and how you prepare for the IOPP renewal survey. (10)



b) What records, procedures, certificates etc., you will keep ready for attending surveyor verification. (10)

2024/JUL/04 **2025/APR/08** **2025/OCT/08**

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9.a) Briefly discuss the types of records that can be maintained electronically under MARPOL and the approval process for ERBS. (10)

b) Highlight the advantages of using ERBs compared to traditional paper-based record books and state the measures required to ensure data integrity and security. (10)

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NOV-2025

1. What statutory certificates need to be carried by an Indian Flagged Passenger Ship? Name the certificates and state the validity of each of the certificates. (20)

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2. How Inventory of Hazardous Materials (IHM) Part I documented under Hong Kong convention for ships in Operation? What is the Scope of IHM part? What is the Basel convention on the control of Transboundary movement of Hazardous wastes and their disposal? How it is different from Hong Kong convention? (20)

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3. a) What is the Carbon Intensity Indicator (CII) and how is it calculated under IMO regulations? Explain its significance in reducing the carbon footprint of ships. (10) b) What role does the Second Engineer play in ensuring compliance with CII requirements on a ship? Discuss the operational strategies and maintenance practices that the Second Engineer can implement to improve a ship's CII rating. (10)

2024/AUG/09 **2025/FEB/03** **2025/JUN/09** **2025/JUL/09** **2025/AUG/03**

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4. With reference to SOLAS Ch-XII (Additional safety measures for bulk carriers);

- a) Damage stability requirements for bulk carriers(7)
- b) Structural requirements for bulk carriers(7)
- c) Water ingress alarms.(6)

2018/FEB/03

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5.a) Explain the NOx (Nitrogen Oxides) emission requirements under MARPOL Annex VI including the different NOx Tier limits applicable to marine engines(7)

- b) What is the purpose of the NOx Technical File, and what key information does it contain?(6)
- c) Describe the methods used to verify that a ship is in compliance with NOx emission limits while in operation.

2025/FEB/05 2025/AUG/05

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6. With reference to free fall life boat of an ocean-going ship write short notes on:

- (a) Periodical maintenance, tests and checks on life boat and releasing gear.(7)
- (b) Secondary means of lowering.(7)
- (c) Lifeboat Drills.(6)

2022/APR/02 2023/AUG/06 2024/APR/07 2025/AUG/06

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7.a) Explain the concept of Particularly Sensitive Sea Areas (PSSA) as defined under MARPOL Describe the criteria used to designate a PSSA and the process involved in its declaration.

- b) Discuss the protective measures implemented in PSSAs to safeguard the marine environment from potential pollution and operational discharges from ships.(10)

2025/FEB/07 2025/AUG/07



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8. With reference to Maritime Labour Convention (MLC) answer the following:

- a) Explain the structure of the convention with titles. .(10)
- b) Briefly, discuss DMLC Part I and II covering welfare measures for seafarers.(10)

2024/JAN/03 2024/OCT/05 2025/FEB/08 2025/AUG/08

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9. a) Examine the role of the Safety Management System (SMS) in the implementation of the ISM Code, highlighting its components and significance of continuous improvement.(10)

b) Examine the evolution of the ISM Code in response to emerging challenges in the maritime industry, Including technological advancements, cyber risks, and environmental sustainability (10)

2025/FEB/09 2025/AUG/09

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