

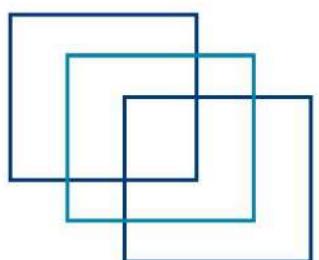


# MEO CLASS-1 WRITTEN

## FOR INDIAN COMPETENCY EXAM



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## CLASS-1 JAN -2025

- 1a) Define "Wreck" as per the Wreck removal convention and discuss the different categories of wrecks identified under the convention.
- b) Briefly discuss the objectives and key provisions of the convention.
- c) Analyze the legal and environmental implications of a wreck, focusing on the responsibilities of shipowners and coastal states.

**2025/JAN/01**

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- 2a) Explain the objectives and principles of the LLMC Convention, focusing on its role in maritime law.
- b) Outline the types of claims that are subject to limitation under the LLMC Convention and those excluded from limitation.
- c) Discuss the process for determining the limitation fund and its calculation as per the LLMC Convention, including the amendments under the 1996 Protocol.

**2025/JAN/02**

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- 3a) Describe the purpose and scope of Condition Assessment Programme (CAP) and Condition Assessment Scheme (CAS) surveys for ships.
- b) Explain the key differences between CAP and CAS surveys, including the triggers, survey requirements, and reporting procedures.
- c) Discuss the benefits of implementing CAP and CAS surveys, including their impact on ship safety, environmental protection, and operational efficiency.
- d) Outline the documentation and preparatory steps required for a CAS survey.

**2025/JAN/03**

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- 4. Anti Fouling Systems (AFS) convention-compliant paints have received special focus with the recent developments of energy-efficiency regulations in shipping. Against this background discuss
  - a) Comparison of cathodic and anodic protection.
  - b) Process of application of a AFS Convention-compliant paint scheme on an existing ship and the additional supervisions required to ensure its effectiveness.
  - c) Documents and records to be maintained on a ship to demonstrate convention compliance.



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**2025/JAN/04**

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5. Discuss a generic model of Formal Safety Assessment (FSA) promulgated by the IMO, with brief explanation on the following terms

- a) Cost effective indices
- b) Human Reliability Analysis (HRA)
- c) Extended Task Analysis (XTA)
- d) Technique for Human Error rate prediction (THERP)
- e) Fault and event tree analysis
- f) Failure Mode and Effect Analysis (FMEA)

**2021/JUL/08 2025/JAN/05**

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6.a) Explain contractual liability and liability under tort with examples. b) Explain the difference between legal liability and strict liability. c) Different entities in the transportation chain of cargoes like containers, dry and liquid bulk are exposed to different liabilities. Identify these entities and their liabilities and explain as to how these risks are insured.

**2025/JAN/06**

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

7.(a) Explain Life Cycle Analysis (LCA) of fuels used in ship operations. What are the different stages of Life Cycle Analysis of fuels.

(b) Discuss Well-to-Wake (WtW) and Well to Tank (WtT) concept employed in GHG emission calculation of fuels used in maritime sector. Explain with justification which of these methodologies would be feasible for shipping industry.

**2025/JAN/07**

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8.What is parametric rolling of a ship? How is it originated? Under what consideration it has become important in today's scenario? Considering a post Panamax Container vessel carrying a load of 1300 containers is overtaken by a hailstorm. Enlist the effects on the ship due to the condition under parametric rolling. Justify your answer with reasons.

**2025/JAN/08**

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

9 a) Explain the phenomenon of liquefaction of solid bulk cargo, including the conditions under which it occurs and its contributing factors.



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- b) Briefly discuss the dangers posed by liquefaction to the stability and safety of a vessel, providing examples of incidents caused by liquefaction.
- c) Outline the preventive measures and regulatory guidelines for minimizing the risk of cargo liquefaction during loa

**2025/JAN/09**

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## **FEB-2025**

- 1.a) Describe the structure of IMO. Specify the responsibilities and work done by the Assembly, the Council and various main committees. What role do the sub-committees perform in supporting the main committees?
- b) Define a convention. Explain the differences in international instruments such as Convention, Protocol, Code and Resolution. Give at least one example of each.

**2023/SEP/04** **2024/FEB/01** **2024/JUL/03** **2025/FEB/01**

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

- 2.a) Explain how Human Element issue is addressed in STCW Code.
- b) Discuss the key elements of ISMS that align with the ISM Code to enhance safety, environmental protection, and operational efficiency on board ship
- b) Discuss the IMO guidance on Fatigue Mitigation and Management on board ships (8)

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

- 3.a) Explain the concept of the Integrated Safety Management System (ISMS) and its significance in maritime operations. How does ISMS ensure compliance with the International Safety Management (ISM) Code?

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

- 4. Explain the purpose and process of a vetting inspection on an oil tanker. Discuss the role and responsibilities of the Chief Engineer in ensuring compliance with vetting inspection requirements.

**2025/FEB/04**

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5.a) Explain the scope and significance of Indian Admiralty Law in regulating maritime disputes and jurisdiction over vessels.  
b) Discuss the role of assessors in admiralty proceedings and the qualifications required for their appointment under Indian maritime regulations.

**2025/FEB/05**

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

6. For the purpose of verification of Energy Efficiency Design Index (EEDI) of a new ship, explain: -  
a) The content of EEDI Technical File  
b) The scope of preliminary EEDI verification at design stage  
c) Final verification of attained EEDI at sea trial stage

**2025/FEB/06**

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

7.a) What is P&I clubs? Describe how P&I clubs collect fund from ship-owners.  
b) What are the risks that are covered under the term "protection" and "indemnity"? (8)

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8. Recent stress on the control of emission from ships has led to the development of a series of devices aimed at the improvement of propeller propulsion effectiveness. Discuss various such devices with special focus on the following: -

a) Wake Equalizing Devices.  
b) Pre-swirl Devices  
c) Post-swirl Devices  
d) High-efficiency Propellers.

**2023/APR/06 2025/FEB/08**

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9. a) The "Lakshadweep islands" and the "Andaman and Nicobar Islands' are known for their critical habitat and required to be protected from Marine pollution. Describe briefly how these islands could be protected from marine



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pollution. b) Briefly explain the term "Particularly Sensitive Sea Area". Describe briefly the various criteria associated for identification and designation of a PSSA.

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## March -2025

1a) Explain the requirements for the classification of a ship, including the role of classification societies in ensuring compliance with safety and construction standards.

b) Discuss the scenario where a ship is classed by two classification societies. How is this process managed, and who is responsible for conducting statutory surveys and audits in such cases.

**2025/MAR/01**

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2. Define substantial corrosion in the context of ship structure and classification requirements. What criteria are used to assess substantial corrosion during inspections? Discuss the steps taken to address substantial corrosion during a renewal survey, including inspection techniques, repair methods, and the role of the classification society in ensuring compliance.

**2025/MAR/02**

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3a) Gender Equality is one of the goals of United Nations Sustainable Development Goals. Discuss the importance of gender diversity in the maritime industry and the challenges faced by women in this sector.

b) Explain the role of the International Maritime Organization (IMO) in promoting gender equality in shipping and elaborate on the initiatives taken by the Indian government to reduce the gender gap in the maritime workforce.

**2025/MAR/03**

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4. Maritime industries have taken several initiatives to explore new digital technologies and "3D Printing" is one of such initiatives. With brief introduction on the principles of 3D printing, explain the following:

- a) Explain the concept of 3D printing and its working principles
- b) Discuss its applications in the maritime industry
- c) What are the advantages and challenges of using 3D printing technology in the shipping sector?

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

5. What are the perils of the sea which are covered in a Marine Insurance contract? What can an insured do to cover a peril other than an insured peril of the sea? Explain with examples. Also, enumerate the perils which are covered under a marine insurance contract, but the onus of proof is upon the insurers to prove the assured's want of "due diligence" to avoid the claim.

**2022/AUG/02** **2023/MAR/03** **2025/MAR/05**

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6. The HNS Convention is expected shortly to come into force. Explain the following in respect of this convention.

- (a) List and give examples of substances covered under this convention
- (b) Types of pollution and subsequent losses or damages which can come under this
- (c) Why would an oil products tanker probably require having certificates under all 3 conventions i.e., CLC, Bunker and HNS.

**2022/SEP/08** **2023/APR/02** **2025/MAR/06**

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7. IMO introduced the EEDI requirements under MARPOL Annex VI Chapter IV for new builds in 2013 as a measure toward the reduction of CO<sub>2</sub> emissions from shipping. Explain the various design features adopted in the new build vessels to comply with the present EEDI framework under Phase 2 (of 20%-30% reduction).

**2022/OCT/08** **2025/MAR/07**

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8. Hull & Propeller maintenance is gaining popularity with the recent high stress on the energy efficiency of ships. Write short notes on the following:

- (a) Hull Roughness Management



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(b) Condition Based Propeller Maintenance

(c) Propeller Coating & Polishing

**2023/JUL/07 2025/MAR/08**

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9. An Indian-flagged vessel collided with another vessel off the coast of India, resulting in the loss of lives, vessel damage, and an oil spill. In accordance with the provisions of the Merchant Shipping Act, what steps should be initiated, and who is responsible for initiating these steps to ensure the safety of the ships and the marine environment?

**2025/MAR/09**

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## APRIL-2025

Q1. a) Explain the objectives and scope of SOLAS Chapter XV. Describe the types of ships and operations to which it applies and define the term "Industrial Personnel" as per the Code. (8)

b) Discuss the key safety measures and certification requirements for ships carrying industrial personnel under SOLAS Chapter XV. Include references to the IP Code and the role of the flag administration. (8)

**2025/APR/Q1**

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Q2. a) Define "Clear Grounds" as per Port State Control procedures. Under what circumstances can an inspector establish clear grounds for a more detailed inspection onboard a vessel? (4)

b) As a Chief Engineer, explain the immediate actions you will take on board if you disagree with the Port State Control Officer's decision to detain the vessel due to engine room deficiencies. (6)

c) Describe the procedure for requesting a review of the detention through the Detention Review Panel. What steps must be followed, and what role does the company, flag State, and classification society play in the process? (6)

**2025/APR/Q2**

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Q3. Explain the concept of underwater radiated noise (URN) generated by ships. Identify its primary sources and discuss the effects of such noise on marine life. (8)

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

b) Describe the international guidelines and best practices aimed at reducing underwater noise (e.g., IMO MEPC.1/Circ.833). What operational, design and maintenance measures can be implemented to minimize underwater noise? Also, explain the role of the Chief Engineer in ensuring compliance. (8)

**2025/APR/Q3**

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Q4. Briefly discuss the purpose and objectives of 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 as per its provisions. (16)

**2025/APR/Q4**

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

Q5. a) Explain the scope and application of Admiralty Law in India. Discuss the key provisions of the Admiralty (Jurisdiction and Settlement of Maritime Claims) Act, 2017, including the jurisdiction of High Courts and the types of maritime claims recognized. (8)

b) Who are assessors in the context of Admiralty proceedings? Describe their qualifications, role, and how they assist the court in interpreting technical maritime matters. (8)

**2025/APR/Q5**

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Q6. Explain the concept of CII rating and critically discuss the role of measuring metrics of AER and



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EEOI. What are the measures required to be taken by the vessel to improve its CII ratings. (16)

**2024/JAN/Q3 2025/APR/Q6**

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Q7. (a) Briefly discuss the concept of vetting inspections and their significance in maritime oil trade.

How does vetting inspections contribute to continuous improvement and safety culture within the oil tanker sector? (8)

(b) Discuss emerging trends or advancements in vetting procedures, including the integration of technology and data analytics. (8)

**2024/JAN/Q7 2025/APR/Q7**

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Q8. a) What is P&I clubs? Describe how P&I clubs collect fund from ship-owners. (5)

b) What are the risks that are covered under the term "protection" and "indemnity"? (5)

c) How does P&I clubs handle claims and what is the procedure for filling a claim? (6)

**2024/JUN/Q7 2025/APR/Q8**

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Q9. Guidelines on Maritime Cyber Risk Management are laid down in MSC. FAL.1/Circ.3, considering

these guidelines elaborate following: (16)

(A) Name all the on-board systems which are prone of cyber risks due to vulnerabilities created by

accessing, interconnecting or networking of such systems

(B) Explain the Elements of Cyber risk management.

(C) Discuss the importance of cyber security in Maritime sector.

(D) Differentiate between IT and OT system with suitable examples.

**2022/SEP/Q3 2024/MAR/Q5 2025/APR/Q9**

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## JUNE-2025

1. Improvements in Rudder efficiency can considerably contribute in improving propulsion effectiveness. Discuss common rudder-efficiency improvement devices / techniques currently in use, referring to the following: -

- a) Rudder Thrust Fins
- b) Asymmetric Rudders
- c) Rudder Bulbs
- d) Grim Vane Wheels.

**2023/JAN/01** **2023/AUG/03** **2024/APR/04** **2024/SEP/09**

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2 Discuss the procedure of entry into force of an IMO Convention after its Adoption? State the provision and its importance towards entry into force of the convention. For a convention of important technical nature state, the general rules/ conditions observed by the states for its entry into force. Explain the terms (i) Accession (ii) Signature subject to Ratification, acceptance or approval.

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3. With reference to marine insurance, write short notes on the following: (a) Port of refuge (b) Particular average and General average (c) Total loss and Constructive loss.

**2020/OCT/07** **2021/SEP/07** **2022/JAN/08**

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4a) What is SCOPIC? How does it solve the difficulties of salvors?  
b) In case of a collision between two ships on high seas, which state has the right & responsibility for following with justification and briefly describe the salient points of the applicable convention.

- 1) To take disciplinary action against the crew member or master?
- ii) To cancel COC of crew members.
- iii) for payment of compensation.

**2023/JAN/04**

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5a) What is LLMC and what is its purpose? Which are the two heads of claims for which limitation is stated in this Convention? Who can limit liability under this convention?

b) Explain the terms: Plaintiff, Defendant, Privity and Unlimited liability.

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6 a) "General average is based on certain essential features"-Discuss the statement.

b) A large vessel ran aground. Main engine was used in ahead and astern directions to shake the vessel loose from the ground. Due to excessive load some bearings of the main engine got burnt. Can this damage be included in the general average? Give justification to your answer.

[Click Here to See the Answer](#)

7. a) State the applicable regulation of SOLAS and MARPOL under which it is mandatory for a flag state to conduct an investigation into any casualty.

b) Briefly write the salient points of casualty investigation code and the recommended practices for a safety investigation into a marine casualty or marine incident

c) What do you understand by the term very serious marine casualty?

**2020/DEC/01    2023/JAN/07    2024/AUG/03**

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8.a) How is Human Element issue addressed in STCW code.

b) Discuss the IMO guidance on fatigue mitigation and management on board ships.

**2023/JAN/08    2024/APR/07    2025/FEB/02**

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9 What do you understand by "Unseaworthy vessels" within the meaning of the Merchant Shipping Act, 1958, as amended? What according to you is the difference between "Unseaworthy ships" & "Unsafe ships". What are the obligations of owners to crew with respect seaworthiness?

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## JULY-2025

1. With Reference to the Wreck Removal Convention;
  - a) Define "Wreck" and discuss the different categories of wrecks identified under the convention.
  - b) Briefly discuss the objectives and key provisions of the convention.
  - c) Analyze the legal and environmental implications of a wreck, focusing on the responsibilities of shipowners and coastal states.

**2025/JAN/01** **2025/JUL/01**

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2. (a) Explain Life Cycle Analysis (LCA) of fuels used in ship operations. What are the different stages of Life Cycle Analysis of fuels.  
(b) Discuss Well-to-Wake (WtW) and Well to Tank (WTT) concept employed in GHG emission calculation of fuels used in maritime sector. Explain with justification which of these methodologies would be feasible for shipping industry

**2025/JAN/07** **2025/JUL/02**

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3. (a) What are Standard Charter parties and enumerate the advantages of having standard Charter parties;  
(b) Discuss risks that can be covered under Charterer's Liability Insurance.  
(c) Discuss if the Charterer can be liable to pay compensation for cargo loss or damage as per Bill of Lading.  
(d) Discuss if Charterers can be liable for payment of Oil pollution damage compensation cost under IMO conventions.

**2025/JUL/03**

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- 4.a) Explain the phenomenon of liquefaction of solid bulk cargo, including the conditions under which it occurs and its contributing factors.



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b) Briefly discuss the dangers posed by liquefaction to the stability and safety of a vessel, providing examples of incidents caused by liquefaction.

c) Outline the preventive measures and regulatory guidelines for minimizing the risk of cargo liquefaction during loading, transportation, and discharge.

**2025/JAN/09** **2025/JUL/04**

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5. What are the perils of the sea which are covered in a Marine Insurance contract? What can an insured do to cover a peril other than an insured peril of the sea? Explain with examples. Also, enumerate the perils which are covered under a marine insurance contract, but the onus of proof is upon the insurers to prove the assured's want of "due diligence" to avoid the claim.

**2022/AUG/02** **2023/MAR/03** **2025/MAR/05** **2025/JUL/05**

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6. a) Gender Equality is one of the goals of United Nations Sustainable Development Goals. Discuss the importance of gender diversity in the maritime industry and the challenges faced by women in this sector. (8) b) Explain the role of the International Maritime Organization (IMO) in promoting gender equality in shipping and elaborate on the initiatives taken by the Indian government to reduce the gender gap in the maritime workforce.

**2025/MAR/03** **2025/JUL/06**

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7. Define substantial corrosion in the context of ship structure and classification requirements. What criteria are used to assess substantial corrosion during inspections? Discuss the steps taken to address substantial corrosion during a renewal survey, including inspection techniques, repair methods, and the role of the classification society in ensuring compliance.

**2025/MAR/02** **2025/JUL/07**

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8.a) Explain the requirements for the classification of a ship, including the role of classification societies in ensuring compliance with safety and construction standards.



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8 b) discuss the scenario where a ship is classed by two classification societies. How is this process managed, and who is responsible for conducting statutory surveys and audits in such cases.

**2025/MAR/01** **2025/JUL/08**

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9. An Indian-flagged vessel collided with another vessel off the coast of India, resulting in the loss of lives, vessel damage, and an oil spill. In accordance with the provisions of the Merchant Shipping Act, what steps should be initiated by the coastal state, and who is responsible for initiating these steps to ensure the safety of the ships and the marine environment?

**2025/MAR/09** **2025/JUL/09**

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## AUG-2025

Q1. (a) Enumerate the three main principles of LLMC (Limitation of Liability for Maritime Claims) convention 1976 and explain its linkage with two other IMO Liability and compensation Conventions. (5)

(b) Discuss what are the different liabilities covered under the LLMC (Limitation of Liability for Maritime Claims) Convention 1976. (5)

(c) Discuss the principles of the International Salvage Convention 1989, as established by the IMO, Furthermore, examine the rationale for extending liability limitation to salvors under the LLMC Convention, and specify the current liability limit applicable to them. (6)

**2025/AUG/01**

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Q2. a) Discuss the concept of CII (Carbon Intensity Indicator) as adopted in MARPOL and the commercial impact of CII in shipping business. (10)

b) Discuss shortcomings of the current CII concept being faced by the industry and remedial measures adopted. (6)

**2025/AUG/02**

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Q3. a) Discuss the application of formal safety assessment in carriage of lithium battery in vehicles and containers and in RORO ships. (10)

b) State various measures to be taken by stakeholders in minimizing the incidents in the above instance. (6)

**2025/AUG/03**

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Q4. A) How is Human Element issue addressed in STCW code. (8)

B) Discuss the IMO guidance on fatigue mitigation and management on board ships. (8)

**2023/JAN/08**

**2024/APR/07**

**2025/FEB/02**

**2025/JUN/08**

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Q5. What do you understand by "Unseaworthy vessels" within the meaning of the Merchant Shipping Act (MSA), 1958, as amended? What according to you is the difference between "Unseaworthy ships" and "Unsafe ships". What are the obligations of owners to crew with respect seaworthiness. (16)

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

Q6. a) "General average is based on certain essential features" -Discuss the statement. (8)

b) A large vessel ran aground. Main engine was used in ahead and astern directions to shake the vessel loose from the ground. Due to excessive load some bearings of the main engine got burnt. Can this damage be Included in the general average? Give justification to your answer. (8)

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

Q7. Discuss the procedure of entry into force of an IMO convention after its adoption? State the provision and its importance towards entry into force of the convention. For a convention of important technical nature state, the general rules/conditions observed by the states for its entry into force.

Explain the terms

(i) Accession

(ii) Signature subject to Ratification, acceptance or approval. (16)

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Q8. Discuss the revised GHG (Green House Gas) strategy of the IMO and amendments being considered under MARPOL Annex VI, including the inclusion of new Chapter-V to achieve the decarbonisation goal and transition to a Net Zero future in shipping. (16)

**2025/AUG/08**

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Q9. a) As per UNCLOS what are the sovereign rights and jurisdictions applicable to the coastal state and Flag state of the vessel in various maritime zones of the coastal state? Explain your answer suitable explanations. (10)  
(b) A cadet goes missing from the vessel in the Exclusive Economic zone of India which laws will apply and what actions will be taken as per the applicable laws? (6)

**2025/AUG/09**

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## **SEP-2025**

Q1. Several casualties have been reported involving ships carrying Bauxite as cargo. Discuss the causes of such casualties and the specific care and action be taken, taking into account the provisions of relevant IMO instruments, when handling and carrying bauxite in bulk.

**2022/SEP/Q2** **2023/APR/Q1** **2025/SEP/Q1**

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Q2. a) Discuss the concept of CII (Carbon Intensity Indicator) as adopted in MARPOL and the commercial impact of CII in shipping business. (10)  
b) Discuss shortcomings of the current CII concept being faced by the industry and remedial measures adopted. (6)

**2025/AUG/Q2** **2025/SEP/Q2**

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Q3. Explain the concepts of "Particular Average" and "General Average". What are the circumstances when a general average can be declared? Who are average adjusters and what is their role in general average loss situations? (16)

**2023/APR/Q3** **2025/SEP/Q3**



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Q4. What is Maritime Lien? How does this lien travel with property? Explain the associated terms "In Rem" and "In personam". Which convention deals with maritime lien? Give the order of settlement of various debtor's claims after legal action as per this convention. (16)

**2022/DEC/Q9** **2023/APR/Q5** **2023/AUG/Q2** **2024/APR/Q3**

**2025/SEP/Q4**

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Q5. The HNS Convention is expected shortly to come into force. Explain the following in respect of this convention.

(a) List and give examples of substances covered under this convention (6)

(b) Types of pollution and subsequent losses or damages which can come under this convention (5)

(c) Why would an oil products tanker probably require to have certificates under all 3 conventions i.e., CLC, Bunker and HNS. (5)

**2022/SEP/Q8** **2023/APR/Q2** **2025/MAR/Q6** **2025/SEP/Q5**

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Q6. Define communication. Enumerate and discuss the different types of communications. Discuss the various barriers to effective communication. You are doing a Main engine decarbonisation and the work is carried out in two groups, one working on the cylinder head platform and the other group working in the bottom platform. Identify the areas in this operation where there can be a hazard due to failure of communication. Also suggest risk mitigation measures to mitigate the hazard of failure of communication.

**2020/MAR/Q5** **2022/JAN/Q5** **2025/SEP/Q6**

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Q7. Describe the background and relevance of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001. Discuss the following under Bunker Conventions, comparing with other similar Conventions such as CLC'92.

(a) Pollution damage and Exclusions. (4)

(b) Time limits for claims. (4)

(c) Liability of Ship owner and Limitations of Liability. (4)



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(d) Compulsory Insurance and Financial Security. (4)

**2023/APR/Q7** **2025/SEP/Q7**

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Q8.a) Discuss the broad overview of the relevant IMO, ILO regimes relating to the Human Element in the maritime industry such as maritime labour and welfare.

B). Discuss the IMO guidance on fatigue mitigation and management on board ships

**2023/APR/Q8** **2025/SEP/Q8**

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Q9. a) Discuss the role of Classification societies in structural, mechanical, and electrical rule formation and implementation during design, construction, and maintenance. Explain why compliance with the above referred Class rules is now mentioned in SOLAS ch. II-1.

b) Explain the difference and relevance between annual and periodical surveys towards harmonized survey and certification system. (6)

**2022/OCT/Q5** **2023/APR/Q9** **2023/DEC/Q8** **2024/DEC/Q4**

**2025/SEP/Q9**

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## OCT-2005

Q1. (A) Define the concept of big data in the context of the maritime sector and the ways in which big data is utilized in different segments of the maritime sector, Such as shipping operations, port management, fleet optimization, cargo tracking and maritime safety.

(8)

(B) Briefly discuss the role of big data in enhancing decision-making processes in maritime sector and evaluate the challenges and barriers associated with the integration and implementation of big data technologies in the maritime domain. (8)

**2024/MAR/01** **2025/OCT/01**

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Q2. a) Define Bill of Lading (B/L) and explain its significance in maritime commerce. (3)

b) Distinguish between a Bill of Lading issued to the ship and other types of B/Ls, highlighting the unique features and purposes of each. (5)

c) Briefly Discuss the legal obligations and responsibilities of the shipowner, carrier, and consignee under a B/L issued to the ship, citing relevant maritime laws and conventions. (8)

**2024/MAR/02 | 2025/OCT/02**

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Q3. a) Discuss the concept of general average with the principles underlying general average and contribution among parties involved in a maritime venture. (8)

b) Provide examples of scenarios where general average might be declared, highlighting the criteria and conditions necessary for its application in modern maritime commerce. (8)

**2024/MAR/03**

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Q4. Improving efficiency of propellers is recognized as a growing means to improve energy efficiency of ships. Discuss any three of the following high-efficiency propellers with its merits and demerits:

- a) Ducted Propellers
- b) Kappel Propellers
- c) Contra rotating Propellers.
- d) Azimuth Propulsion.

**2024/OCT/07**

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Q5. Guidelines on Maritime Cyber Risk Management are laid down in MSC. FAL.1/Circ.3, considering these guidelines elaborate following: (16)

(A) Name all the on-board systems which are prone of cyber risks due to vulnerabilities created by accessing, interconnecting or networking of such systems

(B) Explain the Elements of Cyber risk management.

(C) Discuss the importance of cyber security in Maritime sector.



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(D) Differentiate between IT and OT system with suitable examples.

**2021/DEC/04** **2022/JAN/03**

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Q6. Guidelines for the use of electronic record books under MARPOL are laid down in resolution MEPC.312(74), considering these guidelines elaborate following:

- a) Name all the record books which can be maintained electronically on board.
- b) How does the electronic log book meet the regulations under MARPOL?
- c) Briefly discuss the security and accountability of the electronic log book.

**2022/OCT/03** **2024/MAR/06**

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Q7. Referring to the IMO Instruments Implementation Code.

- a) Briefly Discuss the objectives of the code and strategy recommended to flag state to achieve the objective. Which all IMO instruments covered in the code. (6)

b) What are the key performance indicators for evaluation of Flag state performance as per the code.

(5)

c) Briefly discuss the Flag state, coastal state, and Port state responsibilities.

(5)

**2023/AUG/09** **2024/JAN/09** **2024/MAR/07** **2024/DEC/09**

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Q8. Whilst approaching dock gates, the main engines did not respond to bridge control, driving ahead instead of braking astern, until the bow made contact with the dock wall. As Chief Engineer, report to head office why the engines failed to respond to Bridge control, the temporary measure instituted to avoid further trouble on this voyage and suggesting permanent measures to avoid repetition in the future.

**2024/MAR/08** **2025/OCT/08**

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Q9. a) Discuss the key provisions and requirements outlined in the MLC, including those related to seafarers' employment contracts, working hours, accommodation, health and safety, and access to medical care and welfare facilities. (8)

b) Discuss the challenges and limitations associated with the effective implementation and enforcement of the MLC, including issues related to flag State jurisdictions, Port State Control, and non-compliance by shipowners and operators. (8)

**2024/MAR/09**

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**NOV-2025**

1. Briefly discuss the various reasons for Bulk Carrier losses in the 1990's and explain how provisions detailed in chapter XII of SOLAS 74 as amended, contributed towards the safety of Bulk carrier.

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2. Referring to Propeller Curve, briefly discuss:

- a) What is torque rich condition?
- b) What are the reasons for Torque rich?
- c) What are the indications for the engine operating in torque rich conditions?
- d) What action will you ask your second engineer to take, if your vessel is torque rich.

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3. Control of disease vectors is necessary for maintenance of health on board ships. What is the Role of the WHO organisation in this regard and which are the national agencies tasked with this maintenance of the ship and the crew in good health? What are the different certificates issued to a vessel for maintenance of the ship in good health? Who can issue these certificates in India and what is the validity and extension options?

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4. With reference to LNG bunkering procedure onboard vessels fueled with LNG fuel. Please explain the following processes:

- a. Gassing-up.



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- b. Cooling down.
- c. Vapour Management.
- d. Emergency release coupling procedure.

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5. a). Discuss the differences between Enhanced Survey Program and Condition Assessment Program survey.
- b). State the documents and records needed for carrying out Enhanced Survey Program.
- c). State information found in safe access plan for Enhanced Survey Program.

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6. You as Chief Engineer are required to inform your Company with respect to inspection of propellers in the dry dock during which you noticed a surface crack on one of the blades. State the steps taken by you as Chief Engineer for successful handling of the situation.

**2018/FEB/06 2021/APR/06**

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7. Explain the objectives and importance of the International Maritime Organization's (IMO) Convention on Facilitation of International Maritime Traffic (FAL Convention). Discuss the recent amendments to the FAL Convention and analyze their impact on modern shipping operations, particularly in relation to digitalization and sustainability.

**2024/OCT/05**

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8. Discuss the Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships. What is its significance for India, and how does India's shipbreaking industry stand to benefit or be impacted by its implementation?

**2024/OCT/04**

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9. Discuss the procedure of entry into force of an IMO Convention after its Adoption? State the provision and its importance towards entry into force of the convention. For a convention of important technical nature state the general rules/ conditions observed by the states for its entry into force.



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Explain the terms (i) Accession (ii) Signature subject to Ratification, acceptance or approval.

**2020/MAR/07 2025/JUN/02 2025/AUG/07**

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**DEC-2025**

1. Control of disease vectors is necessary for maintenance of health on board ships. What is the Role of the WHO organisation in this regard and which are the national agencies tasked with the maintenance of the ship and the crew in good health? What are the different certificates issued to a vessel for maintenance of the ship in good health? Who can issue these certificates in India and what is the validity and extension options?

**2025/NOV/03**

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2. With reference to LNG bunkering procedure on board vessels fuelled with LNG fuel. Please explain the following processes:

- a. Gassing-up,
- b. Cooling down,
- c. Vapour Management.
- d. Emergency release coupling procedure.

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3. Discuss the Principles of Marine Insurance. Explain each of the principle with suitable examples.

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4. Explain Abraham Maslow's Theory of Motivation. As Chief Engineer on board, stress the issues you will address for lack of motivation, differences in attitude and to increase sense of competitiveness for better management and effective control?

**2021/MAR/07 2022/APR/04**

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5. How does Indian Administration conduct inquiries and investigations into shipboard casualties on foreign ships visiting its ports.



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- a). Elaborate with the mention of relevant international codes and relevant sections of the M.S.Act.
- b). Define Marine casualty.
- c). What does the Marine Safety Investigation report consist of and how is relayed to the MO by the member state responsible for conducting this investigation.

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6. With regard to Minimum requirements for seafarers to work on a ship, as per MLC 2006, write short notes on the following:-

- b) Minimum age to work on a ship
- c) Medical certification for duties on board
- d) Training and qualifications
- e) Recruitment and placement.

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7. Elaborate the influences of a Charterer on operation of propulsion and other ship-board machineries during a voyage. After taking over a ship as a Chief Engineer, you have been informed that the ship is on a time-charter and has a history of unforeseen auxiliary machinery breakdown at sea. State the different options you have and actions you would take as a Chief Engineer prior to the commencement of voyage?

**2021/JUL/07 2021/AUG/08 2022/MAR/07 2022/JAN/01**

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8. Define 'Unseaworthy ship' within the meaning of MS Act. Explain 'detainable deficiency' with reference to a PSC inspection and describe the procedure to be followed for the timely release of a vessel detained for serious structural deficiencies under PSC.

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9. What is Maritime Lien? How does this lien travel with property? Explain the associated terms "In Rem" and "In personam". Which convention deals with maritime lien? Give the order of settlement of various debtor's claims after legal action as per this convention.

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