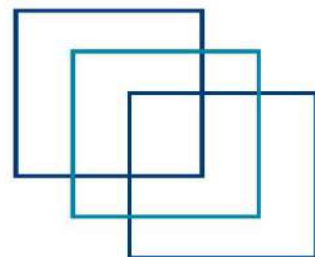




MEO CLASS-1 WRITTEN

FOR INDIAN COMPETENCY EXAM



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JAN-2023

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.

2024/APR/04 **2024/SEP/09**

[Click Here to See the Answer](#)

2.a) Briefly discuss Anti fouling convention and state all Documents and records to be maintained on a ship to demonstrate Anti fouling convention compliance.

b) Discuss various alternatives to tin-based antifouling paints, with specific reference to the following types: (i) Controlled Depletion Polymer (CDP) paint; (ii) Self-Polishing Copolymer (SPC) paint, (iii) Hybrid TBT free paint; (iv) Fouling Release paint.

2023/JUN/05 **2024/APR/05** **2024/SEP/08**

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3.a) State the different types of Marine Insurance policies that could be undertaken by owners, shippers, or other related parties

b) Explain the salient liabilities and exclusions related with each case for an insurer.

2023/JAN/03

[Click Here to See the Answer](#)

4. a) 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 of the applicable convention.



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- i) 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

[Click Here to See the Answer](#)

5.a) 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.

[Click Here to See the Answer](#)

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?

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

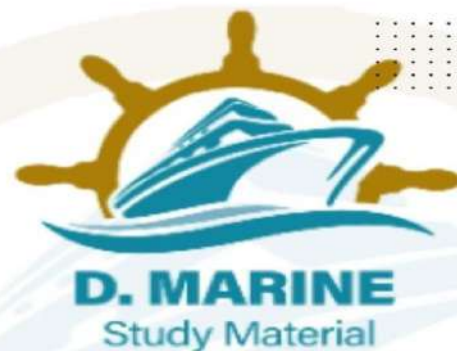
2024/APR/07

2025/FEB/02

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9. What is the aim and function of GISIS? (Global Integrated Shipping information System of the IMO). Recently GISIS updated its module on fuel oil to help compliance with Annex VI. Discuss the usefulness of this module for reporting and analysing information on compliant fuel oil.

2023/JAN/09 **2023/OCT/06**

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FEB-2023

1. Maritime industries have taken several initiatives to explore new digital technologies and "Big Data is one of such initiatives. With brief introduction on the principles of Big Data explain the following

- a) The Challenges and Opportunities of Big Data Analytics for Upcoming Regulations and Future Transformation of the Shipping Industry
- b) How usage of big data analytics helps in chartering, operations, vetting and designing of the vessel

2023/FEB/01

[Click Here to See the Answer](#)

2. Referring to the IMO Instruments Implementation Code

- a) Briefly Discuss the objective of the code and strategy recommended to flag state to achieve the objective. Which all IMO instruments covered in the code
- b) What are the key performance indicators for evaluation of Flag state performance as per the code. cline fly discuss the flag state, coastal state, and Fort state responsibilities.

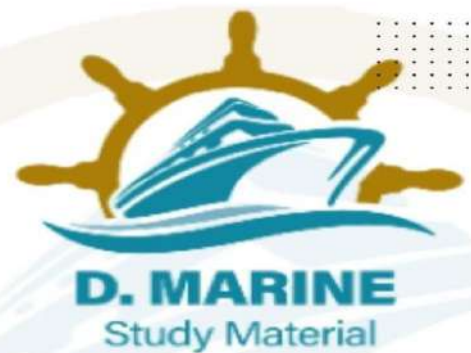
2024/JAN/09 **2024/MAR/07** **2024/DEC/09**

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3.a) (MO has introduced the EEXI requirements under MARPOL Annex VI Chapter IV for existing vessels from 2023 as a measure towards reduction of CO2 emissions from shipping Explain the various design features adopted in the existing vessels to comply with the present EEXI framework under Phase 2 (of 20%-30% reduction).



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b) Explain the concept of Cil rating and critically discuss the role of measuring metrics of AER and EEOI, What are the measures required to be taken by the vessel to improve its Cil ratings.

2023/FEB/03 **2024/OCT/08**

[Click Here to See the Answer](#)

5.a) Explain "Effective communication" as mentioned in the ISM Code. How can principles of Engine Resource Management be used to improve communication on board and with outsiders. Give two examples of near misses or accidents which were mainly due to incorrect, faulty, or unclear communication and how this could have been avoided through assessment or monitoring?

[Click Here to See the Answer](#)

6.(a) Discuss, in detail, the main functions of a Bill of Lading and explain the reasons for a Bill

of Lading being made out to order instead of to a named consignee.

(b) A Bill of Lading is said to be evidence of the contract of carriage of goods. Discuss any circumstances when a Bill of Lading may become the actual contract of carriage.

2023/FEB/06

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

a) Ducted Propellers

b) Kappel Propellers

c) Contra rotating Propellers azimuth Propulsion

2023/FEB/07 **2024/MAR/04**

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8. Referring to the Maritime Labour Convention (MLC) 2006

a) Flag State & Port State responsibilities.

b) On-board & On shore Complaint Procedures.

c) Detainable deficiencies



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d)Grievance Redressal Mechanisms for indian seafarers.

2024/SEP/05

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9. Compare and discuss the basic features of CLCS2 and Bunker Convention 2001, with specific reference to the type of ships, oil & nature of pollution damages covered, limits of liability and geographical coverage

[Click Here to See the Answer](#)

Mar-2023

Q1. A. One of the objectives of UNCLOS is protection of marine environment and prevention of pollution. Define pollution as per UNCLOS and discuss the key features of obligations of coastal states in this regard.

B. State the 3 main tiers of the oil pollution damage compensation conventions of the IMO. In each case elaborate one who is responsible for payment of compensation. Also, state the source of funds as well as certification required by ship under each tier.

2023/MAR/01 **2023/JUN/01**

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Q2. What is Decarbonisation in shipping? Briefly discuss the IMO decarbonisation ambitions and pathways with focus on the short term, mid-term and long term goals. Explain the two short-term measures approved by the IMO for implementation with their guidelines.

2023/MAR/02

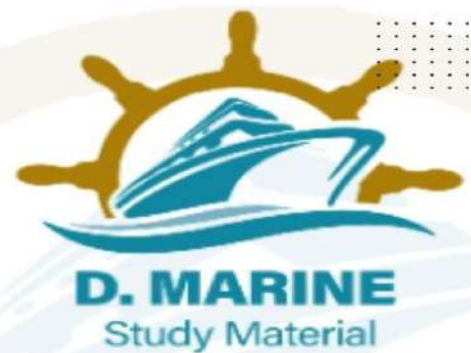
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Q3. What are the perils of the sea which are covered in a Marine Insurance contract? What can an insured do to cover a peril other than an insured peril of the sea? Explain with examples. Also enumerate the perils which are covered under a marine insurance contract, but the onus of proof is upon the insurers to prove the assured's want of "due diligence" to avoid the claim.

2023/MAR/03 **2025/MAR/05**



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Q4. Exhaust emission control is a major global issue and under serious consideration by world shipping. In this context, comment on the following: -
A. Primary NO_x reduction vis-a-vis secondary NO_x reduction measures;
B. Scavenge Air Moisturizing & Exhaust Gas Recirculation for main engine

2023/JUL/03

[Click Here to See the Answer](#)

Q5. A. Describe the stages during which the power produced by the main engine of the ship transformed into the effective power.
B). Discuss the essential sea trial maneuvers (navigation trials) conducted and typical objectives of each test

2023/MAR/05 **2023/AUG/06**

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Q6. (a) It is common statement that '80% of accidents are caused due to human errors, discuss the term 'human error' referred to here of a complex hierarchical socio-technical system
(b) The terms human element, human error and human factors have often been used interchangeably in relation with the maritime incidents/accidents. How in your opinion do these terms differ? Discuss with suitable examples.

2023/MAR/06 **2024/NOV/08**

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Q7. During a port State control inspection, the PSCO desired to carry out detailed inspection of the vessel. a) What are clear grounds for a PSCO to conduct a more detailed inspection? State your answer with examples.
b) What is the difference between 'corrective action' and 'preventive action'.

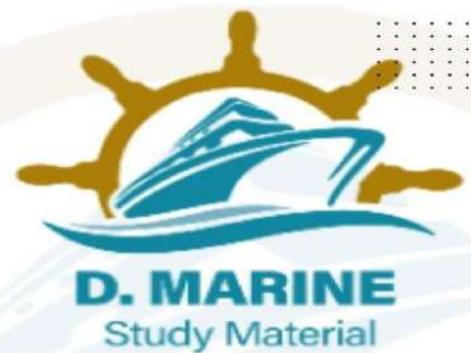
2023/MAR/07

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Q8. a) Enumerate the structure of IACS and explain difference between UI, UR, PR from IACS. Does it have any significance to ship owners/operators?



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b) What is a Recognized organization? What are the salient features of the R.O. Code? How do Administrations monitor R.O.s?

2023/MAR/08 **2024/JAN/05**

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Q9. Periodical Lubricating Oil Analysis, its correct interpretation and corrective measures are of critical significance for the maintenance of marine machineries. With reference to the modern analysis techniques employed for the condition of L.O, discuss the following:

- A) Elemental (Spectrometric) Analysis
- B) Fourier Transform Infrared (FTIR) Spectroscopy
- C) Particle Count
- D) Base Number Vs Acid Number

2024/NOV/09

[Click Here to See the Answer](#)

Apr-2023

1. 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.

2023/APR/01

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

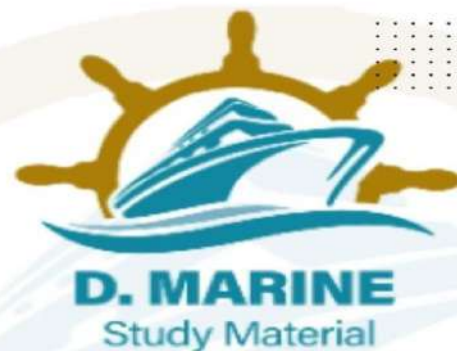
- (a) List and give examples of substances covered under this convention
- (b) Types of pollution and subsequent losses or damages which can come under this convention
- (c) Why would an oil products tanker probably require to have certificates under all 3 conventions i.e., CLC, Bunker and HNS.

2023/APR/02 **2025/MAR/06**

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3. 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?

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4. An Indian flag vessel collided with another vessel off the coast of India, as a result few lives were also lost and vessel damaged. In accordance with the provisions under the Merchant Shipping Act, what steps should be initiated and who should initiate such steps for the safety of the ships and the marine environment.

2023/APR/04 **2023/JUL/08**

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

[Click Here to See the Answer](#)

6. 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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7. 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:-



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- a) Pollution damage & Exclusions.
- b) Time limits for claims
- c) Liability of Ship owner & Limitations of Liability
- d) Compulsory Insurance & Financial Security

2023/APR/07

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8. (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.

2024/FEB/09

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9.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 above referred Class rules is now mentioned in SOLAS ch. II-1.

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

2023/DEC/08 **2024/DEC/04**

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Jun 2023

Q1a) One of the objectives of UNCLOS is protection of marine environment and prevention of pollution. Define pollution as per UNCLOS and discuss the key features of obligations of coastal states in this regard.

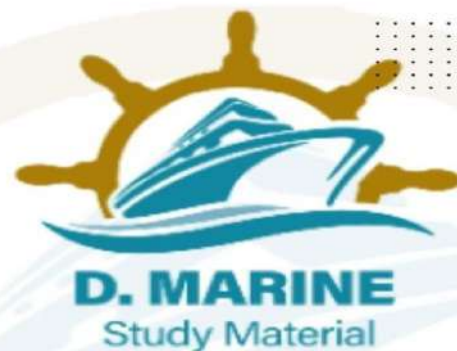
b) State the 3 main tiers of the oil pollution damage compensation conventions of the IMO. In each case elaborate on who is responsible for payment of compensation. Also state the source of funds as well as certification required by ship under each tier.

2023/MAR/01 **2023/JUN/01**

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Q.2a) Trace in brief the origin of IMO and elaborate on authority vested in IMO. Explain briefly the ratification process.

b) Write short and precise notes on:

- Casualty investigation code
- IMO member state audit scheme.

2023/JUN/02

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Q3. The safety management system requires that the Company should provide for measures ensuring that the Company's organization can respond at any time to hazards, accidents and emergency situations involving ships. Underline the importance of "communication" in "emergency preparedness" and what measures are required for the following

(i) contact between ship and the office (ii) communication equipment (iii) dealing with the media (iv) dealing with the next of kin.

[Click Here to See the Answer](#)

Q4. a) What is "Running Down Clause" and "General Average Expenses"? How are the claims under these clauses treated by H&M as well as P&I Insurers?

b) A vessel in your fleet has sustained damage due to an insured peril. The damage was identified only during drydocking one year after the incident. Will it be admissible under a hull policy? However, as the damage has not affected the Class status of the vessel, you decide not to carry out the repair. Can you file a claim against your policy? If yes, how can the value of such claim be ascertained?

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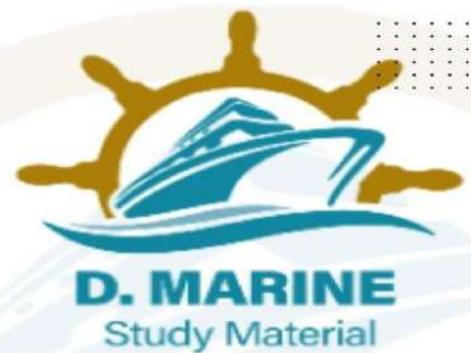
Q. 5 Briefly discuss Anti fouling convention and state all Documents and records to be maintained on a ship to demonstrate Anti fouling convention compliance.

Discuss various alternatives to tin-based antifouling paints, with specific reference to the following types: -

- (i) Controlled Depletion Polymer (CDP) paint;
- (ii) Self-Polishing Copolymer (SPC) paint;
- (iii) Hybrid TBT free paint;
- (iv) Fouling Release paint.



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2024/APR/05 **2024/SEP/08**

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Q6. With respect to key issues in ship repair contracts, illustrate (i) Payment terms (ii) Ambit of the specification and additional works (iii) contract period, liquidated damages and force majeure (iv) Guarantees and insurance (v) Termination events

2023/JUN/06

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Q7. The Ship Energy Efficiency Management Plan (SEEMP) seeks to improve a ship's energy efficiency through four steps: planning, implementation, monitoring, and self-evaluation and improvement. Describe with suitable examples, the critical role of each of these components in improving energy efficiency of ships.

[Click Here to See the Answer](#)

Q8.a) The duration of responsibilities of the maritime carrier are different under different conventions regarding carriage of goods by sea. Explain this statement with examples.

b) A bulk carrier discharged the cargo of grain in a port. The consignee received some cargo in damaged condition. He claimed from the ship owner for the damage to the cargo. What defence is available to the ship owner?

2023/JUN/08 **2024/DEC/07**

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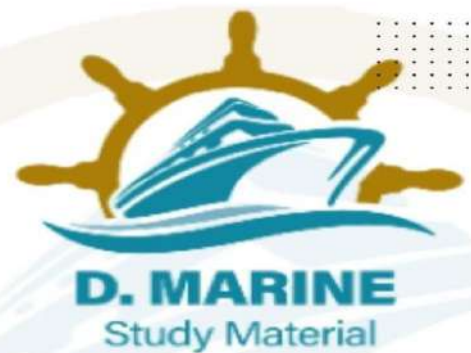
Q9. Viscous (frictional) resistance is a major component of overall resistance and hence an important area of attention for energy efficiency improvement of ships.

Explain various skin friction reduction methods currently under consideration, with special mention on the following:

- Hull Air Cavity systems
- Hull surface texturing
- Micro bubbles.



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2022/OCT/07 **2023/JUN/09**

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JUL- 2023

Q1. A grounded ship has been refloated and towed by a professional salvor to a place of safety. As per the Salvage Convention the salvor has a right to award. a) List the various criteria which are considered under Article 13 of the Convention for determining the amount of award.

b) State the duties of the salvor and the shipowner/master as per this Convention

c) Assuming LOF-2000 was agreed between the parties, discuss when the Convention is applicable and when the LOF, if any dispute arises.

2023/JUL/01 **2024/AUG/07**

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Q2. Detail the inspection that you as the new Chief Engineer of a passenger ship, would make on joining the ship with regard to (i) Ship Stability (ii) Damage control (iii) Fire fighting (iv) Critical Machinery and equipment installed.

2023/JUL/02

[Click Here to See the Answer](#)

Q3. Exhaust emission control is a major global issue and under serious consideration by world shipping. In this context, comment on the following: -

a) Tier 2 and 3 emission regulation on main engine

b) Primary NO_x reduction vis-a-vis secondary NO_x reduction measures.

c) SCR for NO_x Emission Reduction.

d) Scavenge Air Moisturizing & Exhaust Gas Recirculation for ME.

2023/JUL/03

[Click Here to See the Answer](#)

Q.4 Referring to the Maritime Labour Convention (MLC) 2006, discuss:-

a) Flag State & Port State responsibilities.

b) On-board & On-shore Complaint Procedures.



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- c) Detainable deficiencies.
- d) Grievance Redressal Mechanisms for Indian seafarers.

2024/SEP/05

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Q.5 Under maritime law in case of a collision, explain

- a) apportionment of damages
- b) proportionate fault
- c) collision liabilities
- d) presumptions of fault

[Click Here to See the Answer](#)

Q.6 Formal Safety Assessment (FSA) is being widely used in the rule making processes of IMO. Narrate the objectives, characteristics, and processes of the FSA, with specific explanation regarding Hazard Identification, Risk Analysis and Cost benefit Assessment.

2023/JUL/06 **2023/DEC/09**

[Click Here to See the Answer](#)

Q7. 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.
- b) Condition Based Propeller Maintenance.
- c) Propeller Coating & Polishing.

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

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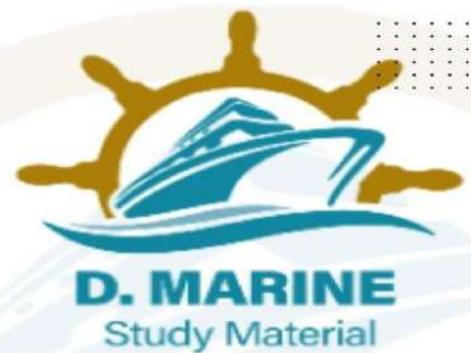
Q8. An Indian flag vessel collided with another vessel off the coast of India, as a result few lives were also lost and vessel damaged. In accordance with the provisions under the Merchant Shipping Act, what steps should be initiated and who should initiate such steps for the safety of the ships and the marine environment.

2023/APR/04 **2023/JUL/08**

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Q9. a) What do you understand by unseaworthy vessel within the meaning of the MSA 1958 as amended?

b) What according to you is the difference between unseaworthy and unsafe ship

c) What are the obligation of the owner to crew with respect seaworthiness?

2023/JUL/09 **2024/OCT/01**

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AUG 2023

Q1. Maritime industries have taken several initiatives to explore new digital technologies and "Internet of things (IoT)" is one of such initiatives. With brief introduction on the principles of IoT, explain the following a) Advantages and Disadvantages of using IoT in maritime industry. b) How IoT is changing the maritime industry. c) How IoT is used in Energy Efficiency optimization and predictive Maintenance .

[Click Here to See the Answer](#)

Q.2 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.

[Click Here to See the Answer](#)

Q.3 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:

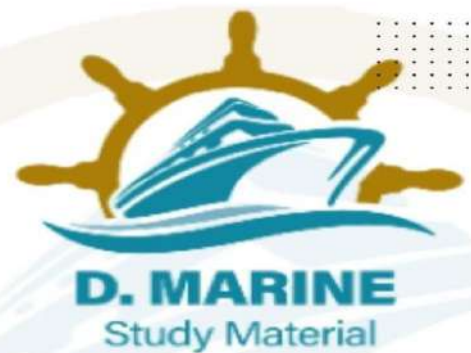
- a) Rudder Thrust Fins b) Asymmetric Rudders c) Rudder Bulbs d) Grim Vane Wheels

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Q.4 On a ship where you are employed as Chief Engineer, the vessel has UMS system for controlling engine room and a central scanning and data logging



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system for monitoring. Explain the special attention you will pay to the specific data and formulate a chart for condition monitoring. Highlight the tools in computer application you will use for making graphical representation of the salient points and trend analysis.

2023/AUG/04

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Q.5 Classification societies are Recognized Organizations' (RO) and play an important role in implementation of national and international regulations. State the limitations of the RO highlighting them with reasons. List the statutory services undertaken by a classification body on behalf of Administration.

2023/AUG/05

[Click Here to See the Answer](#)

Q.6A) Describe the stages during which the power produced by the mainengine of the ship is transformed into the effective power.
B) Discuss the essential sea trials manoeuvres (navigation trials) conducted and typical objectives of each test

2023/MAR/05 **2023/AUG/06**

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Q7. List and explain the four main stages of an IMO convention. With examples, explain the delay that occurs between the adoption date and coming into force date of a convention. What can be done to reduce this delay?

2023/AUG/07

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Q8. 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 ensuing authority, and the IMO Convention under which they are issued.



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2023/AUG/08

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Q9. Referring to the IMO Instruments Implementation Code a) Briefly Discuss the objective of the code and strategy recommended to flag state to achieve the objective. Which all IMO instruments covered in the code. b) What are the key performance indicators for evaluation of Flag state performance as per the code. c) Briefly discuss the Flag state, coastal state, and Port state responsibilities.

2024/JAN/09

2024/MAR/07

2024/DEC/09

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Sep 2023

Q.1 Achieve gender equality and empower all women and girls", is one of the Sustainable Development's Goals of the UN. With brief introduction on gender equality, discuss the following.

a. Why gender balance is required?

b. Discuss various initiatives taken by the Government of India and the International Maritime Organisation towards gender equality in shipping.

c. How would you as the Chief Engineer of a ship which has women seafarers ensure that these initiatives have the desired impact?

2023/SEP/01

2024/JUL/01

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Q.2 What is a Recognized organization? What are the salient features of the R.O. Code? How do Administrations monitor R.O.s?

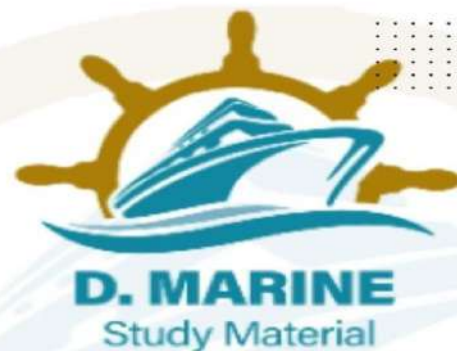
2023/SEP/02

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Q3. What are, the ongoing developments at IMO with respect to the technical, operational and market-based measures to be invoked on board ships for combating greenhouse gas emissions from ships?



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(a) Describe the structure of IMO. Specify the responsibilities and work done by the Assembly, the Council and the 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/03

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4.a) Describe the structure of IMO. Specify the responsibilities and work done by the Assembly, the Council and the 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.

2024/FEB/01

2024/JUL/03

2025/FEB/01

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Q.5 In a grain carrier, how the shifting of grain affects the ship stability? With a neat diagram, Explain the existing minimum criteria for stability of grain carrying ships.

2023/SEP/05

[Click Here to See the Answer](#)

Q6 a) Define the meaning of the term "Conditions of Assignment as applied to ships.

b) State how the conditions of assignment contribute towards watertight integrity of ships

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

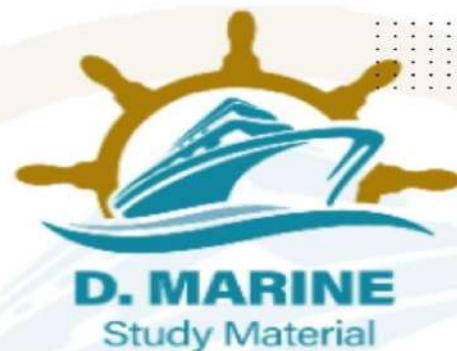
2023/SEP/06

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Q.7 a) State the difference between an audit and survey



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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:

- 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 SMC and DOC may be invalidated?

2023/SEP/07 **2024/APR/08**

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Q.8 a) What are the important highlights of UNCLOS with respect to protection and preservation of the marine environment?

(b) Explain— (i) Territorial Sea, (ii) Contiguous Zone, (ii) Exclusive Economic Zone, (iv) Continental Shelf, (v) High Seas.

2023/SEP/08 **2024/APR/09**

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Q.9 What provisions are made under Port State Control (PSC) towards

- (i) Certificates issued by non-party states to their ships
- (ii) Inspection of ships below convention size and
- (iii) No more favorable treatment?

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Oct-2023

Q1. Optimization of hull Forms is recognized as means to improve energy efficiency of ships. Discuss scope and impact of optimization of the following in improving energy efficiency of ships:

(i) Forebody optimization (ii) Aft body Optimization (iii) Twin Skeg Design.

2023/OCT/01 **2024/FEB/03** **2024/NOV/03**

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Q2. a) What is the purpose of annual surveys?

b) Give a list of items that would be examined by a surveyor during annual survey.



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c) Also explain condition of class. What impact condition of class has on a ship's commercial VS. technical aspects?

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Q3. With reference to PSC enumerate on the following

- a) regional co-operation/ agreements
- b) Future of PSC
- c) Is PSC an effective tool for ship safety?

2023/OCT/03

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Q4. Explain the following modern methods of turbo charging

- a) Pulse converter system
- b) Sequential turbo charging
- c) 2 stage turbo charging
- d) Variable geometry turbo charger.

2024/FEB/03

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Q5. Exhaust emission control is a major global issue and under serious consideration by world shipping. In this context, comment on the following: -

- a) Tier 2 and 3 emission regulation on main engine
- b) Primary NO_x reduction vis-a-vis secondary NO_x reduction measures
- c) SCR for NO_x Emission Reduction
- d) Scavenge Air Moisturizing & Exhaust Gas Recirculation for ME.

2023/JUL/03

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Q 6. What is the aim and function of GISIS? (Global Integrated Shipping Information System the IMO). Recently GISIS updated its module on fuel oil to help compliance with Annex VI. Discuss the usefulness of this module for reporting and analysing information on compliant fuel oil.

2023/JAN/09 **2023/OCT/06**

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Q7.a) 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.

2023/JAN/05 **2023/OCT/07**

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Q8. Describe the background and relevance of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001. Define the following under Bunker Conventions and explain how they differ from other similar Conventions such as CLC'92.

a) Pollution damage

b) Bunker oil

c) Time limits for claims

d) Exclusions

2023/APR/07

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Q9.a) Discuss principles and the steps of root cause analysis. Differentiate between proximate cause and root cause.

b) Accident causation models often state 'active failures' and 'latent failures'. Giving suitable examples discuss these terms.

2023/OCT/09 **2024/DEC/05**

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NOV-2023

Q1.a) Discuss the significance of continuous survey of machinery onboard ships, outlining its key objectives, methodologies, and the impact of advanced technologies on this process.

b) Enumerate challenges that could be encountered in such surveys and propose viable solutions to ensure its effectiveness.

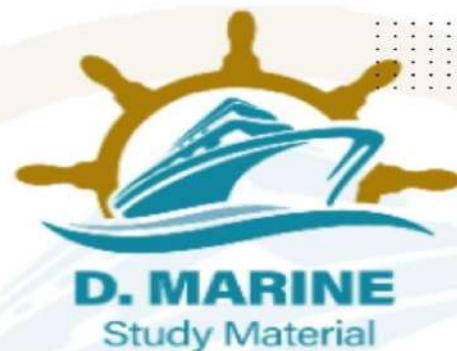
2023/NOV/01

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Q2.a) Illustrate mean piston speed and its significance on consumption of F.O.



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- b) Explain how mean piston speed is related to rpm and ideal combustion.
c) After joining an old ship as Chief Engineer, formulate a methodology by which you can ascertain optimum use of FO vis-à-vis desired mean piston speed.

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Q3.a) What is bill of lading?

b) What precautions are to be observed before signing a B/L under voyage charter and time charter?

c) Differentiate the salient considerations taken during on-hire Survey of a ship under

- 1) Bare-boat charter,
- 2) Voyage charter &
- 3) Time charter.

d) As a Chief Engineer onboard, explain with reasons, which of the above three Survey is the most demanding and exhaustive.

2023/NOV/03

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Q4.a) Briefly discuss the key provisions and objectives of the OPRC Convention, highlighting its significance in responding to and preventing oil pollution incidents.

b) Analyse the role of Member States and the challenges faced in implementing the convention's principles.

c) Enlist the documents required to be maintained by Member States and on-board ships as per the OPRC Convention.

2023/NOV/04

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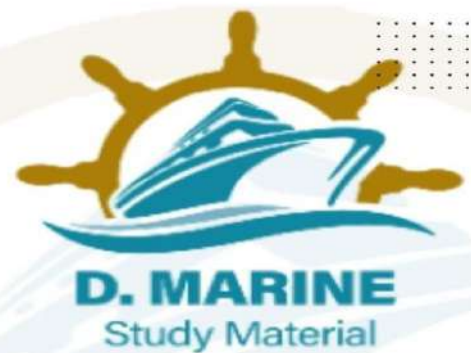
5. Referring to various alternatives to tin-based antifouling paints discuss the following:

- a) hull roughness of different types of antifouling paints.
- b) Enhancement of foul release coating by oil incorporation.
- c) Personnel and health safety during application of antifouling paints.

2018/JAN/01



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Q6. Explain the associated key factors and activities to ensure an effective PMS onboard ships and ISM code with the following terms-

- a) Corrective action process.
- b) Developing and improving maintenance records
- c) Systematic approach of maintenance
- d) Maintenance intervals & periodicity of inspection

2023/NOV/06

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Q7. Name the present ISO standards for Marine Fuel and explain the salient features of it. With reference to fuel oil analysis report, explain the content of such a report and discuss r corrective actions that would be required to be initiated against each of the undesirable observations in it.

2023/NOV/07

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Q8. Discuss developments in marine diesel engines, including the retrofit methods that are popularly adopted by engine manufacturers to enable hassle free slow steaming & ultra- slow steaming of ships?

2023/NOV/08

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Q9.a) What are 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"?

c) What is the minimum a ship owner/shipping company has to do for its ship to get averages under P&I club?

2023/NOV/09

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DEC-2023

1.(a) Discuss the concept of Goal-based ship construction standards (GBS) for bulk carriers and oil tankers, emphasizing their significance in enhancing safety and environmental protection

(b) Discuss the implementation process of Goal-Based Standards, considering the involvement of various stakeholders such as ship designers, shipbuilders, and classification societies

2023/DEC/01

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Q2.(a) Explain the concept of a Port State Control, with focus on the legal framework

(b) What are the right to appeal available to you as the Chief Engineer or to the Company. if the ship has been detained for deficiencies considered to be unreasonable and unfair

2023/DEC/02

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Q3.(a) What are the types of losses in marine insurance? Define General Average cargo Act as per York Antwerp Rules 1994 State the circumstances under which "General Average" can be declared?

(b) Differentiate between express and implied warranties and give an example in each case with reference to a hull and machinery policy of insurance.

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Q4.(a) Discuss the need to upskill and train the seafarers in the decarbonization scenario with examples citing the anticipated areas of concern.

(b) Effective communications have been identified as one of the causal factors in maritime accidents, Discuss its importance in safety of ship operations particularly with reference to the present-day shipboard crewing scenarios

2023/DEC/04

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Q5.(a) Examine the role of the Safety Management System (SMS) in the implementation of the ISM Code, highlighting its components and the 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**

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Q6. Discuss the capital, voyage and operating costs of ship operation and explain Chief Engineer's role in optimizing them. What are the modern management principles used in Inventory control?

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Q7.(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 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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Q8.(a) the role of Classification societies in structural, mechanical, and electrical Discuss rule formation and implementation during design, construction, and maintenance. Explain why is compliance with above referred Class rules now mentioned in SOLAS ch. II-1

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

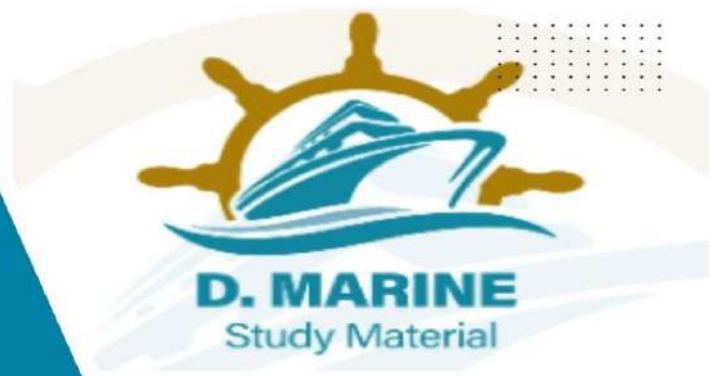
2023/APR/09 **2023/DEC/08** **2024/DEC/04**

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Q9. Formal Safety Assessment (FSA) is being widely used in the nile making processes of IMO. Narrate the objectives, characteristics, and processes of the FSA, with specific explanation regarding Hazard Identification, Risk Analysis and Cost benefit Assessment.



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