



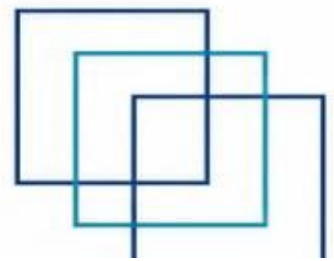
MEO CLASS 4 WRITTEN: SSEP

(SHIP SAFETY & ENVIRONMENTAL PROTECTION)

FOR INDIAN COMPETENCY EXAM

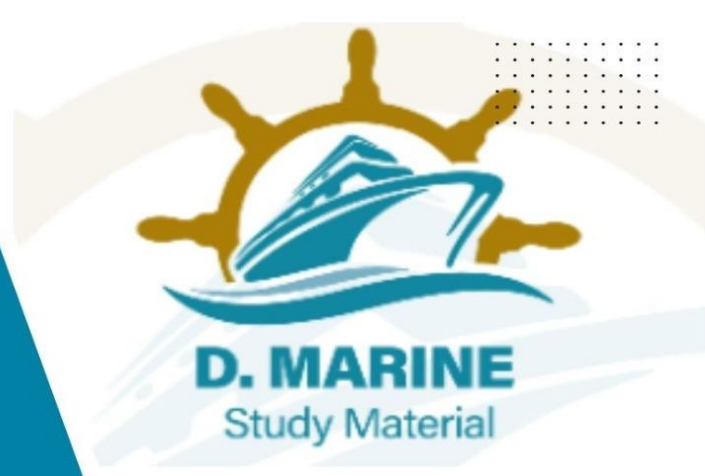


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JANUARY - 2024

Q1.a) Sketch and describe a 50 litres Mechanical foam fire extinguisher giving details with respect to (12)

(i) Type of gas used as expellant

(ii) Throw reach

(iii) Working and test pressure

(b) Explain the procedure for recharging the same after use (8)

2024/JAN/Q1

[Click Here to See the Answer](#)

Q2.a) What are the short term measures devised by IMO for controlling the emission of Green House gases (5)

(b) State the measures and how they will take effect What size of ships are these rules applicable to (5)

(c) What documents will be required to be carried on board under the new regulations (5)

(d) What is SEEMP Part III State its contents (5)

2024/JAN/Q2

[Click Here to See the Answer](#)

Q3. Write short notes on

(a) Garbage Record Book (5)

(b) Discharge criteria as per Annex IV of MARPOL 73/78 (5)

(c) High pressure water mist system in the engine room (5)

(d) Safeties in a pump room of an oil tanker (5)

2024/JAN/Q3

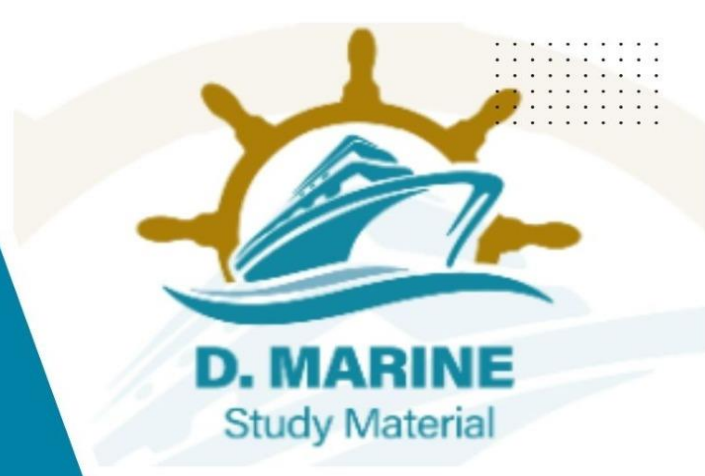
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Q4.a) Sketch a simple line diagram showing a shipboard oil water separator in series with a coalescing second stage (10)

(b) Describe the arrangement and operation of the separator sketched in



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(a) (10)

2023/AUG/Q4 **2023/OCT/Q7** **2024/JAN/Q4**

[Click Here to See the Answer](#)

Q5.a) Name and describe in detail any three mandatory IMO Codes Explain their significant features (15)

(b) What do you understand by the term Protocol to a convention Give examples (5)

2024/JAN/Q5

[Click Here to See the Answer](#)

Q6.a) With respect to ISPS code define the levels of security and explain what action needs to be taken in each case (8)

(b) What is SSP and state its purpose Name the essential points that the SSP must address (8)

(c) Explain the term Declaration of security (4)

2024/JAN/Q6

[Click Here to See the Answer](#)

Q7.a) List the items which are contained in the training manual pertaining to life saving appliances (5)

(b) Describe the frequency of abandon ship drills and fire drills and how they should be conducted (5)

(c) State the regulation regarding the maintenance of lifeboat falls (5)

(d) List the LSA to be carried by all ships (5)

2024/JAN/Q7

[Click Here to See the Answer](#)

Q8.a) With reference to the cargo tanks of oil tankers state

(i) The purpose of the pressure vacuum valve (5)

(ii) The dangers of venting during loading via open tank hatches (5)

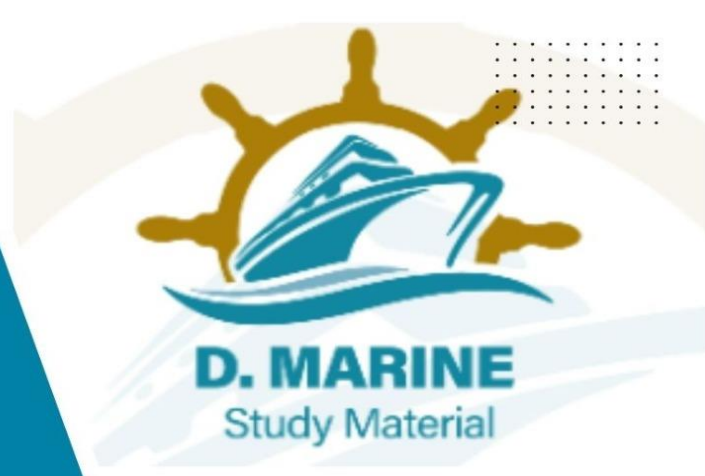
(b) (i) Sketch a high velocity vent (5)

(ii) Describe the operation of this vent and state why such a device is used

2024/JAN/Q8



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Q9. With reference to oil monitoring of slops and tanker ballast discharges

(a) Describe with the aid of a sketch the general arrangements of an oil monitoring system (6)

(b) State the inputs that are recorded (6)

(c) What could be the possible challenges to an efficient operation of the oil discharge monitoring system (8)

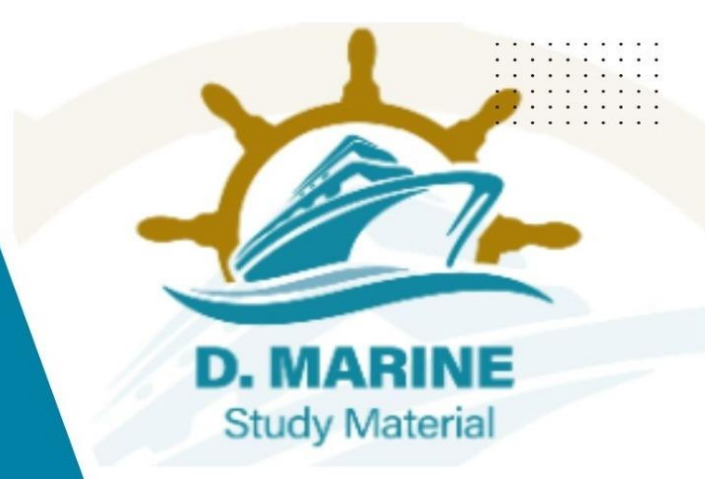
2024/JAN/Q9

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FEBRUARY - 2024

- Q1.a) Explain the purpose of a Hot Work permit (6)
(b) State the different types of work permit used on ships and their utility
(c) Prepare a checklist for issuance of Hot Work permit (8)

2024/FEB/Q1

Q2. Write short notes on following:

- (a) Immersion suit (5)
(b) TPA (5)
(c) Anti exposure suit (5)
(d) EEBD (5)

2024/FEB/Q2

[Click Here to See the Answer](#)

- Q3.a) Name the gases usually found inside enclosed spaces (6)
(b) What instruments are used in detecting checking the gases which are present (6)
(c) What is the minimum level of oxygen required for entry into enclosed space (2)
(d) With a simple diagram explain the working of oxygen content meter (6)

2023/JUL/Q2 **2024/FEB/Q3**

[Click Here to See the Answer](#)

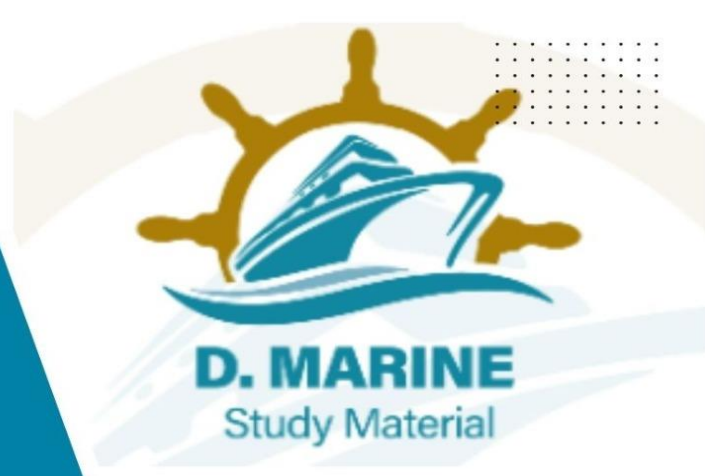
- Q4.a) What is a Fire control plan FCP and what information does it provide
(b) State 5 graphic symbols shown in the plan and state the language in which the plan is drafted (5)
(c) Mention the locations at which the FCP is displayed (5)
(d) How does the FCP aid the shore firefighting team Where do they find the ship's FCP (5)

2024/FEB/Q4

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Q5. Write short notes on following with respect to lifeboats:

- (a) Marking on lifeboat (5)
- (b) Davit limit switches (5)
- (c) Centrifugal brakes (5)
- (d) Safeties provided on lifeboat davit (5)

2023/JUL/Q6 **2024/FEB/Q5**

[Click Here to See the Answer](#)

- Q6.a) Explain the function of IMO as one of UN specialised agencies (6)
- (b) Briefly explain the structure of IMO including the main committees (7)
 - (c) Explain the process of adopting a convention at IMO (7)

2023/JUL/Q7 **2024/FEB/Q6**

[Click Here to See the Answer](#)

- Q7.a) What is ozone depletion and what are its effects (5)
- (b) Name the gases which have ozone depleting potential and how ODP is classified (5)
 - (c) What actions are now in place to control the usage or accidental release of such gases What recordkeeping is essential (10)

2023/OCT/Q2 **2024/FEB/Q7**

[Click Here to See the Answer](#)

- Q8.a) Sketch and explain the operation of the Quick Closing Valve (10)
- (b) What do you understand by the Emergency Shutdown System Explain the operation in an emergency (10)

2024/FEB/Q8

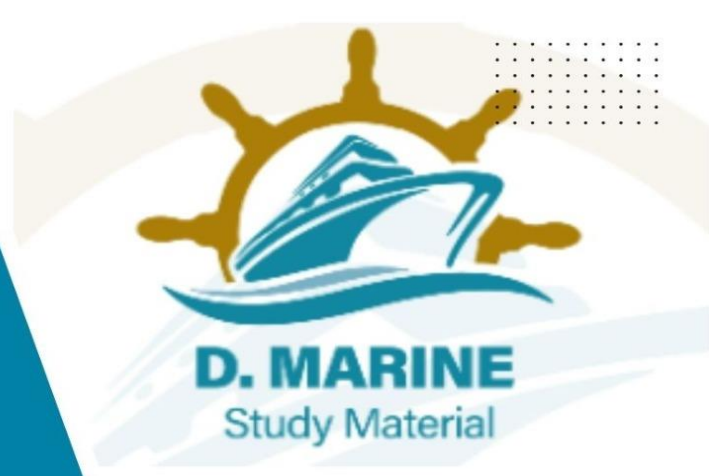
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Q9. Using a simple sketch describe the fire main of a ship with which you are familiar Include in your answer

- (a) The number and type of pumps (5)
- (b) Material of the piping (5)
- (c) Significance of the drain valve (5)



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(d) Location of the international shore coupling (5)

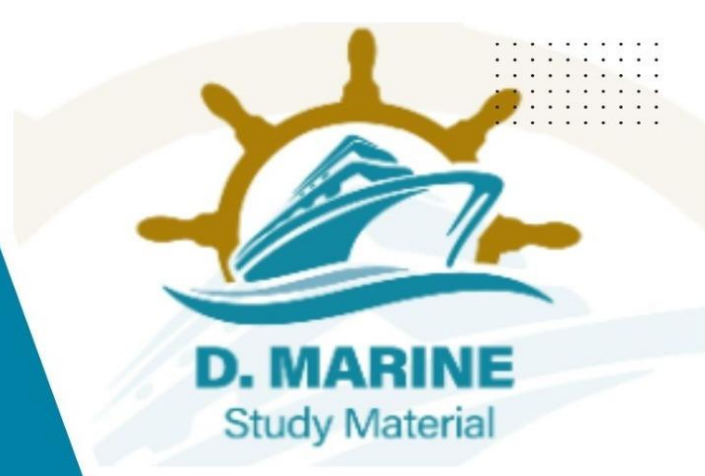
2024/FEB/Q9

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MARCH - 2024

- Q1.a) What do you understand by SOLAS Give a brief outline of SOLAS (10)
(b) Explain the salient features of Chapter IX of SOLAS (8)
(c) List the certificates issued under Chapter IX of SOLAS and its validity (2)

2024/MAR/Q1

[Click Here to See the Answer](#)

Q2. With reference to a periodically unattended machinery space of a dry cargo vessel discuss the requirements for

- (a) Protection against flooding (10)
(b) Control of propulsion machinery from the navigating bridge (10)

2023/OCT/Q6 **2024/MAR/Q2**

[Click Here to See the Answer](#)

Q3.a) Sketch a simple line diagram showing a shipboard oil water separator in series with a coalescing second stage (10)

- (b) Describe the arrangement and operation of the separator sketched in (a) (10)

2023/AUG/Q4 **2023/OCT/Q7** **2024/JAN/Q4** **2024/MAR/Q3**

[Click Here to See the Answer](#)

Q4. Describe CO₂ fixed firefighting system for machinery spaces and cargo spaces of a bulk carrier Explain safety precautions taken prior to release of CO₂ to the engine room (20)

2023/OCT/Q8 **2024/MAR/Q4**

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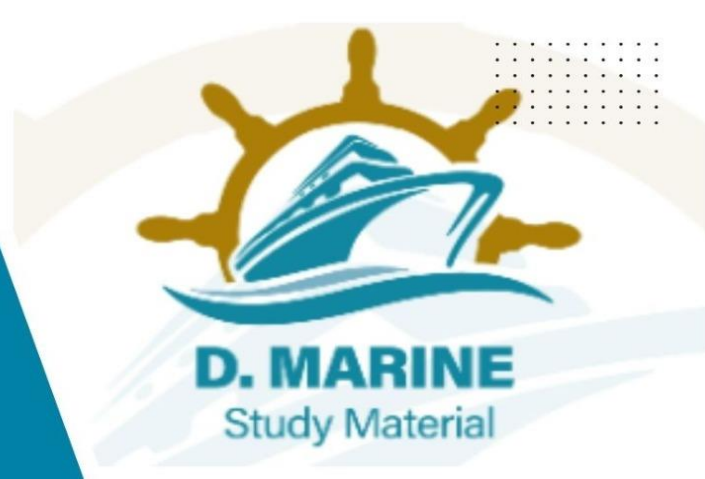
Q5.a) How do ships contribute to marine pollution Name a few potential marine pollution sources (10)

- (b) What is the impact of shipping operations on the environment (5)
(c) How can shipping pollution be reduced Name some of the measures initiated by the IMO in that direction (5)

2024/MAR/Q5



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Q6.a) What are harmful substances in packaged form and which part of MARPOL is concerned with these types of substances (6)

(b) State the objectives of IMDG code State its principles Which part of SOLAS can be related to this code (6)

(c) What are the packaging groups classes associated with this code (8)

2024/MAR/Q6

[Click Here to See the Answer](#)

Q7. State the causes of scavenge fire in a two-stroke engine and explain how the possibility of such an occurrence can be reduced If a scavenge fire does occur what action should be taken Discuss the use of CO₂ and dry powder for extinguishing such a fire and describe a fixed installation for applying one of these chemicals (20)

2023/DEC/Q7 **2024/MAR/Q7**

[Click Here to See the Answer](#)

Q8. Describe an emergency source of electrical power using a diesel engine driven alternator with particular attention to

(a) Location (5)

(b) Starting arrangement (5)

(c) The loads they can supply and duration (5)

(d) The care and tests required to ensure reliable operation (5)

2023/MAY2/Q6 **2024/MAR/Q8**

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Q9. With reference to MARPOL 73/78

(a) Explain the purpose of an Oil Record Book (4)

(b) What are the regulations concerning above requirement (4)

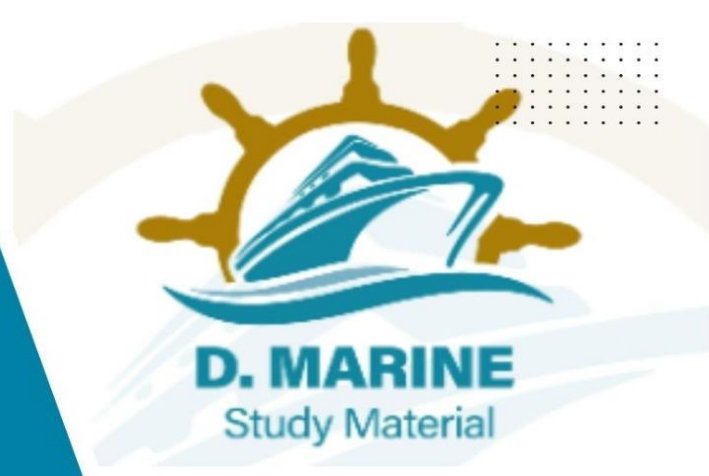
(c) What are the entries made in the Oil Record Book Part 1 (4)

(d) What is SOPEP List the items you find inside a SOPEP locker (4)

(e) With the aid of a checklist illustrate the precautionary measures during



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bunkering and after completion of the operation (4)

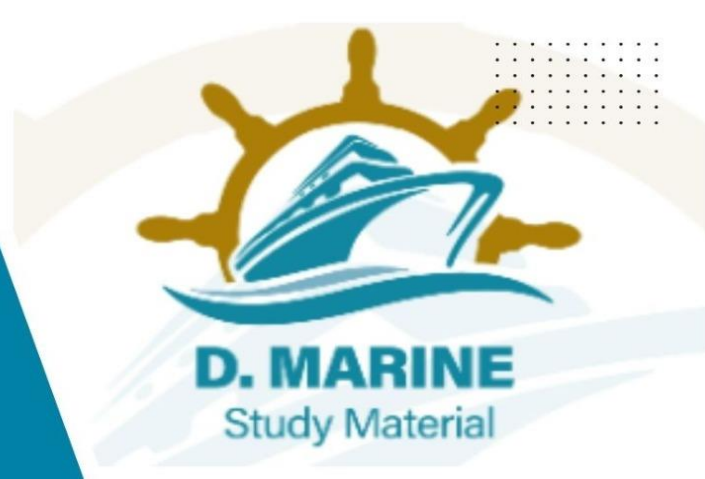
2024/MAR/Q9

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APRIL - 2024

Q1. In engine rooms that are operated under UMS conditions describe with the aid of sketches how the following are monitored:

- (a) The perforation of a high-pressure fuel pipe (7)
- (b) The imminence or possibility of a scavenge fire (7)
- (c) Engine room bilges (6)

2024/APR2/Q1

[Click Here to See the Answer](#)

Q2. With reference to the ISPS Code state the following:

- (a) Duties of ship's security officer (8)
- (b) Shipping company's responsibilities (6)
- (c) Certificate issued as per the code and its validity (6)

2023/MAY2/Q8 **2024/APR2/Q2**

[Click Here to See the Answer](#)

- Q3.a) Sketch and describe a non-portable 136 liter foam fire engine (8)
- (b) Briefly explain how to operate the foam engine (3)
 - (c) State the two constituents used which enable stable foam to be produced (3)
 - (d) State for what approximate length of time the engine should generate foam (3)
 - (e) Where on board ship would you expect such an extinguisher to be located (3)

2024/APR2/Q3

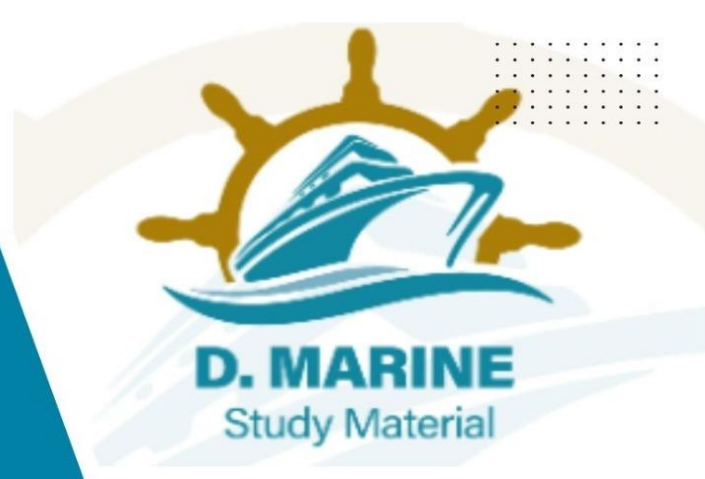
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Q4. With reference to an emergency source of electrical power in cargo ships:

- (a) Describe a typical power source (10)
- (b) Give a typical list of essential services which must be supplied simultaneously (5)



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(c) Explain how the emergency installation can be periodically tested (5)

2024/APR2/Q4

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Q5.a) Describe the routine testing required for self-contained breathing apparatus sets (10)

(b) Describe the procedure that you would adopt to find missing personnel in a smoke-filled accommodation area (10)

2024/APR2/Q5

[Click Here to See the Answer](#)

Q6.a) Describe with the aid of a sketch the braking arrangement for the controlled lowering of lifeboats (10)

(b) State the periodic survey requirements relating to the wire rope fall of lifeboats (10)

2024/APR2/Q6

[Click Here to See the Answer](#)

Q7.a) Sketch a simple line diagram showing a shipboard oily water separator in series with a coalescing second stage (8)

(b) Briefly describe the above arrangement and its operations also state the allowable oil content in ppm (8)

(c) Explain how oil density and temperature relate to separation (4)

2024/APR2/Q7

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Q8.a) List the SOLAS requirements for steering gear system of an ocean-going ship (10)

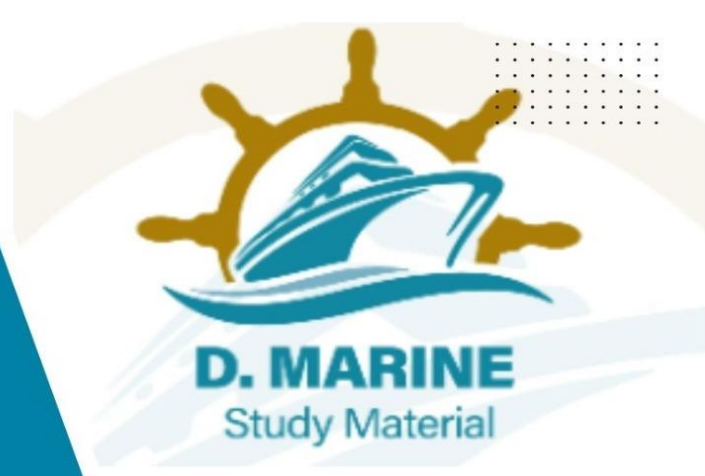
(b) Describe the drills and exercises mandated by SOLAS convention with regards to steering gear (10)

2024/APR2/Q8

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Q9. With reference to Port State Control:

- (a) List the certificates which a PSC officer may like to see during inspection (10)
- (b) What do you understand by:
 - (i) Clear grounds (2)
 - (ii) Detailed inspection (2)
 - (iii) Detainable deficiencies in SOLAS (4)
 - (iv) Suspension of inspection (2)

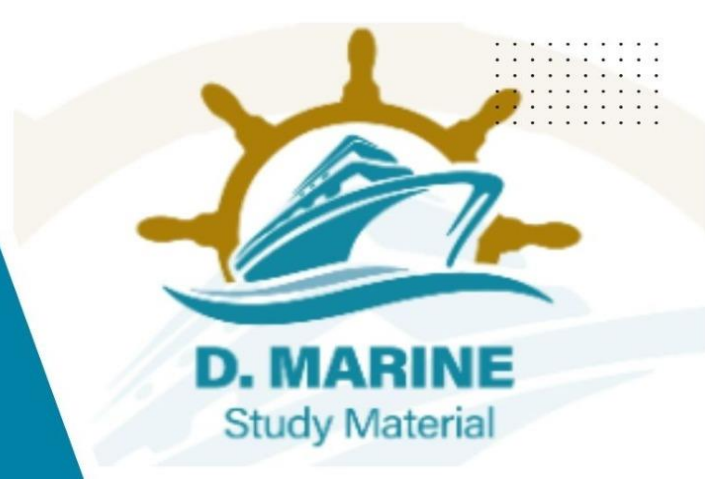
2024/APR2/Q9

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MAY - 2024 (PART-1)

Q1. Considering that the engine room is the most common single space on board ships for fire to break out discuss the merits and demerits of the following fixed firefighting systems (20)

- (a) Carbon dioxide
- (b) Pressure water spray
- (c) High expansion foam

2024/MAY1/Q1

[Click Here to See the Answer](#)

Q2. Describe an emergency electrical power generating plant for use in the event of a complete failure of the main electrical power and make reference to

- (a) Location (4)
- (b) Starting arrangements (4)
- (c) Fuel oil and its supply (4)
- (d) Cooling system (4)
- (e) Periodic attention required (4)

2023/AUG/Q2 **2024/MAY1/Q2**

[Click Here to See the Answer](#)

Q3. (a) State with reasons the essential requirements for unattended machinery spaces (8)

(b) With reference to a periodically unattended machinery space of a dry cargo vessel discuss the requirements for

- (i) Protection against flooding (6)
- (ii) Control of propulsion machinery from the navigating bridge (6)

2024/MAY1/Q3

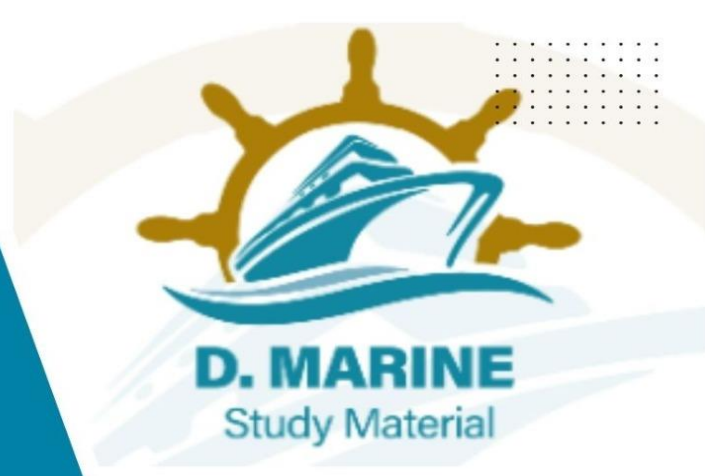
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Q4. During the loading of a petroleum tanker the incoming cargo forces out from the tank its previous atmospheric contents (air vapour inert gas)

explain (a) The dangers of venting during loading via open tank hatches



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(10) (b) Why the pressure vacuum valves is not used for venting (10)

2024/MAY1/Q4

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Q5. (a) Describe the changes which take place within a lead acid battery during discharge and when charging is taking place (10)

(b) What is the safety features you would find in

(i) Paint store

(ii) Battery room (10)

2024/MAY1/Q5

[Click Here to See the Answer](#)

Q6. What are the various Annexes to the MARPOL 78 convention Briefly state what each one of the Annex signifies and the key regulations within each (20)

2024/MAY1/Q6

[Click Here to See the Answer](#)

Q7. Petroleum vapours are a dangerous substance and when mixed with air can be ignited with this in mind briefly describe

(a) An explosimeter or combustion gas indicator which can be used to check the atmosphere of a tank or pump room (10)

(b) Describe the explosimeter and its operation (10)

2024/MAY1/Q7

[Click Here to See the Answer](#)

Q8. (a) The centrifugal ballast pump in the engine room also doubles as a fire pump in your ship What specific precautions would you take to change over the ballast pump from ballast DE ballast mode to a fire pump mode (10)

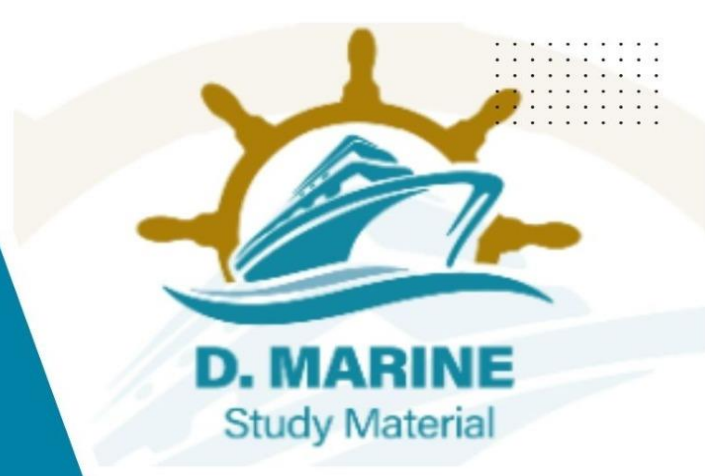
(b) How is the emergency bilge suction tested (10)

2024/MAY1/Q8

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Q9. State the causes of scavenge fire in a two-stroke engine and explain how the possibility of such an occurrence can be reduced. If a scavenge fire does occur, what action should be taken? Discuss the use of CO₂ and dry powder for extinguishing such a fire and describe a fixed installation for applying one of these chemicals (20)

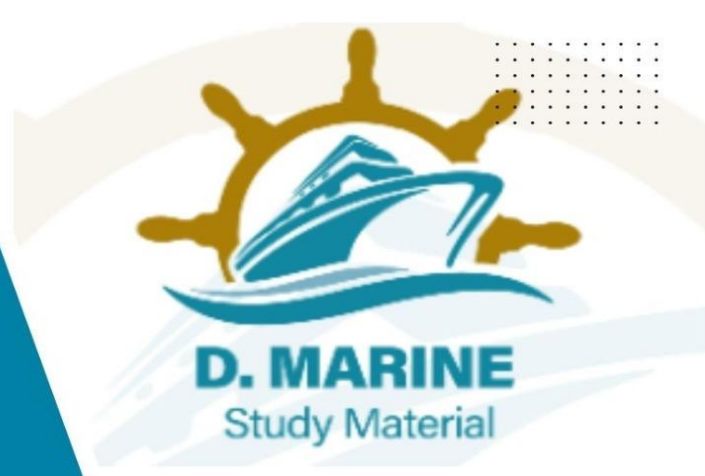
2023/DEC/Q7 **2024/MAR/Q7** **2024/MAY1/Q9**

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MAY - 2024 (PART-2)

Q1. (a) In relation to International Load Line Convention define Type A and Type B ships (10)

(b) What is freeboard and how is it determined Draw a line sketch of Load Line marks (10)

2024/MAY2/Q1

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Q2. (a) How does the Selective Catalytic Reduction SCR system work (10)

(b) If SCR has such an extremely high NO_x reduction efficiency why is it so rare in marine applications (10)

2023/DEC/Q2 **2024/MAY2/Q2**

[Click Here to See the Answer](#)

Q3. (a) Define enclosed space Give examples of enclosed spaces on ships (7)

(b) What is the procedure for an enclosed space entry describe the same (7)

(c) What type of permit is required for entry into enclosed spaces and how is it issued What is its validity (6)

2023/OCT/Q5 **2023/DEC/Q3** **2024/MAY2/Q3**

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Q4. (a) Explain why bunkering is considered a hazardous operation What type of casualty can occur during bunkering Discuss the implications of such incidents if so happens (10)

(b) Name the bunkering procedure to be followed

(i) In preparation of receiving bunkers (4)

(ii) While receiving bunkers (3)

(iii) On completion of bunkering (3)

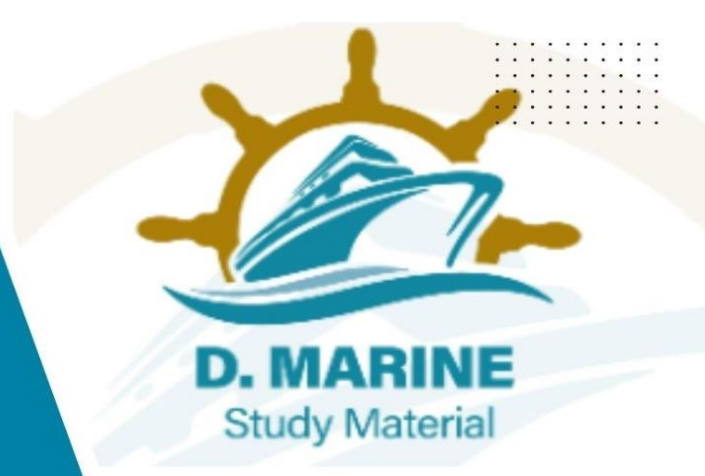
2023/DEC/Q4 **2024/MAY2/Q4**

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Q5. (a) What are the sulphur limits for fuel in use under MARPOL (5)



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- (b) What happens if compliant fuel cannot be obtained in the port of bunkering (5)
(c) What if the sulphur analysis resulting from a commercial analysis does not match the bunker delivery note (5)
(d) What are the timelines for installation of in use fuel sampling points on ships Does it apply for existing ships (5)

2023/DEC/Q5 **2024/MAY2/Q5**

[Click Here to See the Answer](#)

Q6. Write short notes on the following

- (a) EPIRB and SART (5)
(b) Hydrostatic Release Unit HRU (5)
(c) Pyrotechnics (5)
(d) Muster list indicating essential elements (5)

2023/DEC/Q6 **2024/MAY2/Q6**

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Q7. Enumerate the essential elements of ISM code to what type of vessels it is applicable Describe various documents certificates issued under this Code State their validity and periodical audit and the issuing authorities

2024/MAY2/Q7

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Q8. (a) What are the requirements of Emergency source of electrical power as per SOLAS Convention as amended in cargo ships (6)

(b) Name the services that are required to be supplied power from emergency source (6)

(c) What are the starting arrangements for emergency generating sets (8)

2023/DEC/Q8 **2024/MAY2/Q8**

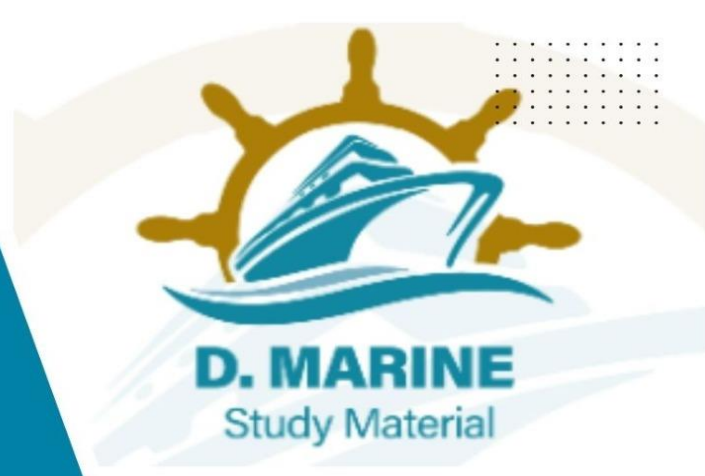
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Q9. How would you test the preparedness of your ship in anticipation of a Port State Control PSC inspection before arrival port in the following areas

(a) Paint store and galley (4)



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- (b) Fire control station and CO2 room (4)
- (c) Steering gear including chemical locker (4)
- (d) Lifeboat deck (8)

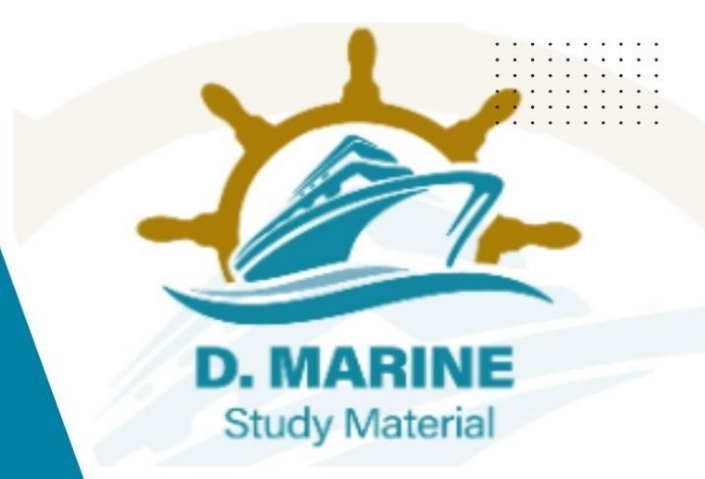
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JUNE - 2024

- Q1. (a) What effect does the ballast water discharge from ships have on the environment (6)
(b) Discuss the salient features of the IMO's Ballast Water Convention Has it entered into force (8)
(c) What are different types of treatment methods available (6)

2024/JUN/Q1

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- Q2. Prepare an examination checklist for a periodic inspection of the chain blocks and other loose lifting gears used in a ship's engine room (20)

2024/JUN/Q2

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- Q3. (a) What do you understand by the term EEXI Provide an overview and its implementation process (8)
(b) Discuss the improvement methods commonly considered in order to achieve energy efficiency optimization with respect to EEXI (12)

2023/DEC/Q1 **2024/JUN/Q3**

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- Q4. (a) How does the Selective Catalytic Reduction SCR system work (10)
(b) If SCR has such high NO_x reduction efficiency why is it rare in marine applications (10)

2023/DEC/Q2 **2024/MAY2/Q2** **2024/JUN/Q4**

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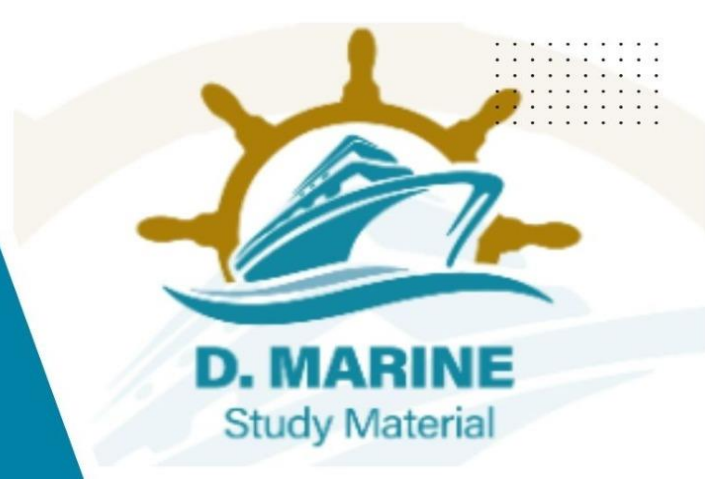
- Q5. (a) Define enclosed space Give examples of enclosed spaces on ships (7)
(b) What is the procedure for enclosed space entry (7)
(c) What type of permit is required for entry and its validity (6)

2023/OCT/Q5 **2023/DEC/Q3** **2024/MAY2/Q3** **2024/JUN/Q5**

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Q6. (a) Explain why bunkering is considered hazardous What casualty can occur (10)

(b) Name the bunkering procedure to be followed

(i) Before receiving (4)

(ii) During (3)

(iii) After completion (3)

2023/DEC/Q4 **2024/MAY2/Q4** **2024/JUN/Q6**

[Click Here to See the Answer](#)

Q7. Write short notes on the following

(a) EPIRB and SART (5)

(b) HRU (5)

(c) Pyrotechnics (5)

(d) Muster list indicating essential elements (5)

2023/DEC/Q6 **2024/MAY2/Q6** **2024/JUN/Q7**

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Q8. (a) What are the requirements of Emergency source of electrical power as per SOLAS Convention as amended in cargo ships (6)

(b) Name the services that are required to be supplied power from emergency source (6)

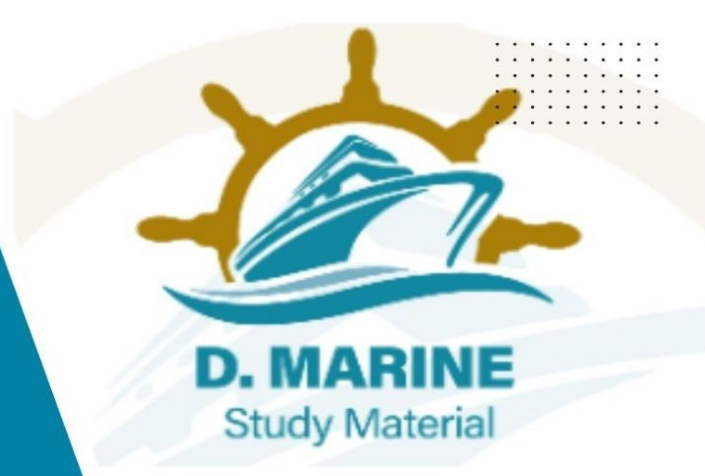
(c) What are the starting arrangements for emergency generating sets (8)

2023/DEC/Q8 **2024/MAY2/Q8** **2024/JUN/Q8**

[Click Here to See the Answer](#)



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JULY - 2024

- Q1. (a) How do ships contribute to marine pollution Name a few potential marine pollution sources (10)
(b) What is the impact of shipping operations on the environment (5)
(c) How can shipping pollution be reduced Name some of the measures which could help (5)

2023/JUL/Q1 **2023/NOV/Q1** **2024/JUL/Q1**

[Click Here to See the Answer](#)

- Q2. (a) What are the causes of an uptake fire (6)
(b) State the conditions under which light soot fire intensifies to a high temperature fire in boiler uptake What temperatures are produced in each case (6)
(c) How boiler uptake fire is controlled Why the use of soot blowers is prohibited (8)

2024/JUL/Q2

[Click Here to See the Answer](#)

- Q3. With respect to MLC 2006 write short notes on following

- (a) Hours of Rest Hours of Work (5)
(b) DMLC Part 1 and DMLC Part II (5)
(c) On board complaint redressal (5)
(d) Why is MLC 2006 considered as the bill of rights (5)

2024/JUL/Q3

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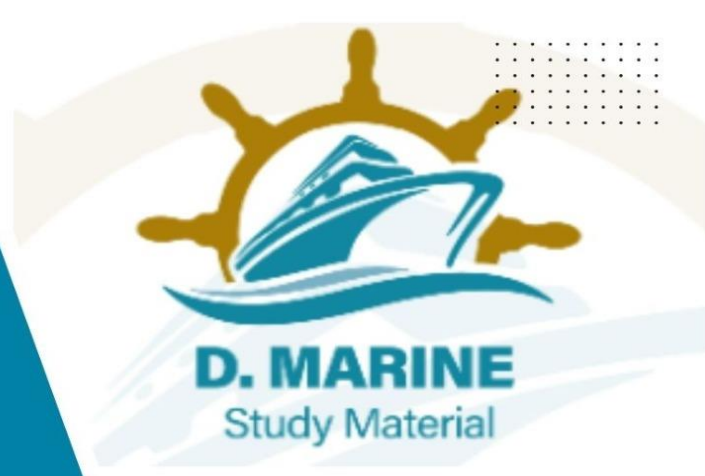
- Q4. (a) Sketch and describe the working of a sprinkler type automatic fire detection and firefighting system on ships labelling its components in the circuit (10) (b) What maintenance is required periodically State the routine tests required (10)

2024/JUL/Q4

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Q5. Write short notes on following

(a) Flammability diagram and its significance (10)

(b) Risk assessment why and how it is carried out on ships with examples (10)

2024/JUL/Q5

[Click Here to See the Answer](#)

Q6. (a) What is ozone depletion and what are its effects (5)

(b) Name the gases which have ozone depleting potential and how ODP is classified (5)

(c) What actions are now in place to control the usage or accidental release of such gases What recordkeeping is essential (10)

2023/OCT/Q2 **2024/FEB/Q7** **2024/JUL/Q6**

[Click Here to See the Answer](#)

Q7. State why the following equipment's require shut down during a major fire which has necessitated the evacuation of the machinery spaces (a)

Settling and service tank valves (4)

(b) Fuel transfer and supply pumps (4)

(c) Mechanical and natural ventilation (4)

(d) State how the fire is brought under control using the facilities available outside the machinery spaces (8)

2024/JUL/Q7

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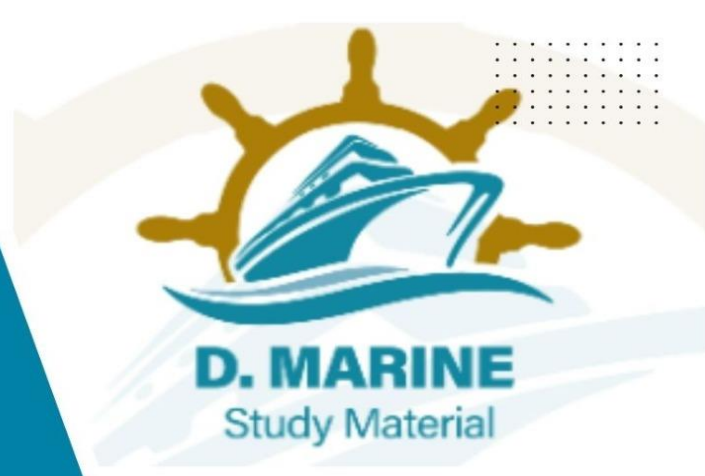
Q8. (a) Sketch a simple line diagram showing a shipboard oily water separator in series with a coalescing second stage (10) (b) Briefly describe the above arrangement and its operations also state the allowable oil content in ppm of the discharge effluent from such an arrangement (10)

2024/JUL/Q8

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AUGUST - 2024

Q1. (a) In relation to International Load Line Convention define Type A and Type B ships (10)

(b) What is freeboard and how is it determined Draw a line sketch of Load Line marks (10)

2024/MAY2/Q1 **2024/AUG/Q1**

[Click Here to See the Answer](#)

Q2. (a) How does the Selective Catalytic Reduction SCR system work (10)

(b) If Selective Catalytic Reduction SCR has such an extremely high NO_x reduction efficiency why is it so rare in marine applications (10)

2023/DEC/Q2 **2024/MAY2/Q2** **2024/JUN/Q4** **2024/AUG/Q2**

[Click Here to See the Answer](#)

Q3. (a) Define enclosed space Give examples of enclosed spaces on ships (7)

(b) What is the procedure for an enclosed space entry describe the same (7)

(c) What type of permit is required for entry into enclosed spaces and how is it issued What is its validity (6)

2023/JAN/Q5 **2023/OCT/Q5** **2023/DEC/Q3** **2024/MAY2/Q3**

2024/JUN/Q5 **2024/AUG/Q3** **2024/SEP2/Q3**

[Click Here to See the Answer](#)

Q4. (a) Explain why bunkering is considered a hazardous operation What type of casualty can occur during bunkering Discuss the implications of such incidents if so happens (10)

(b) Name the bunkering procedure to be followed

(i) In preparation of receiving bunkers (4)

(ii) While receiving bunkers (3)

(iii) On completion of bunkering (3)

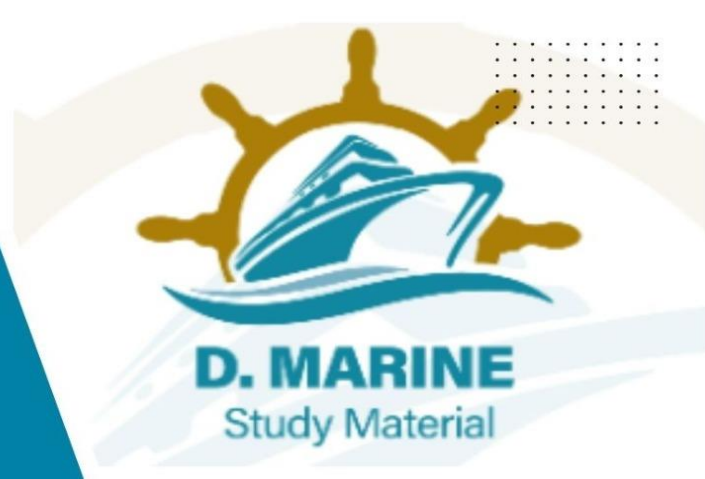
2023/DEC/Q4 **2024/MAY2/Q4** **2024/JUN/Q6** **2024/AUG/Q4**

2024/SEP2/Q4

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- Q5. (a) What are the sulphur limits for fuel in use under MARPOL (5)
(b) What happens if compliant fuel cannot be obtained in the port of bunkering (5)
(c) What if the sulphur analysis resulting from a commercial analysis does not match the bunker delivery note (5)
(d) What are the timelines for installation of in use fuel sampling points on ships Does it apply for existing ships (5)

2023/DEC/Q5 **2024/MAY2/Q5** **2024/AUG/Q5** **2024/SEP2/Q5**

- Q6. Write short notes on the following (a) EPIRB and SART (5)
(b) Hydrostatic Release Unit HRU (5)
(c) Pyrotechnics (5)
(d) Muster list indicating essential elements (5)

2023/DEC/Q6 **2024/MAY2/Q6** **2024/JUN/Q7** **2024/AUG/Q6**

[Click Here to See the Answer](#)

- Q7. Enumerate the essential elements of ISM code To what type of vessels it is applicable Describe various documents certificates issued under this Code State their validity and periodical audit and the issuing authorities (20)

2022/AUG/Q8 **2024/MAY2/Q7** **2024/AUG/Q7**

[Click Here to See the Answer](#)

- Q8. (a) What are the requirements of Emergency source of electrical power as per SOLAS Convention as amended in cargo ships (6)
(b) Name the services that are required to be supplied power from emergency source (6)
(c) What are the starting arrangements for emergency generating sets (8)

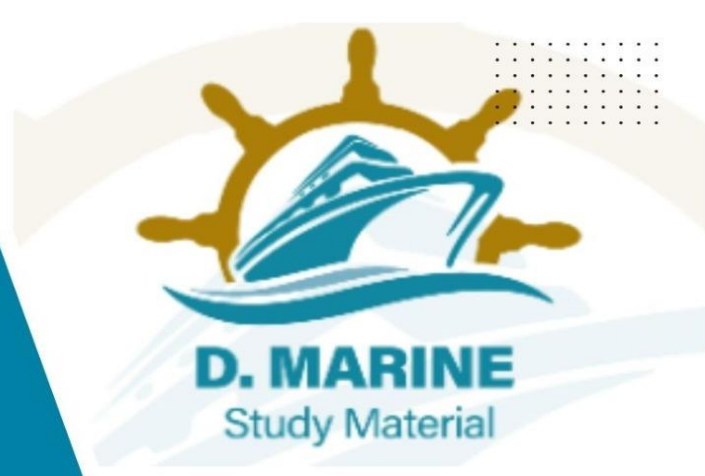
2022/DEC/Q1 **2023/DEC/Q8** **2024/MAY2/Q8** **2024/JUN/Q8**

2024/AUG/Q8 **2024/SEP2/Q8**

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- Q9. How would you test the preparedness of your ship in anticipation of a Port State Control PSC inspection before arrival port in the following areas
- (a) Paint store and galley (4)
 - (b) Fire control station and CO2 room (4)
 - (c) Steering gear including chemical locker (4)
 - (d) Lifeboat deck (8)

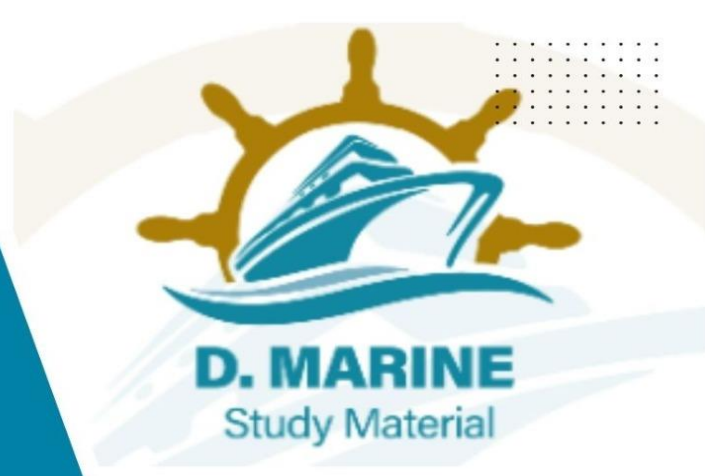
2023/DEC/Q9 **2024/MAY2/Q9** **2024/AUG/Q9**

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SEPTEMBER - 2024

- Q1.a) Explain the purpose of a Hot Work permit (6)
(b) State the different types of work permit used on ships and their utility
(c) Prepare a checklist for issuance of Hot Work permit (8)

2024/FEB/Q1 **2024/SEP1/Q1**

[Click Here to See the Answer](#)

- Q2.a) What are the short-term measures devised by IMO for controlling the emission of Green House gases (5)
(b) State the measures and how they will take effect What size of ships are these rules applicable to (5)
(c) What documents will be required to be carried on board under the new regulations (5)
(d) What is SEEMP Part III State its contents (5)

2024/JAN/Q2 **2024/SEP1/Q2**

[Click Here to See the Answer](#)

- Q3. Write short notes on
(a) Garbage Record Book (5)
(b) Discharge criteria as per Annex IV of MARPOL 73/78 (5)
(c) High pressure water mist system in the engine room (5)
(d) Safeties in a pump room of an oil tanker (5)

2024/JAN/Q3 **2024/SEP1/Q3**

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- Q4.a) Sketch a simple line diagram showing a shipboard oil water separator in series with a coalescing second stage (10)
(b) Describe the arrangement and operation of the separator sketched in (a) (10)

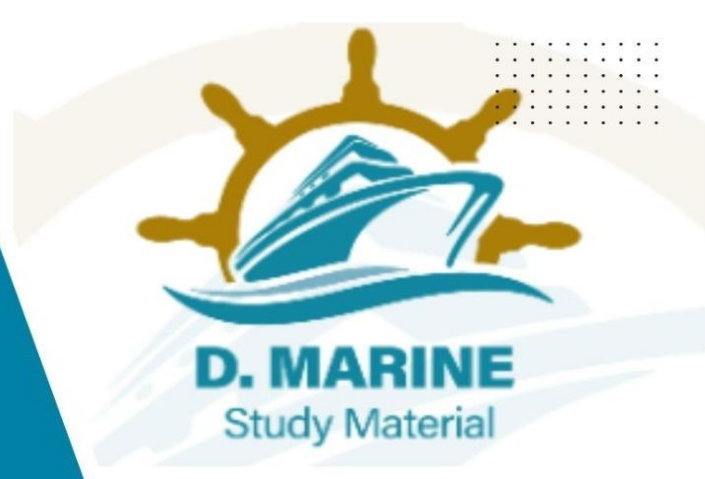
2023/AUG/Q4 **2023/OCT/Q7** **2024/JAN/Q4** **2024/MAR/Q3**

2024/SEP1/Q4

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Q5.a) Name and describe in detail any three mandatory IMO Codes Explain their significant features (15)

(b) What do you understand by the term Protocol to a convention Give examples (5)

2024/JAN/Q5 **2024/SEP1/Q5**

[Click Here to See the Answer](#)

Q6.a) With respect to ISPS code define the levels of security and explain what action needs to be taken in each case (8)

(b) What is SSP and state its purpose Name the essential points that the SSP must address (8)

(c) Explain the term Declaration of security (4)

2024/JAN/Q6 **2024/SEP1/Q6**

[Click Here to See the Answer](#)

Q7.a) List the items which are contained in the training manual pertaining to life saving appliances (5)

(b) Describe the frequency of abandon ship drills and fire drills and how they should be conducted (5)

(c) State the regulation regarding the maintenance of lifeboat falls (5)

(d) List the LSA to be carried by all ships (5)

2024/JAN/Q7 **2024/SEP1/Q7**

[Click Here to See the Answer](#)

Q8.a) With reference to the cargo tanks of oil tankers state

(i) The purpose of the pressure vacuum valve (5)

(ii) The dangers of venting during loading via open tank hatches (5)

(b) (i) Sketch a high velocity vent (5)

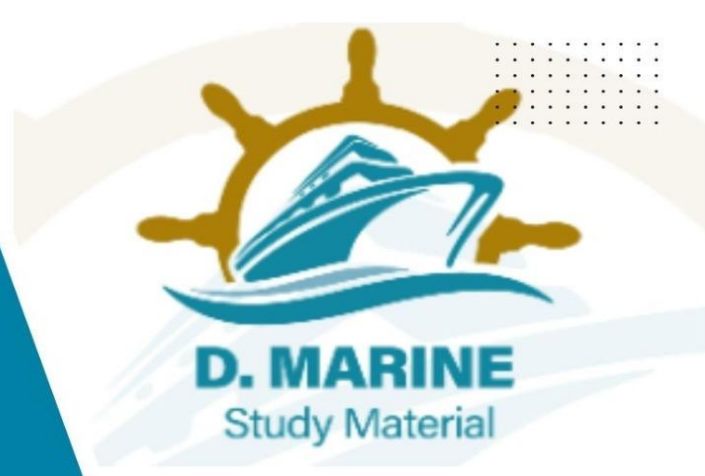
(ii) Describe the operation of this vent and state why such a device is used

2024/JAN/Q8 **2024/SEP1/Q8**

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- Q9.a) State with reasons the essential requirements for unattended machinery spaces (8)
- (b) With reference to a periodically unattended machinery space of a dry cargo vessel discuss the requirements for
- (i) Protection against flooding (6)
- (ii) Control of propulsion machinery from the navigating bridge (6)

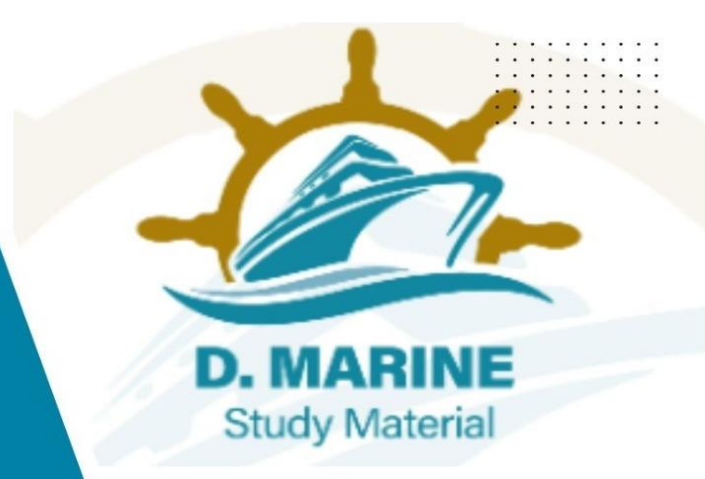
2024/MAY1/Q3 **2024/SEP1/Q9**

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OCTOBER - 2024

Q1. Considering that the engine room is the most common single space on board ships for fire to break out discuss the merits and demerits of the following fixed firefighting systems (20)

- (a) Carbon dioxide
- (b) Pressure water spray
- (c) High expansion foam

2024/MAY1/Q1 **2024/OCT/Q1**

[Click Here to See the Answer](#)

Q2. Describe an emergency electrical power generating plant for use in the event of a complete failure of the main electrical power and make reference to

- (a) Location (4)
- (b) Starting arrangements (4)
- (c) Fuel oil and its supply (4)
- (d) Cooling system (4)
- (e) Periodic attention required (4)

2023/AUG/Q2 **2024/MAY1/Q2** **2024/OCT/Q2**

[Click Here to See the Answer](#)

Q3.a) State with reasons the essential requirements for unattended machinery spaces (8)

(b) With reference to a periodically unattended machinery space of a dry cargo vessel discuss the requirements for

- (i) Protection against flooding (6)
- (ii) Control of propulsion machinery from the navigating bridge (6)

2024/MAY1/Q3 **2024/OCT/Q3**

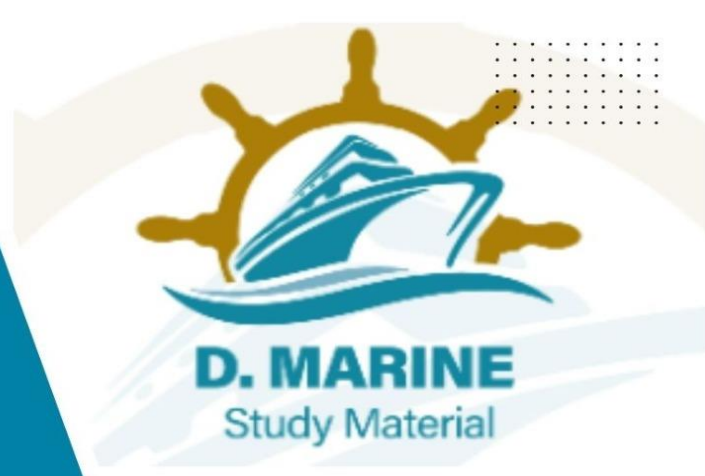
[Click Here to See the Answer](#)

Q4. During the loading of a petroleum tanker the incoming cargo forces out from the tank its previous atmospheric contents (air vapour inert gas)

Explain



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(a) The dangers of venting during the loading via open tank hatches (10)

(b) Why the pressure vacuum valves is not used for venting (10)

2024/MAY1/Q4 **2024/OCT/Q4**

[Click Here to See the Answer](#)

Q5.a) Describe the changes which take place within a lead acid battery during discharge and when charging is taking place (10)

(b) What are the safety features you would find in

(i) Paint store

(ii) Battery room (10)

2024/MAY1/Q5 **2024/OCT/Q5**

[Click Here to See the Answer](#)

Q6. What are the various Annexes to the MARPOL 78 convention Briefly state what each one of the Annex signifies and the key regulations within each (20)

2024/MAY1/Q6 **2024/OCT/Q6**

[Click Here to See the Answer](#)

Q7. Petroleum vapours are a dangerous substance and when mixed with air can be ignited with this in mind briefly describe

(a) Sketch an explosimeter or combustion gas indicator which can be used to check the atmosphere of a tank or pump room (10)

(b) Describe the explosimeter and its operation (10)

2024/MAY1/Q7 **2024/OCT/Q7**

[Click Here to See the Answer](#)

Q8.a) The centrifugal ballast pump in the engine room also doubles as a fire pump in your ship What specific precautions would you take to change over the ballast pump from ballast DE ballast mode to a fire pump mode (10)

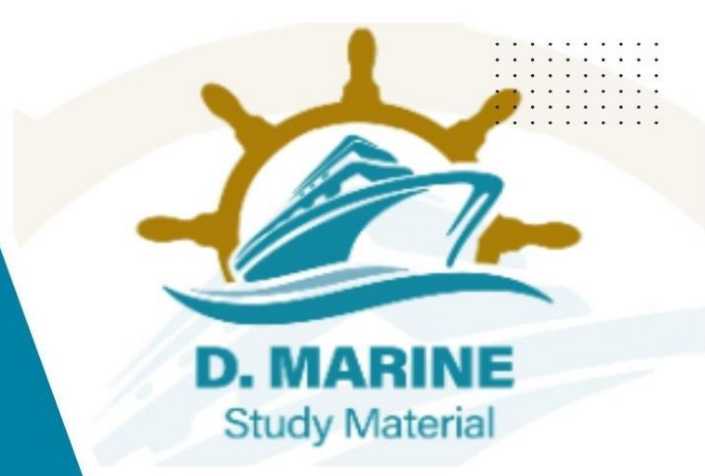
(b) How is the emergency bilge suction tested (10)

2024/MAY1/Q8 **2024/OCT/Q8**

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Q9. State the causes of scavenge fire in a two stroke engine and explain how the possibility of such an occurrence can be reduced If a scavenge fire does occur what action should be taken Discuss the use of CO₂ and dry powder for extinguishing such a fire and describe a fixed installation for applying one of these chemicals (20)

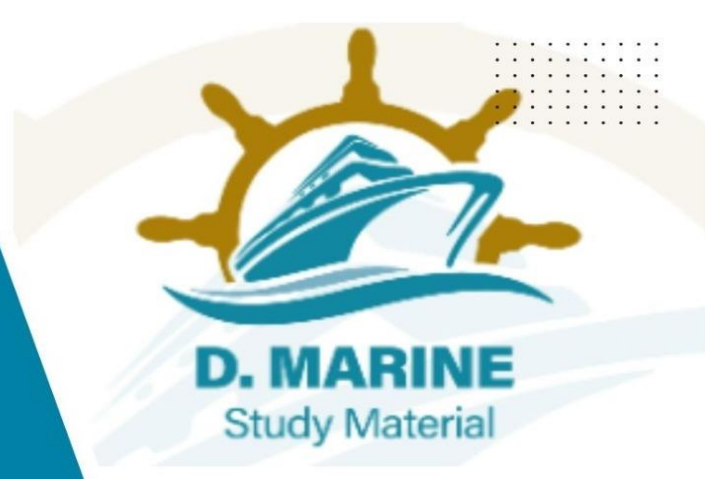
2023/DEC/Q7 **2024/MAR/Q7** **2024/MAY1/Q9** **2024/OCT/Q9**

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NOVEMBER – 2024

Q1. In engine rooms that are operated under UMS conditions describe with the aid of sketches how the following are monitored:

- (a) The perforation of a high-pressure fuel pipe (7)
- (b) The imminence or possibility of a scavenge fire (7)
- (c) Engine room bilges (6)

2024/APR2/Q1 **2024/NOV/Q1**

[Click Here to See the Answer](#)

Q2. With reference to the ISPS Code state the following:

- (a) Duties of ship's security officer (8)
- (b) Shipping company's responsibilities (6)
- (c) Certificate issued as per the code and its validity (6)

2023/MAY2/Q8 **2024/APR2/Q2** **2024/NOV/Q2**

[Click Here to See the Answer](#)

- Q3. (a) Sketch and describe a non-portable 136 liter foam fire engine (8)
- (b) Briefly explain how to operate the foam engine (3)
 - (c) State the two constituents used which enable stable foam to be produced (3)
 - (d) State for what approximate length of time the engine should generate foam (3)
 - (e) Where on board ship would you expect such an extinguisher to be located (3)

2024/APR2/Q3 **2024/NOV/Q3**

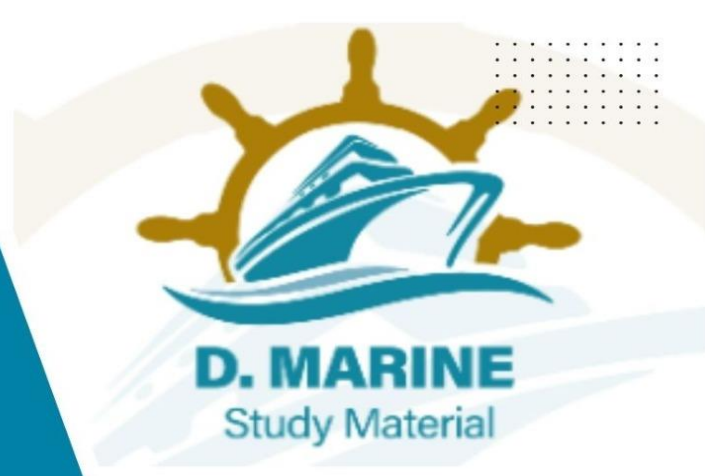
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Q4. With reference to an emergency source of electrical power in cargo ships:

- (a) Describe a typical power source (10)
- (b) Give a typical list of essential services which must be supplied simultaneously (5)



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(c) Explain how the emergency installation can be periodically tested (5)

2024/APR2/Q4 **2024/NOV/Q4**

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Q5. (a) Describe the routine testing required for self-contained breathing apparatus sets (10)

(b) Describe the procedure that you would adopt to find missing personnel in a smoke-filled accommodation area (10)

2024/APR2/Q5 **2024/NOV/Q5**

[Click Here to See the Answer](#)

Q6. (a) Describe with the aid of a sketch the braking arrangement for the controlled lowering of lifeboats (10)

(b) State the periodic survey requirements relating to the wire rope fall of lifeboats (10)

2024/APR2/Q6 **2024/NOV/Q6**

[Click Here to See the Answer](#)

Q7. (a) Sketch a simple line diagram showing a shipboard oily water separator in series with a coalescing second stage (8)

(b) Briefly describe the above arrangement and its operations also state the allowable oil content in ppm of the discharge effluent (8)

(c) Explain how oil density and temperature relate to separation (4)

2024/APR2/Q7 **2024/NOV/Q7**

[Click Here to See the Answer](#)

Q8. (a) List the SOLAS requirements for steering gear system of an ocean-going ship (10)

(b) Describe the drills and exercises mandated by SOLAS convention with regards to steering gear (10)

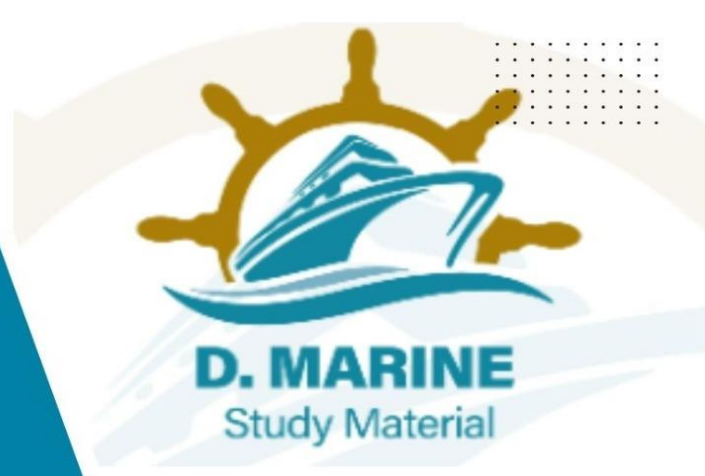
2024/APR2/Q8 **2024/NOV/Q8**

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Q9. With reference to Port State Control:



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- (a) List the certificates which a PSC officer may like to see during inspection (10)
- (b) What do you understand by:
- (i) Clear grounds (2)
 - (ii) Detailed inspection (2)
 - (iii) Detainable deficiencies in SOLAS (4)
 - (iv) Suspension of inspection (2)

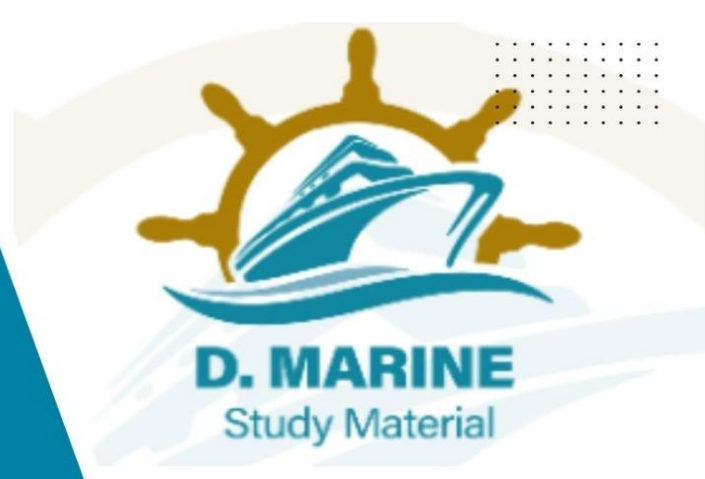
2024/APR2/Q9 **2024/NOV/Q9**

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DECEMBER – 2024

- Q1. (a) How do ships contribute to marine pollution Name a few potential marine pollution sources (10)
(b) What is the impact of shipping operations on the environment (5)
(c) How can shipping pollution be reduced Name some of the measures which could help (5)

2023/FEB/Q1 **2023/JUL/Q1** **2023/NOV/Q1** **2024/JUL/Q1**
2024/DEC1/Q1

[Click Here to See the Answer](#)

- Q2. (a) What are the causes of an uptake fire (6)
(b) State the conditions under which light soot fire intensifies to a high temperature fire in boiler uptake What temperatures are produced in each case (6)
(c) How boiler uptake fire is controlled Why the use of soot blowers is prohibited (8)

2023/FEB/Q5 **2024/JUL/Q2** **2024/DEC1/Q2**

[Click Here to See the Answer](#)

- Q3. With respect to MLC 2006 write short notes on following

- (a) Hours of Rest Hours of Work (5)
(b) DMLC Part 1 and DMLC Part II (5)
(c) On board complaint redressal (5)
(d) Why is MLC 2006 considered as the bill of rights (5)

2024/JUL/Q3 **2024/DEC1/Q3**

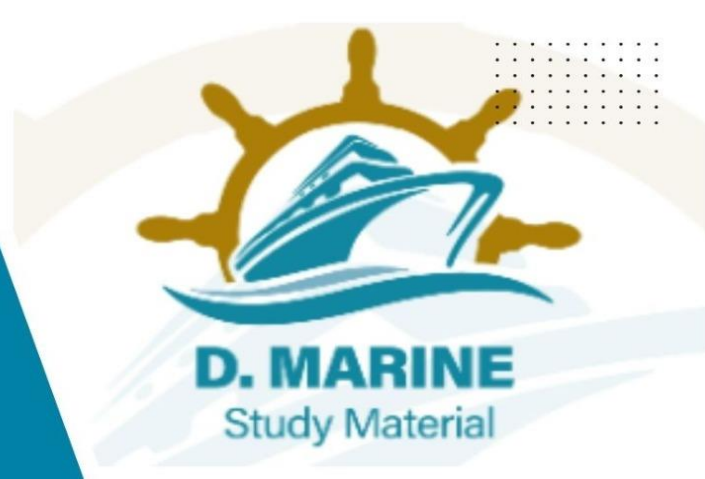
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- Q4. (a) Sketch and describe the working of a sprinkler type automatic fire detection and firefighting system on ships labelling its components in the circuit (10)
(b) What maintenance is required periodically State the routine tests required (10)

2023/FEB/Q9 **2024/JUL/Q4** **2024/DEC1/Q4**



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Q5. Write short notes on following (a) Flammability diagram and its significance (10) (b) Risk assessment why and how it is carried out on ships with examples (10)

2024/JUL/Q5 **2024/DEC1/Q5**

[Click Here to See the Answer](#)

Q6. (a) What is ozone depletion and what are its effects (5)
(b) Name the gases which have ozone depleting potential and how ODP is classified (5)
(c) What actions are now in place to control the usage or accidental release of such gases What recordkeeping is essential (10)

2023/JAN/Q2 **2023/MAR/Q1** **2023/OCT/Q2** **2024/FEB/Q7**

2024/JUL/Q6 **2024/DEC1/Q6**

[Click Here to See the Answer](#)

Q7. State why the following equipment's require shut down during a major fire which has necessitated the evacuation of the machinery spaces

- (a) Settling and service tank valves (4)
- (b) Fuel transfer and supply pumps (4)
- (c) Mechanical and natural ventilation (4)
- (d) State how the fire is brought under control using the facilities available outside the machinery spaces (8)

2022/OCT/Q2 **2023/MAR/Q2** **2024/JUL/Q7** **2024/DEC1/Q7**

[Click Here to See the Answer](#)

Q8. With reference to MARPOL 73/78 (a) Explain the purpose of an Oil Record Book (8) (b) What are the regulations concerning above requirement (4) (c) What are the entries made in the Oil Record Book Part 1 (4) (d) What is SOPEP List the items you find inside a SOPEP locker (4)

2024/DEC1/Q8

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