



FIRST MATE (FG) **PHASE-I WRITTEN:** **CARGO (FG)**

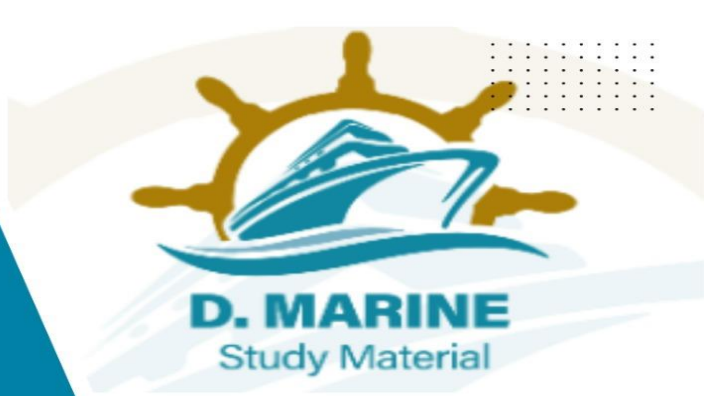
FOR INDIAN COMPETENCY EXAM



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Date: 6th Jan-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
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PART – A

Q.1 M. V. 'Hindship' arrived Aden (RD 1.027) in partly loaded condition with the following drafts: Ford 7.25mt, Aft: 7.95m and Mid ship: 7.55m. What maximum cargo quantity will you order to load if she has to sail to even keel from this port (Tropical zone) but is expected to be sagging by 4cm on completion of loading? Estimated port consumption of DO and FW at ADEN is 84 mt. Also, 100 mt each of DO and FW are to be received prior to sailing?

[Click Here to See the Answer](#)

Q.2 An oil tanker of LBP 200 m has a box shaped tank of dimensions L 40 m x B 20 m x D 20 m and is loaded with oil. On completion, ullage as measured from a sonic tape was observed to be 1.24m and temp was 37OC. A water dip ullage of 20.94 m was also found. The ullage port was located 1.1 above the tank top and 1.6 m fwd of aft bulkhead. Vessel was trimmed 3 m stern. Terminal gave the density of oil @ 15OC as 0.8145 t/m³. Determine the quantity of oil in the tank.

[Click Here to See the Answer](#)

- Q.3 a) Enumerate various test procedure available for checking weather tightness of hatch covers and their effectiveness.
- b) Define authorized person, responsible person and loose gears as per Dock workers Safety, Health and Welfare regulation 1990.

[Click Here to See the Answer](#)

PART – B

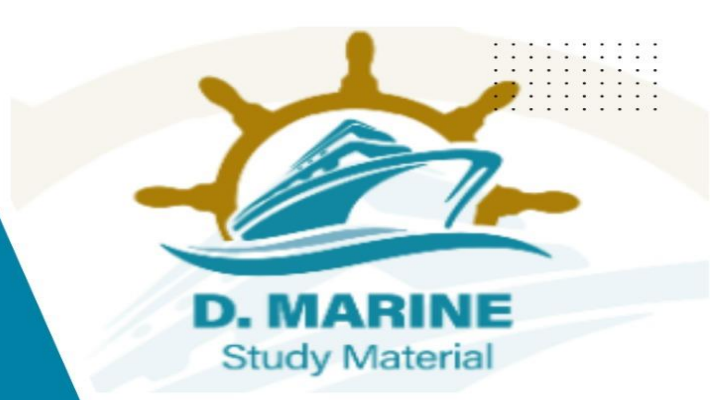
- Q.4 a) Describe the precautions to be taken on an oil tanker during loading, discharging and tank cleaning against static electricity.
- b) Differentiate between a Pressure Vacuum Valve and Pressure Vacuum breaker in a tanker.

[Click Here to See the Answer](#)

Q.5 a) What are various types of gas carriers defined in IGC Code.



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b) Write notes on following w.r.t. to chemical tankers:

- i) Types of Chemical Tankers
- ii) Procedure & arrangement Manual (P & A)

[Click Here to See the Answer](#)

Q.6 Write short notes on the following terms under IMDG code:

- a) Medical First Aid Guide (MFAG) b) Subsidiary Risk Label
- c) Types of packaging group d) Documents required.

[Click Here to See the Answer](#)

Q.7 a) Briefly state the classification of solid bulk cargoes as prescribed in IMSBC code.
b) Enumerate the hazards associated with Direct Reduced Iron and precautions to be taken during loading.

[Click Here to See the Answer](#)

Q.8 With reference to 'code of safe practice for carriage of grain'. What are the recommendations for safe carriage of grain with respect to intact stability and securing of grain surfaces?

[Click Here to See the Answer](#)

Q.9 a) What all factors are required to be considered into planning and stowage of containers?

b) Briefly explain the need to monitor atmosphere in Ro-Ro spaces.

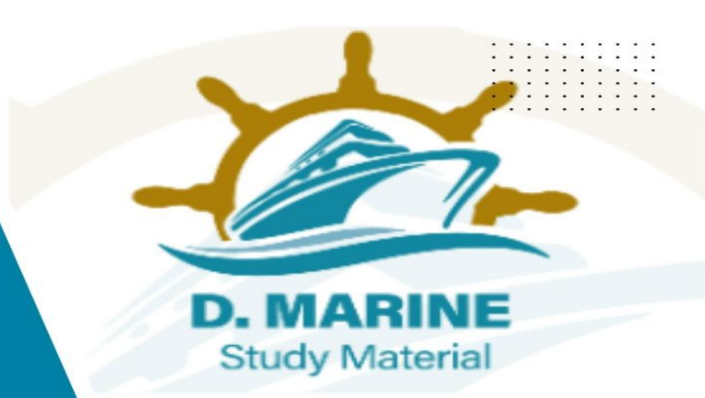
[Click Here to See the Answer](#)

Q.10 a) What preparations will you carry out prior loading refrigerated cargoes?

b) State the lashing requirements for Timber Deck cargo as per code of safe practice for ship's carrying Timber Deck Cargo.



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Date: 10th Mar-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
2. All questions carry equal marks i.e. 25 Marks each.

PART – A

Q.1 M. V. 'Hindship' is at a draft of F 08.10m, A 08.20m, Mid 8.20m, in water of RD – 1.015. The draft marks are 3m aft of F.P. 1.5m aft of midship & 5 m fwd of A.P. She is to be berth where the maximum permissible draft is 6.00m. Calculate the amount of cargo to discharge if after discharging that cargo she is expected to hog by 15 cm.

[Click Here to See the Answer](#)

Q.2 An oil tanker of LBP --> 220 m, has a box shaped tank of dimensions 36m x 18m x 18m is loaded with oil on completion of ullage as measured from a sonic tape was observed to be 1.20m @ temp 37OC a water dip ullage of 18.96m was also found. The ullage port was located 1.1m above tank top & 2.0 fwd of aft bulkhead. Vessel was trimmed 3 m by stern. Terminal gave the density 15OC = 0.8145 t/m³. Determine the quantity of oil in the tank.

[Click Here to See the Answer](#)

Q.3 Explain the importance of assessing defects and damage to cargo spaces after each cargo operation. Briefly describe the procedure for same.

[Click Here to See the Answer](#)

PART – B

Q.4 Differentiate between a PV valve and PV Breaker. Draw the sketches of both.

[Click Here to See the Answer](#)

Q.5 a) Describe purpose and objective of Procedure and Arrangements (P & A) manual as required under Annex II of MARPOL 73/78. List its contents.

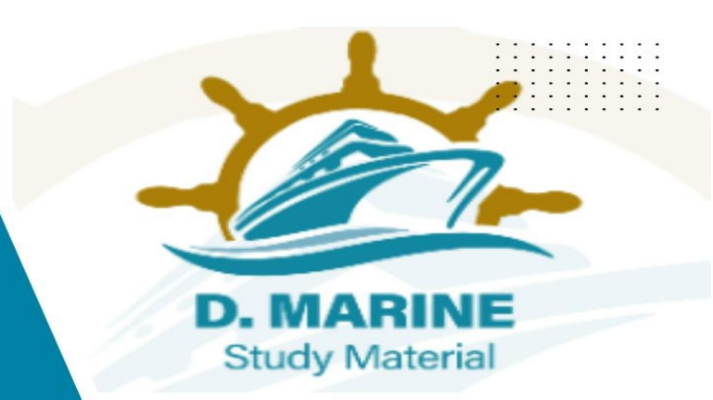
b) Describe the types of gas carriers with reference to nature of cargo and its protection in case of accident as categorized in the IGS code.

[Click Here to See the Answer](#)

Q.6 With reference to IMDG code, write short notes on following:



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- a) How are different types of class I goods identified and segregated?
- b) List explosives which may be carried on passenger ships.

[Click Here to See the Answer](#)

Q.7 Enumerate the hazards associated with coal and precautions to be taken while loading & during carriage.

[Click Here to See the Answer](#)

Q.8 With respect to grain explain the following:

- a) Intact stability requirement for ship carrying grain.
- b) DOA
- c) Grain loading stability booklet.

[Click Here to See the Answer](#)

- Q.9 a) Write short notes on Container code – Convention on Safe Containers (CSC).
b) Explain the need to monitor atmosphere in Ro-Ro spaces.

[Click Here to See the Answer](#)

Q.10 Describe the conditions for carrying Timber Cargo on Deck as stipulated in the Timber Code?

[Click Here to See the Answer](#)



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Date: 9th May-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
-

PART – A

Q.1 M. V. “Hindship” arrived port with following drafts F (P) 8.60 m, F (S) 8.70 m, A (P) 8.85 m, A (S) 8.93 m, Mid (P) 8.75 m and Mid (S) 8.87m in dock water RD 1.018. After discharging part cargo, she has to shift to another berth with a hog of 5 cm, where maximum draft allowed is 5.90m. Calculate the minimum quantity of cargo to discharge. During the stay at first berth, she consumed 10 t of DO and 14 t of fresh water. Draft marks are located 2m aft of FP, 4 m forward of AP and 1 m forward of midship.

[Click Here to See the Answer](#)

Q.2 An oil tanker, a box shaped cargo oil tank measuring 32 x 17 x 18 m (L X B X H) had sounding of 12 cm by UTI tape from an ullage port. Find volume of oil in this tank if ullage port is 0.8m above top of tank, 6m forward of aft bulkhead of tank and 4m starboard of tank centerline. LBP 302 m, trim 5.5m by stern and list zero.

[Click Here to See the Answer](#)

Q.3 Describe the common damage / defects that may occur in cargo holds of a bulk carrier and the actions to be taken to avoid such damages.

[Click Here to See the Answer](#)

PART – B

Q.4 a) Sketch a general layout of an Inert Gas System of an Oil Tanker and describe its operation step by step.

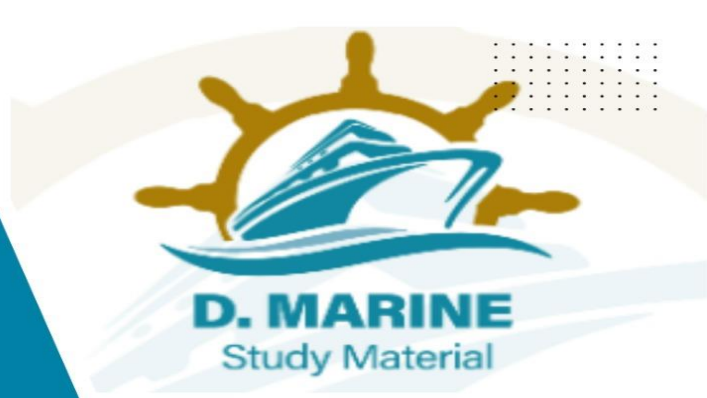
b) Differentiate between a P. V. Valve and P. V. breaker in a tanker.

[Click Here to See the Answer](#)

Q.5 a) Write the general reactivity hazards of Noxious liquid substances carried on chemical tankers and what control measures are taken to reduce risk due to these hazards?



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- b) With reference to 'Code of safe practice for carriage of Grain'.
i) Define i) DOA ii) stability criteria for ships with DOA & without DOA

[Click Here to See the Answer](#)

Q.6) What information is required to be provided by shipper when loading packaged dangerous cargoes? What measures will you take to ensure safe stowage and carriage of explosives?

[Click Here to See the Answer](#)

- Q.7 a) Describe the hazards associated with concentrates.
b) Describe loading / unloading plan as per BLU Code.

[Click Here to See the Answer](#)

Q.8 With respect to grain explain the following:

- a) Intact stability requirement for ship carrying grain
b) DOA
c) Grain loading stability booklet.

[Click Here to See the Answer](#)

Q.9 a) Describe Rolling Period Test for ships carrying timber deck cargoes and limitations of the test.

- b) Information & its purpose on a CSC plate of a cargo container.

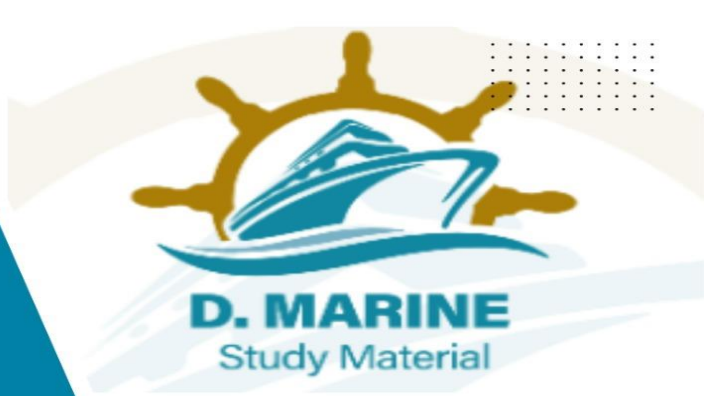
[Click Here to See the Answer](#)

- Q.10 a) What preparations will you carry out prior loading refrigerated cargoes?
b) What all factors are required to be considered into planning and stowage of containers?

[Click Here to See the Answer](#)



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Date: 6th June-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
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PART – A

Q.1 M. V. “Hindship” is at draft of $F = 9.5$, $A = 9.6$, $N = 9.6$ m in 1.015. The draft marks are 3m aft of FP, 1.5 m aft of midship & 5 m forward of AP. She is to shift to a berth where the max Permissible draft is 7.0 meters. Calculate the amount of cargo to discharge if after discharging that cargo she is expected to hog by 10 cms.

[Click Here to See the Answer](#)

Q.2 A box shaped tank L 30 m x B 18 m x 20 m containing crude oil of density at 15OC = 0.8275 t/m³ had an ullage of 1.60 m as measured by sonic tape. The ullage port was located 2.5m fwd of the aft bulkhead. 1 m above the tank top & 3 m to port of Centre line of tank. Trim observed was 3m & the vessel listed 10 to stbd. Observe temp 32.5OC, Calculate the quantity of oil in tank if the LBP of vessel was 220 m.

[Click Here to See the Answer](#)

- Q.3 a) Enumerate various test procedures available for checking weather tightness of hatch covers and discuss their effectiveness.
- b) Describe with the help of diagram, the maintenance of MacGregor type steel hatch covers on board bulk carrier.

[Click Here to See the Answer](#)

PART – B

Q.4 a) Draw a block diagram of IG system used on a VLCC showing various components in E/R and deck area.

b) Define following with respect to Oil Tankers:

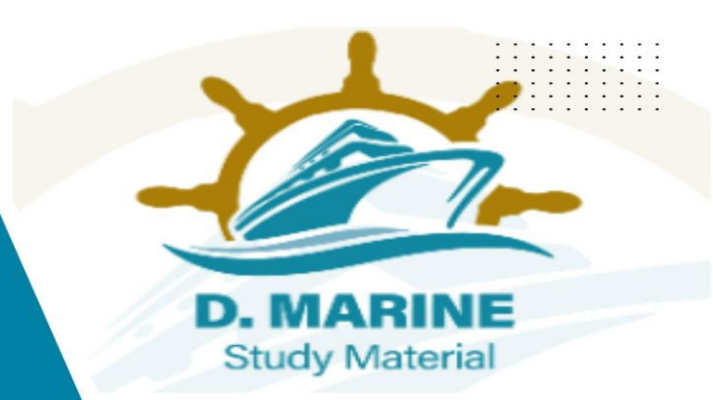
- i) Reid Vapour Pressure
- ii) Pour Point
- iii) TLV
- iv) Sour Crude

[Click Here to See the Answer](#)

Q.5 a) What is the regulatory requirement of doing a “Prewash” in relation to NLS? What are the conditions under which Prewash can be exempted?



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b) How IGC classifies gas tankers as per their survival capability? Define & describe with labelled diagrams.

[Click Here to See the Answer](#)

Q.6) What information is required to be provided by shipper when loading packaged dangerous cargoes? What measures will you take to ensure safe stowage and carriage of explosives?

[Click Here to See the Answer](#)

Q.7 Briefly explain the classification of bulk cargoes as per IMSBC code. Describe the test procedures for determining angle of repose and Flow Moisture Point (FMP) on board?

[Click Here to See the Answer](#)

Q.8 Explain with aid of sketches for a cargo of grain in bulk.

a) Bundling b) Strapping c) Volumetric heeling moments.

[Click Here to See the Answer](#)

Q.9 State your action as a Mate in the event of observing damaged cargo during discharging operation on board container ships.

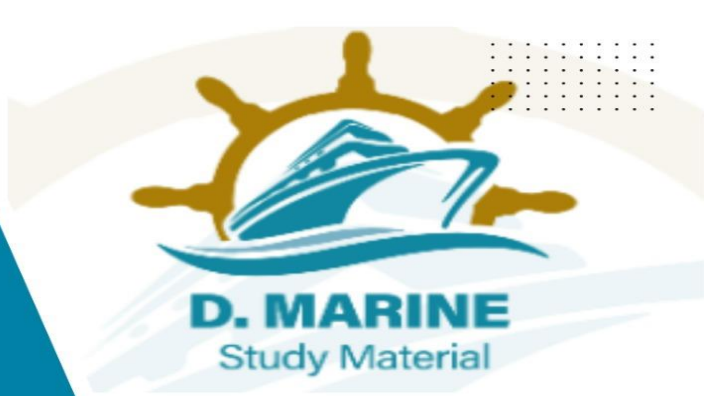
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Q.10 Describe with suitable sketches "Hog wire" and "Wiggle wire" arrangement of lashings of Timber deck cargo as per the requirement of Timber Code.

[Click Here to See the Answer](#)



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Date: 11th July-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
-

PART – A

Q.1 M. V. "Hindship" arrived port with following drafts F(P) 8.60 m, F(S) 8.70 m, A(P) 8.85 m, A (S) 8.93 m, Mid (P) 8.75 m and Mid (S) 8.87 m in dock water RD 1.018. After discharging part cargo she has to shift to another berth with a hog of 5 cm. Where maximum draft allowed is 5.90m. Calculate the minimum quantity of cargo to discharge. During the stay at first berth she consumed 10t of DO and 14t of fresh water. Draft marks are located 2m aft of FP, 4m forward of AP and 1m forward of midship.

[Click Here to See the Answer](#)

Q.2 On an oil tanker, a box shaped cargo oil tank measuring 26 x 15 x 17m (L x B x H) is loaded with Diesel Oil whose density at 15°C is 0.8424 g/cc. The final ullage by UTI tape is observed to be 1.86m and temperature of cargo is 34.7°C. Find the quantity of cargo loaded if ullage port is 80 cm above the top of tanks, 5 m forward of aft bulkhead of tank and 4 m starboard of tank centerline. LBP 255 m, trim 5 m by stern and 2.50 stbd list.

[Click Here to See the Answer](#)

Q.3 Describe the common damage / defects that may occur in cargo holds of a bulk carrier and the actions to be taken to avoid such damages.

[Click Here to See the Answer](#)

PART – B

Q.4 Write short notes on:

- a) Dirty Ballast b) PV Valve c) Wet Type Deck Seal

[Click Here to See the Answer](#)

Q.5 a) Write the general reactivity hazards of Noxious Liquid Substances carried on chemical tankers and what control measures are taken to reduce risk due to these hazards?

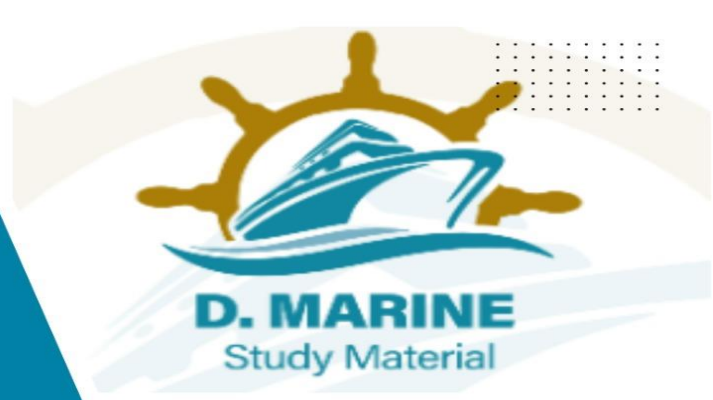
b) With reference to 'Code of safe practice for carriage of Grain'

- i) Define i) DOA ii) Stability criteria for ships with DOA & without DOA.

[Click Here to See the Answer](#)



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Q.6) Write short notes on following:

- a) MFAG
- b) Stowage Category
- c) Compatibility Group Coded d) EmS

[Click Here to See the Answer](#)

Q.7 a) Describe the hazards associated with concentrates.

b) Describe loading / unloading plan as per BLU Code.

[Click Here to See the Answer](#)

Q.8 a) Explain in detail any two methods for securing of free grain surface in a partly filled compartment.

b) Describe the stability criteria for ships carrying grain in bulk.

[Click Here to See the Answer](#)

Q.9 a) Describe Rolling Period Test for ships carrying timber deck cargoes and limitations of the test.

b) Information & its purpose on a CSC plate of a cargo container.

[Click Here to See the Answer](#)

Q.10 a) List the preparations and precautions to be undertaken for loading refrigerated cargo.

b) Explain Ship Sweat and cargo sweat and the criteria whether to ventilate the cargo hold or not.

[Click Here to See the Answer](#)



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Date: 10th Aug-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
-

PART – A

Q.1 M. V. “Hindship” arrived port with following drafts F(P) 8.88 m, (S) 8.92 m, Mid (P) 8.96 m, (S) 9.16 m, A (P) 9.24 m, (S) 9.36 m respectively. Density of DW = 1.016 t/m³. During her port stay she consumed 25t of FW and 5 t of D.O. She received 600 t of H.O. She sailed from the port with drafts 6.00 m, F and A and 6.04m mid draft. Calculate the quantity of cargo discharged at the port, if the for’d draft marks are 2 m for’d of FP, after marks 3 m for’d of AP and mid marks are 1 m for’d of midships.

[Click Here to See the Answer](#)

Q.2 On an oil tanker, a box shaped cargo oil tank measuring 32 x 17 x 18 m (L X B X H) had sounding of 12 cm by UTI tape from an ullage port. Find volume of oil in this tank if ullage port is 0.8m above top of tank, 6 m forward of aft bulkhead of tank and 4 m starboard of tank centerline. LBP 302 m, trim 5.5 m by stern and list zero.

[Click Here to See the Answer](#)

- Q.3 a) Prepare a planned maintenance of hatch covers.
b) Describe the duties of dock inspector.

[Click Here to See the Answer](#)

PART – B

Q.4 a) Write any ten items of COW checklist which a chief officer needs to follow before arrival discharge port / prior start of COW.

- b) Differentiate between explosimeter and tank scope.

[Click Here to See the Answer](#)

Q.5 a) Explain briefly: i) IMO Type 2 chemical tanker

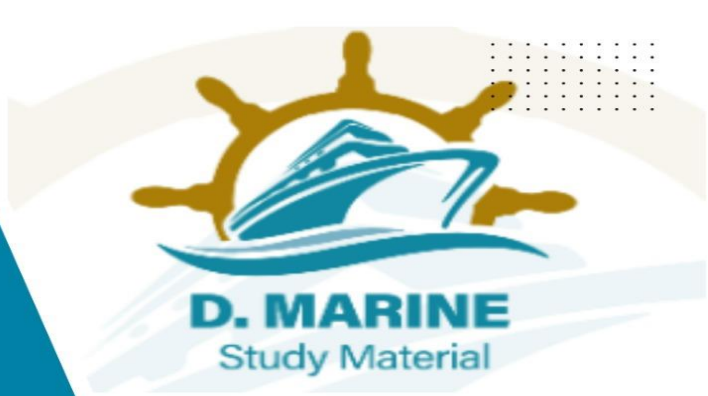
ii) Integral Gravity Tank on chemical tanker

- b) Draw and describe a membrane tank of a gas tanker. Which liquefied gas would be carried in this type of tank?

[Click Here to See the Answer](#)



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Q.6) Write short notes on following:

- a) Causes of cargo shift on a general cargo ship.
- b) MFAG
- c) Responsible Person d) Competent Person

[Click Here to See the Answer](#)

Q.7 a) Describe the limitations of draft survey.

- b) Describe the preparations to prepare a cargo hold for loading reefer cargo.

[Click Here to See the Answer](#)

Q.8 a) Discuss the condition under which a ship without a DOA carry grain in bulk.

- b) Explain the precautions to be taken when handling dangerous cargoes.

[Click Here to See the Answer](#)

Q.9 a) List items to be checked regarding the safety of life, cargo, property, environment and security during a deck watch.

- b) Explain the method of identifying stowage location of a container on cellular container vessel.

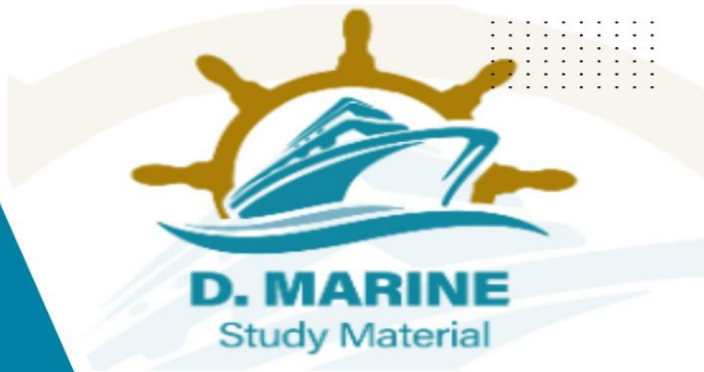
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Q.10 Explain the preparation to be made and precautions to be taken when loading heavy lift with ship's gear.

[Click Here to See the Answer](#)



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Date:14th Sept-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
-

PART – A

Q.1 M. V. Hindship arrived port with drafts F: 5.80 m, Mid: 6.38 m & A: 6.80 m in RD of 1.025. After loading 1250 mt of cargo she sailed on an even keel draft but with 5 cms of hog in seawater of RD 1.025. Calculate her departure drafts F, A & Midships if she sailed in an upright condition after consumption of 9.25 mt/ DO, 43 mt/FW in port & also replenished 200 mt/FW & 333 mt/HO during her stay at this port.

[Click Here to See the Answer](#)

Q.2 On completion of cargo, at the time of sounding the tanks, dip was observed to be 9 cm. The vessel was upright and trimmed 3 m by stern. Dimension of the tank were 36 m x 27 m x 18 m. LBP of the vessel was 270 m. Calculate the On Board Quantity (OBQ), given in the sounding pipe was located 5 m from the aft bulkhead and 0.9 m above deck.

[Click Here to See the Answer](#)

- Q.3 a) Enumerate the duties of Dock Safety Inspector.
b) Describe the testing requirements for lifting appliances & loose gears.

[Click Here to See the Answer](#)

PART – B

Q.4 a) What is the purpose of Crude Oil Washing (COW), explain the hazards associated with it.

b) What is the purpose of Pressure Vacuum (P.V.) breaker and how does it work?

[Click Here to See the Answer](#)

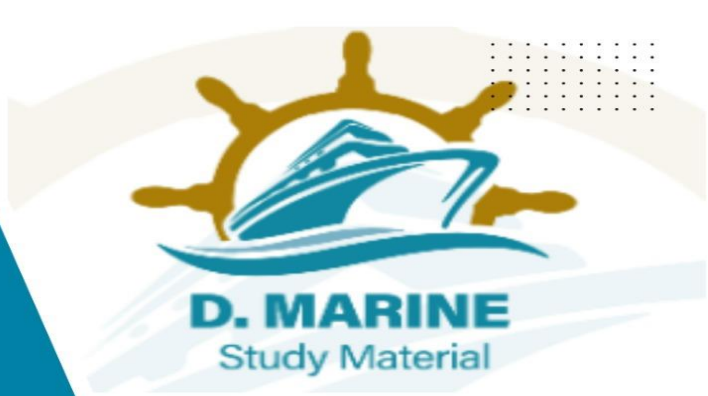
Q.5 With reference to Liquefied gas carriers, write short notes on:

- a) IGC code
- b) Semi refrigerated ships
- c) Deep well pumps

[Click Here to See the Answer](#)



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Q.6) Write short notes on the following terms under IMDG code:

- a) EmS
- b) Dangerous goods manifest
- c) Types of segregation
- d) Labels & Placards.

[Click Here to See the Answer](#)

Q.7 a) Describe the categories of solid bulk cargoes and documentation required accordingly as prescribed in IMSBC Code.

b) Enumerate the hazards associated with carriage of Coal and the procedure of ventilation of cargo holds during voyage.

[Click Here to See the Answer](#)

Q.8 Explain the methods to reduce Grain heeling moments in order to meet Grain stability criteria.

[Click Here to See the Answer](#)

Q.9 a) Extra precautions will you carry out while loading reefer containers?

b) Briefly explain precautions during loading of vehicles in Ro-Ro spaces.

[Click Here to See the Answer](#)

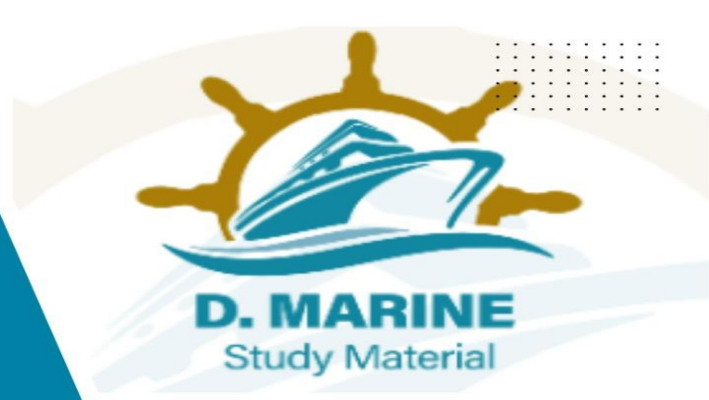
Q.10 a) What are the hazards associated with Timber Deck Cargo in rough weather?

b) Explain the precautions prior and during loading of heavy lifts?

[Click Here to See the Answer](#)



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Date: 4th Nov-2022

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: CARGO HANDLING AND STOWAGE (Management Level)

Notes:

1. Questions 1, 2 and 3 in part A are compulsory. Attempt any five questions from Part B of the remaining seven questions.
 2. All questions carry equal marks i.e. 25 Marks each.
-

PART – A

Q.1 A vessel is loaded with grain in bulk of S.F. 1.80 m³/T. Her displacement in final condition is 68000 t. KM of 11.40m and FSM is 4400 tm. Two the holds are partly filled and the VHM of the holds put together is 3000. All other holds are full and the total VHM of the filled compartments is 18800 m⁴. KG of the holds was used to determine the KG of the ship and is known to be 10.48m.

The KN values of the ship in this condition are:

HEEL 12° 15° 30° 40° 45° 60°

KN 2.78 3.51 7.033 9.36 10.21 11.28

Determine if she complies with Intact Stability Criteria for vessels laden with Grain in bulk.

[Click Here to See the Answer](#)

Q.2 M.V. Hindship arrived in roads (RD 1.025), loaded with cargo of grain in bulk with the following drafts: Fwd(P) 8.69 m, (S) 8.73 m, Aft (P) 9.95 m, (S) 10.11 m, Mid-ship (P) 9.26 m & (S) 9.53 m. 5 days later the ship is to be berthed in port with an even keel draft of 6.75m. Calculate the minimum quantity of cargo to lighter at anchorage if the dock water RD is 1.023. She is expected to consume 3.5t of DO and 22t of FW daily while at anchorage. Her forward perpendicular (FP) is 3.5 m forward to the forward draft marks, her after draft marked are painted 5.8 m forward of the after perpendicular (AP) and the mid-ship marks are located 2.2 m forward of Mid length.

[Click Here to See the Answer](#)

Q.3 a) Describe the procedure to check the weather tightness of hatch covers. What is the action to be taken in case of noticing a deformity in the hatch covers.

b) Describe about the register for ships lifting appliance 1990.

[Click Here to See the Answer](#)

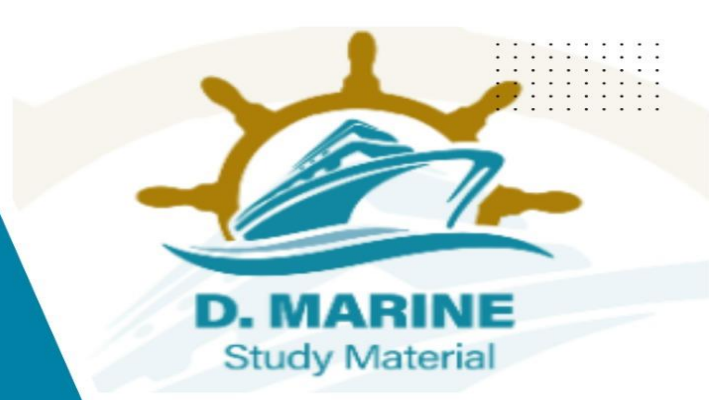
PART – B

Q.4 Define describe the following:

- a) Dirty Ballast
- b) Cloud Point
- c) Cargo Eductor
- d) Reid vapour pressure
- e) TLV – TWA



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[Click Here to See the Answer](#)

Q.5 Write short notes on following:

- a) Bill of lading
- b) Responsible
- c) Tallying of cargo
- d) Criteria for discarding wire rope.

[Click Here to See the Answer](#)

Q.6) a) Write in brief how a tank of a fully refrigerated gas tanker will be prepared for loading assuming a ship out of yard.

b) Make a table showing control of discharge of category X, Y & Z NLS as per Marpol Annex II.

[Click Here to See the Answer](#)

Q.7 Enumerate the main hazards associated with carriage of Concentrates in bulk as per IMSBC Code. Also, explain the precautions to be taken during loading of heavy density cargoes.

[Click Here to See the Answer](#)

Q.8 a) Explain in detail the stability criteria to be complied with for grain loading.

b) Explain any one method for securing path surface in filled trimmed compartment as per grain code.

[Click Here to See the Answer](#)

Q.9 a) Write short notes on Container Code.

b) With respect to stresses and corrosion, discuss the problem areas in Ro-Ro ships.

[Click Here to See the Answer](#)

Q.10 a) Describe precautions required to be taken while loading heavy lifts by using ship's gear.

b) Describe with sketch the securing arrangements of heavy lift project cargo of boiler weighing 300 tons on deck.

[Click Here to See the Answer](#)