



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

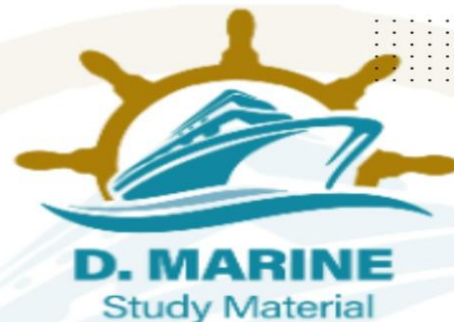
FOR INDIAN COMPETENCY EXAM



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Date: - 9th Jan-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: NAVIGATION (Management Level)
PAPER: METEOROLOGY

Notes:

1. Question No. 1 is compulsory.
2. Attempt any FOUR questions from the remaining 5 Questions.
3. All questions carry equal marks i.e. 20 marks each.
4. Use Admiralty Tide Tables 1992 Edition (ATT 1992)

Q.1) Calculate by shorter method S.H.M., height of tide at Good's Island (ATT 3) on 20th Jan 1992 at 1300 hrs.

[Click Here to See the Answer](#)

Q.2) a) What are the conditions associated with the formation as well as movement of TRS in Northern and Southern Hemispheres.

b) Explain the evasive actions to be taken by own vessel in the path of a TRS in Southern Hemisphere.

[Click Here to See the Answer](#)

Q.3) Define surface analysis and prognosis charts. Explain how you would use these charts for:

- i) Determination of surface winds
- ii) Forecasting the movements of fronts
- iii) Forecasting of sea fog.

[Click Here to See the Answer](#)

Q.4) What do you understand by Fast Ice & Pack Ice? Explain with help of a sketch the different manners in which river water (fresh water) and sea water (salt water) freeze as air temperature falls.

[Click Here to See the Answer](#)

Q.5) Define speed, period, length and significant wave height. What is their relationship? What are the factors governing wave height and direction.

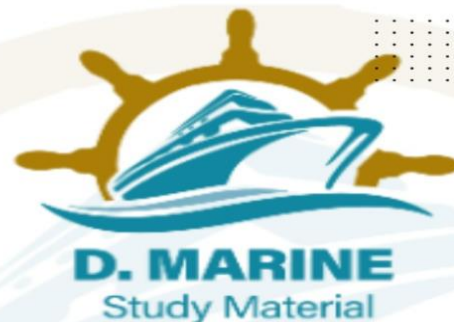
[Click Here to See the Answer](#)

Q.6) State the differences between weather routing and climatologically routing. Explain how you will carry out weather routing on board your vessel.

[Click Here to See the Answer](#)



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Date: - 12th April-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: NAVIGATION (Management Level)
PAPER: METEOROLOGY

Notes:

1. Question No. 1 is compulsory.
 2. Attempt any FOUR questions from the remaining 5 Questions.
 3. All questions carry equal marks i.e. 20 marks each.
 4. Use Admiralty Tide Tables 1992 Edition (ATT 1992)
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Q.1) Find the predicted height of tide by Simple Harmonic Constant Method at 0518 hrs. LT on 23rd April 1992 at HONGKONG, Port No. 7110 (ATT Vol.III).

[Click Here to See the Answer](#)

- Q.2) a) Explain Buys' Ballot's Law, Veering and Backing.
b) Give signs of approaching TRS.
c) State your actions to avoid getting closer to the eye of TRS if you were in Southern Hemisphere.

[Click Here to See the Answer](#)

- Q.3) a) Explain the process of frontogenesis.
b) Write short notes on:
i) Occluded Front
ii) Geostrophic Wind

[Click Here to See the Answer](#)

- Q.4) a) What do you understand by "Ice Accumulation"?
b) What precautions would you take to minimize ice accumulation on board?

[Click Here to See the Answer](#)

Q.5) What are the primary influencing the motion of surface currents. What is the indirect effect of wind on the surface currents & how do they affect the strength of currents as well as local climate?

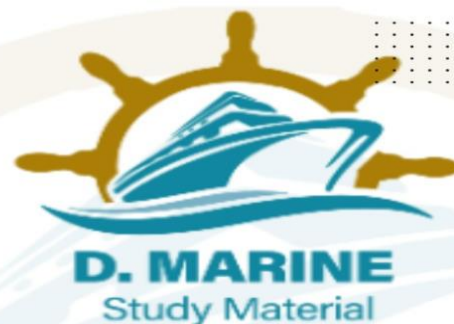
[Click Here to See the Answer](#)

Q.6) Your ship, a bulk carrier, carrying steel cargo is due to sail from Southampton to New York in the month of December. What all are the factors you will consider regarding weather routing for your passage across the Atlantic Ocean?

[Click Here to See the Answer](#)



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Date: - 10th July-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: NAVIGATION (Management Level)
PAPER: METEOROLOGY

Notes:

1. Question No. 1 is compulsory.
2. Attempt any FOUR questions from the remaining 5 Questions.
3. All questions carry equal marks i.e. 20 marks each.
4. Use Admiralty Tide Tables 1992 Edition (ATT 1992)

Q.1) Find the height of Tide at Bhavnagar (# 4346) on 9th Feb'92 @ 1200 hrs. by Harmonic Constant Method.

[Click Here to See the Answer](#)

Q.2) Describe the following with respect to TRS:

- i) Conditions favorable for its formation
- ii) Structure of a TRS and
- iii) Avoiding action to be taken if you are in the right hand semi-circle of a TRS in Northern Hemisphere.

[Click Here to See the Answer](#)

Q.3) a) Describe the effects of global warming?

b) Describe the characteristics and weather associated with the following types of clouds:

- i) Altocumulus
- ii) Nimbostratus
- iii) Cumulonimbus

[Click Here to See the Answer](#)

Q.4) a) Explain the formation of icebergs from floating glaciers, ice shelf and characteristics of each.

b) What is the International Ice Patrol?

[Click Here to See the Answer](#)

Q.5) a) Define wave, length and period of wave. State the relationship between them.

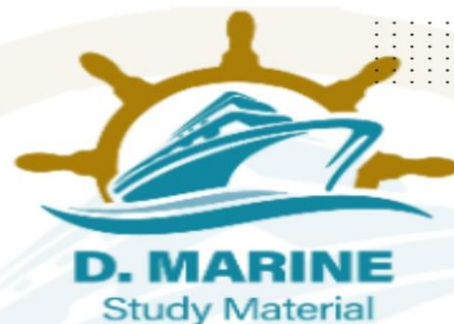
b) Explain the factors which causes drift current and gradient current.

[Click Here to See the Answer](#)

Q.6) a) Describe the method of weather routeing using forecast data.



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b) Describe the information which can be used from routing charts, sailing directions and Mariner's Handbook for weather routing.

[Click Here to See the Answer](#)

Paper-1

Date: - 9th Oct-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: NAVIGATION (Management Level)
PAPER: METEOROLOGY

Notes:

1. Question No. 1 is compulsory.
2. Attempt any FOUR questions from the remaining 5 Questions.
3. All questions carry equal marks i.e. 20 marks each.
4. Use Admiralty Tide Tables 1992 Edition (ATT 1992)

Q.1) Calculate the height of tide at Esposende (#1731) on 15th Jan 1992 at 0754 hrs.

[Click Here to See the Answer](#)

Q.2) a) Describe the warning signs which could indicate the approach of a Tropical Revolving Storm.

b) Explain how weather routing can be done on board a vessel? Discuss the advantages of weather routing.

[Click Here to See the Answer](#)

Q.3) a) Discuss in details the different types of clouds.

b) List the areas and seasons in which sea fog is to be expected. Explain how the occurrence of sea fog can be predicted on board ship.

[Click Here to See the Answer](#)

Q.4) a) What are the factors which may lead to ice accretion on ship? What are the dangers associated with it.

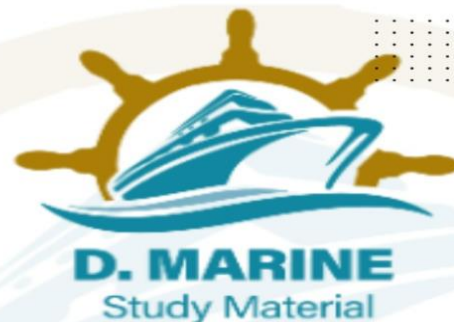
b) Describe the function of International Ice Patrol.

[Click Here to See the Answer](#)

Q.5) a) Write short notes on:



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i) Storm surge ii) tsunami iii) freak waves

[Click Here to See the Answer](#)

Q.6) Write short notes on (with neat diagrams)

a) Isallobars b) Atmospheric pressure RIDGE

c) Geostrophic wind d) Diurnal variation of atmospheric pressure.

[Click Here to See the Answer](#)

Paper-2

Date: - 9th Oct-2023

FIRST MATE OF A FOREIGN GOING SHIP (PHASE – I)
FUNCTION: NAVIGATION (Management Level)
PAPER: METEOROLOGY

Notes:

1. Question No. 1 is compulsory.
2. Attempt any FOUR questions from the remaining 5 Questions.
3. All questions carry equal marks i.e. 20 marks each.
4. Use Admiralty Tide Tables 1992 Edition (ATT 1992)

Q.1) Using only simplified Harmonic Constant method find the Height of Tide at 0000 hrs. GMT on 20th February'92 at Port Adelaide. (Outer Harbor) (ATT. Vol 3 # 6160)

[Click Here to See the Answer](#)

Q.2) a) What are the causes for curving and re-curving of TRS?

b) Why does the speed of TRS increase after re-curving?

c) Describe the evasive action, which should be taken by a vessel while in a TRS in NH.

[Click Here to See the Answer](#)

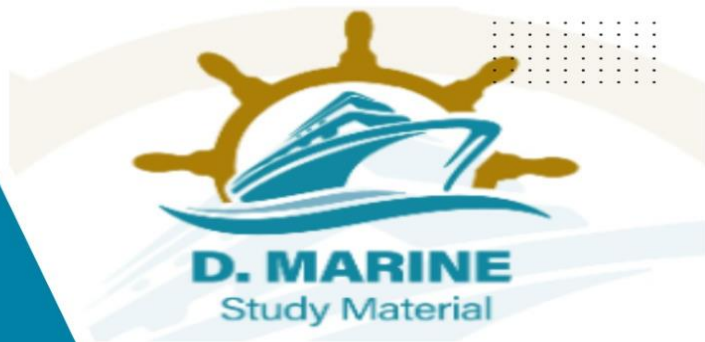
Q.3) a) What are the caused and effects of Global Warming? How it is affecting the change in the weather?

b) Describe the weather associated with the passage of warm front and Occluded front.

[Click Here to See the Answer](#)



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Q.4) Write short notes on the following:

- a) Cold front and weather associated with it.
- b) Adjustment of isobars to fronts in weather forecasting.
- c) Sea fog and method of forecasting on board.

[Click Here to See the Answer](#)

Q.5) a) Explain with diagram any two types of charting of ocean current.

b) How does the ocean current charts help the mariners?

[Click Here to See the Answer](#)

Q.6) a) Describe the procedures for climatological routing.

b) Explain the purpose for Maritime Forecast Code and data given by MARFOR.

[Click Here to See the Answer](#)

