



PAST PAPERS

<i>Faculty</i>	<i>Department / Section/Division</i>
<i>Not Applicable</i>	<i>Learning Resource Centre</i>

**Past Papers**

Faculty of maritime Science  
Department of Navigation

# Navigation Class IV (Academic) 2012-2022

<i>Document Control &amp; Approving Authority</i>	<i>Senior Director - Quality Management &amp; Administration</i>
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International Nautical and Engineering College  
Cinec Campus  
Faculty of Maritime Sciences  
Department of Navigation

000037

Approved by the Director General of Merchant Shipping, Sri Lanka

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV)  
**METEOROLOGY**

**Instructions to candidate**

**Date: 27<sup>th</sup> Nov 2015**

- Answer all questions
- Time : 0900hrs to 1200hrs (03hours)
- Total marks : 100
- Pass Mark : 50%

Electronic devices capable of storing and retrieving data are **not** allowed. Formulae and all intermediate steps taken in reaching your answer should be clearly shown. You may draw sketches wherever required.

- 
- 1) Answer the following questions with regard to wind:
    - a) List down the methods available to monitor the wind direction out at sea; (10 marks)
    - b) List down the information available on a Beaufort scale. (10 marks)
  - 2) Answer the following questions with regard to meteorological equipment and publications:
    - a) List down the equipments available onboard a ship to receive and monitor the weather information. (10 marks)
    - b) What are the publications available onboard relevant to meteorology? (10 marks)
  - 3) Answer the following questions with regards to monsoons;
    - a) Explain what is a seasonal monsoon? (05 marks)
    - b) Explain how such a monsoon is formed with an example. (15 marks)
  - 4) List down the approaching signs of a TRS (20 marks)
  - 5) Explain the three causes for ocean currents to trigger. (20 marks)



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000003

Approved by the Director General of Merchant Shipping, Sri Lanka

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV)  
**BRIDGE EQUIPMENT**

**Instructions to candidate**

**Date: 26<sup>th</sup> Nov 2015**

- Answer all questions
- Time : 0900hrs to 1200hrs (03hours)
- Total marks : 100
- Pass Mark : 50%
- Electronic devices capable of storing and retrieving data are **not** allowed.

1. a) With an aid of a diagram explain the function of the “Electro magnetic Log”.  
(15 marks)
- b) With the use of a simplified block diagram explain the main components of the  
“Echo Sounder”  
(10 marks)
2. Write short notes on followings;
  - a) Down link message of GPS  
(07 marks)
  - b) Off Course alarm fitted to Auto Pilot system  
(05 marks)
  - c) Navtex.  
(08 marks)
3. What is “Side Error” of a Sextant? Explain how it is identified and corrected by using  
Horizon method.  
(15 marks)
4. Answer the following questions with regard to Automatic Identification System (AIS);
  - a) List down the data Transmitted and Received by AIS ( Static, Dynamic and Voyage  
related)  
(15 marks)
  - b) The purpose of AIS  
(05 marks)

5. With respect to ships "Chronometer" answer the following questions;

a) List the entries to be made on the "Chronometer Log Book".

(07 marks)

b) Starting up procedure of a "Spring Tension Chronometer"

(05 marks)

c) Discuss the advantages and disadvantages of Quartz crystal Chronometer over Spring Tension Chronometer.

(08 marks)

24 Nov



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Department of Navigation

000012

Approved by the Director General of Merchant Shipping, Sri Lanka

OFFICER IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV)

## OPERATIONAL SAFETY

### Instructions to candidate

Date: 24<sup>th</sup> Nov- 2015

- Answer all questions
- Time : 0900hrs to 1200hrs (03hours)
- Total marks : 100
- Pass Mark : 50%
- Electronic devices capable of storing and retrieving data are **not** allowed.

- 1) Write short notes on the following conventions:
  - a) SOLAS Convention
  - b) STCW Convention
  - c) BIMMS Convention
  - d) FAL Convention

(5 marks each)
- 2) With reference to Enclosed Space and Confined Space Entry
  - a) Discuss the difference between an Enclosed Space and a Confined Space
  - b) State the dangers involved in entering an enclosed space and how you will minimize the dangers when entering in to an enclosed space considering the points which can be found out in the Enclosed Space Entry Checklist.

(10 marks each)
- 3) Answer the following questions with reference to oil tanker operations;
  - a) Explain the use and the general operation of IG system  
(10 marks)
  - b) With the aid of a diagram, briefly describe the arrangement of an IG system.  
(15 marks)
- 4) With reference to Cargo Handling Equipment what is SWL (Safe Working Load) and BS (Breaking Stress)  
(10 marks)
- 5) List down the duties of an officer engage in navigational watchkeeping duties.  
(10 marks)
- 6) Discuss the importance of a Risk assessment and briefly describe how to carry out a Risk Assessment.  
(15 marks)



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Colombo International Nautical and Engineering College

CINEC CAMPUS

Faculty of Maritime Sciences

Department of Navigation

EDUCATION & TRAINING COURSE: NAVIGATIONAL WATCH ON SHIPS OF  
LESS THAN 500 GT (NCV) COURSE CODE: ND-0101 BATCH 026

FINAL EXAMINATION - QUESTION PAPER

**GENERAL SHIP KNOWLEDGE**

- Answer all questions.
- Total Marks: 200

Date: 11.11.2015

Pass mark 50%

Time allocated: 03 Hours

**SECTION I**

1) Write short notes on the following;

- a) Free surface effect
- b) BIMMS Agreement
- c) Angle of loll
- d) Deadweight
- e) Squat effect

(05 marks each)

2) A vessel arrives in port with a displacement of 7000 t and KG 7.0 m. She then discharges and loads as follows;

Discharges 800 t – KG 5.0 m,

300 t – KG 8.5 m,

250 t – KG 4.2 m,

400 t – KG 7.5 m

Loads 350 t – KG 8.0 m

450 t – KG 5.0 m

500 t – KG 3.0 m

Also replenishes bunkers 600 t (KG 1.0 m) and fresh water 100 t (KG 7.5 m). At departure from the port the vessel had a final KM of 9.0 m. Find the departure GM of the vessel.

(25 marks)

- 3) a) Sketch and name the components of a stockless anchor. (15 marks)
- b) List the factors to be considered when deciding the amount of cable to be use prior to dropping the anchor. (10 marks)
- 4) A vessel of 6,000 t displacement has a KM of 7.2 m and a KG of 6.7 m while floating in upright condition. A weight of 60 t already on board is shifted transversely from port side to starboard side. Find the following;
- a) Shift of COG (10 marks)
- b) Resulting list to the starboard side (15 marks)

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**SECTION II**

Answer all questions. Each question carries 04 marks.

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- 1) Rat guards are placed on board a moored vessel to;  
 .....  
 .....
- 2) Explain the meaning of a temporary correction in relation to chart corrections & how to do such a correction.  
 .....  
 .....  
 .....
- 3) What are the signals to be displayed during bunkering and loading/discharging dangerous goods?  
 .....  
 .....
- 4) Yawing means;  
 .....  
 .....

5) An inclinometer is used to measure;

.....  
 .....

6) An anticyclone is the name given to a system of .....  
 The wind circulation will be ..... in the Northern Hemisphere.

7) Generally, a TRS moves in a ..... direction after re-curving in the Northern Hemisphere.

8) The ideal months for the SW monsoon are;

.....  
 .....

9) The scope of the anchor is decided on the following factors

- i) .....
- ii) .....
- iii) .....
- iv) .....

10) What information do you find in Admiralty Sailing Directions?

- i) .....
- ii) .....
- iii) .....
- iv) .....

11) Spring tides occur during ..... and ..... days.

12) What information do you find in Admiralty weekly notices to mariners?

- i) .....
- ii) .....
- iii) .....
- iv) .....

13) What is the name of the international publication that you have to refer when treating sick people on board?

.....

14) Panting beams & panting stringers are used to reduce .....



15) The advantages of ship's double bottom are;

- i) .....
- ii) .....
- iii) .....

16) What precautions would you take before accepting hazardous cargo on board?

- i) .....
- ii) .....
- iii) .....
- iv) .....

17) What precautions would you take before loading a heavy lift?

- i) .....
- ii) .....
- iii) .....
- iv) .....

18) The error of perpendicularity on a sextant occurs when,

.....  
.....

19) A Radar works on the principle of;

.....  
.....  
.....

20) Deviation is the angle between ..... and .....  
of a magnetic compass.

21) What are the advantages of leading lights during coastal navigation?

.....  
.....

22) What are the advantages of transit bearing during coastal navigation?

.....  
.....

23) The weight of the life buoys fitted to man over board marker is ..... than the  
weight of the other life buoys on board.

24) During a man over board situation;

- i) .....
- ii) .....
- iii) .....
- iv) .....

25) Briefly explain the purpose of port state control (PSC).

.....  
.....  
.....  
.....

End.

ND class IV



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Department of Navigation

W

000013

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OFFICER IN CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV)

**OCEAN AND OFFSHORE NAVIGATION**

**Instructions to candidate**

Date: 23<sup>rd</sup> Nov- 2015

- Answer all questions
- Time : 0900hrs to 1200hrs (03hours)
- Total marks : 100
- Pass Mark : 50%
- Electronic devices capable of storing and retrieving are **not** allowed

1) With the aid of sketches explain the following:

- a) Latitude
- b) Longitude
- c) First Point of Aries
- d) First Point of Libra

(05 marks each)

2) a) Explain the following and describe the relationship between them:

- i. LMT
- ii. GMT
- iii. LIT

(10 marks)

b) If you have a Compass course of  $340^{\circ}$  Deviation  $5^{\circ}E$  and Variation  $5^{\circ}W$  find the True Course illustrating it on a suitable Diagram

(10 marks)

3) a) Explain how the Seasons Occur on the Earth

(10 marks)

b) You are going to start a voyage from Colombo, Sri Lanka (GMT +05h30m) to Singapore (GMT +08h) and the distance of your voyage is 1700 Nautical Miles Calculate the ETA at Singapore at a speed of 12 knots if your ETD is 01<sup>st</sup> August'15 at 0600 Hrs.

(10 marks)

4) On 19<sup>th</sup> January 1992, in DR  $40^{\circ} 16'S$ ,  $175^{\circ}31'E$  the Azimuth of the sun was  $267^{\circ}$  (C) at 1618 Hrs Ship's Time. If ship's time difference was 11h 30m from GMT & Variation was  $2.3^{\circ}$  (E), Find the Deviation of the compass for ship's head.

(20 marks)

5) On 20<sup>th</sup> January 1992 in DR  $54^{\circ} 20'S$ ,  $046^{\circ} 27'W$  the sun set bearing  $234^{\circ}$  (C). If variation was  $3^{\circ}$  (W), find the deviation of the compass.

(20 marks)

End.



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Department of Navigation

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**Approved by the Director General of Merchant Shipping, Sri Lanka**  
**OFFICER IN-CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN**  
**500GT (NCV)**  
**BRIDGE EQUIPMENT**

DATE : 26<sup>th</sup> August 2015

Time allowed THREE hours

Total marks : 100

Answer all questions

Pass marks : 50%

Formulae and all intermediate steps taken in reaching your answer should be clearly shown. You may draw sketches wherever required.

1. Answer the following questions with regard to Voyage Data Recorder (VDR);
  - a) Explain the function of a Voyage Data Recorder in brief. (07 marks)
  - b) List the data that a crash proof memory unit of a VDR shall continuously record for 12 hours. (08 marks)
2. Write short notes on followings;
  - a) Bridge Navigation Watch Alarm system (BNWAS). (10 marks)
  - b) Zero Transmission mark available in Echo sounder recorder. (04 marks)
  - c) Stowage of Spring Tension Chronometer. (06 marks)
3. Answer the following questions with regard to sextant;
  - a) What is "Index Error" of a Sextant? Explain how it is identified and corrected by using Star method. (12 marks)
  - b) In measuring the sun's diameter to obtain the Index Error, the following readings were obtained on the sextant.

With the sun's reflected image vertically below the true image and touching the upper limb to lower limb of the true image, the reading obtained was 30.3' on the arc.

Similarly, with the reflected image vertically above the true image it was 32.7' off the arc.

Find the Index Error of the sextant and the semi diameter of the sun.

(08 marks)

4. Answer the following questions with regard to GPS;

a) The Global Positioning System (GPS) consists of three main segments namely;

- i) Space
- ii) Ground Control
- iii) Receiver

Explain the function of each in brief

(05 marks each)

5. Answer the following questions;

a) List the entries to be made on the "Compass Error Log Book".

(05 marks)

b) Describe the construction of a "Dry Card Compass".

(12 marks)

6. With an aid of a diagram explain the function of an "Impeller Log".

(13 marks)



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**Approved by the Director General of Merchant Shipping, Sri Lanka**  
**OFFICER IN-CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN**  
**500GT (NCV)**  
**OPERATIONAL SAFETY**

DATE : 25<sup>th</sup> August 2015

Time allowed THREE hours

Total marks : 100

Answer all questions

Pass marks : 50%

Formulae and all intermediate steps taken in reaching your answer should be clearly shown.  
You may draw sketches wherever required.

- 1) Write Short notes about the following conventions
  - a) ISPS Code
  - b) UNCLOS Convention
  - c) Load Line Convention
  - d) Ballast water management Convention

(5 marks each)
  
- 2) Answer the following questions with reference to bunkering and MARPOL Convention;
  - a) State the dangers involved with the bunkering operation and discuss the correct procedure for bunkering and duties you carry out as an OOW to minimize and eliminate those dangers.
  - b) Describe the importance of SOPEP and how SOPEP will help you in an emergency, clearly indicating the SOPEP equipment and information you find in the SOPEP Manual.
  - c) List any 2 Certificates which a Ship should carry to comply with MARPOL regulations and write short notes about those certificates

(10 marks each)
  
- 3) Answer the following questions with reference to cargo operations;
  - a) Describe causes of ship sweat and cargo sweat and the methods of controlling it.
  - b) Discuss the precautions to be taken and the procedure of loading and discharging containers in order to prevent any drawbacks.

(10 marks each)

- 4) Point out the general maintenance to be carried out on Winches, Windlasses and briefly discuss the importance of having a PMS (Planned Maintenance System) onboard.  
(10 marks)
- 5) Point out the duties you carry out in an Anchor watch as an OOW.  
(10 marks)
- 6) Discuss about carrying out a Risk Assessment before commencing any operation onboard stating the importance and procedure.  
(10 marks)





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**OFFICER IN-CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN**  
**500GT (NCV)**  
**OCEAN AND OFFSHORE NAVIGATION**

143

DATE : 24<sup>th</sup> August 2015

Time allowed THREE hours

Total marks : 100

Answer all questions

Pass marks : 50%

Formulae and all intermediate steps taken in reaching your answer should be clearly shown.  
You may draw sketches wherever required.

- 1) Explain the following and draw a sketch
  - a) Prime Vertical
  - b) Observer's Zenith
  - c) Rational Horizon
  - d) Equinoctial

(05 marks each)
  
- 2) Answer the following questions with reference to compass errors;
  - a) Explain the Variation and the Deviation
  - b) If you have a Compass course of  $287^{\circ}$  (C), Deviation  $2^{\circ}$  E and Variation  $6^{\circ}$  W find the True Course illustrating it on a suitable Diagram

(10 marks each)
  
- 3) Answer the following questions with reference to earth's axial rotation and the change of time;
  - a) Explain the concept of the Earth's axial rotation and how day and nights occur.
  - b) You are going to start a voyage from Colombo, Sri Lanka (GMT +05h 30m) to Chittagong, Bangladesh (GMT + 06h) and the distance of your voyage is 1700 Nautical Miles Calculate the ETA to Chittagong at a speed of 15 knots if your ETD is 01<sup>th</sup> August 2015 0600Hrs.

(10 marks each)

4) On 29<sup>th</sup> November 1992 A.M. at ship in DR  $26^{\circ} 27'N$ ,  $130^{\circ} 27'W$  the Azimuth of the sun was  $130^{\circ}$  (C) when the chronometer showed 05h 49m 20s. If Chronometer error was 01m 31s fast and the variation was  $3^{\circ}$  E, find the deviation for ship's head.  
(20 marks)

5) On 2<sup>nd</sup> Sept 1992 in DR  $40^{\circ} 28'N$ ,  $064^{\circ} 20'E$  the rising sun bore  $090^{\circ}$  C. If variation was  $5^{\circ}$  W, find the deviation of the compass.  
(20 marks)



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OFFICER IN-CHARGE OF A NAVIGATIONAL WATCH ON SHIPS OF LESSTHAN 500GT  
(NCV)  
METEOROLOGY

000059

DATE : 27<sup>th</sup> August 2015

Time allowed THREE hours

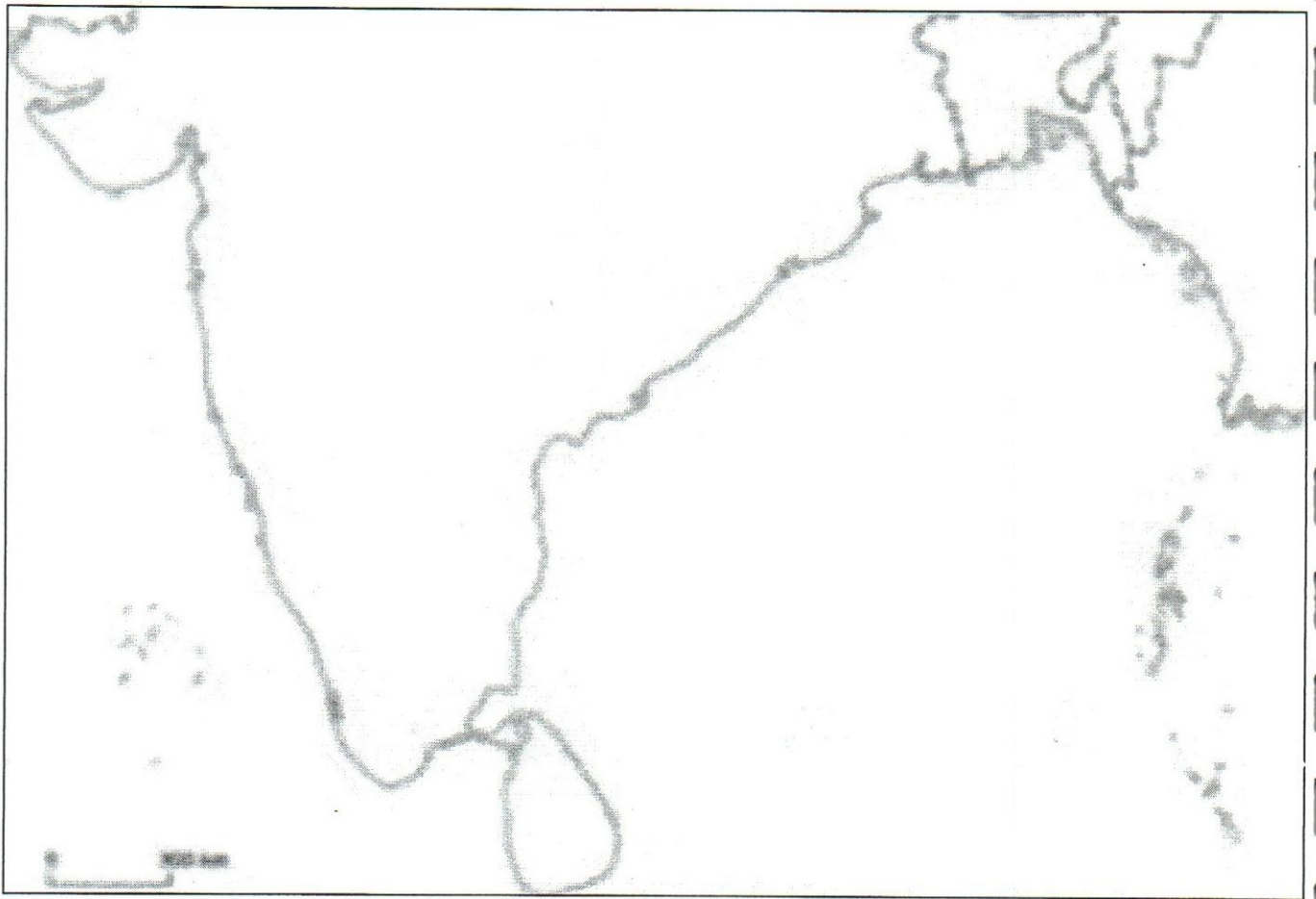
Total marks : 100

Answer all questions

Pass marks : 50%

Formulae and all intermediate steps taken in reaching your answer should be clearly shown. You may draw sketches wherever required.

1. On a vessel steaming  $346^\circ$  at 15 knots, the apparent wind was observed to be NW at 22 knots. Find the direction and speed of the true wind.  
(20 marks)
  
2. (a) Describe the three parts of a TRS.  
(05 marks)  
(b) Explain how to find the bearing of the centre of a TRS in Northern Hemisphere.  
(05 marks)  
(c) Draw the typical path of a TRS in Bay of Bengal.  
(10 marks)
  
3. On the given map draw the surface currents in the Bay of Bengal and the Arabian sea during SW monsoon.  
(20 marks)



4. (a) Draw and name the parts of a Barograph.

(10 marks)

(b) An Aneroid barometer has an IE of  $-1.0$  mb. It reads  $1010.5$  mb. The instrument was located at a height of  $20$  meters from sea level. What is the reading that you enter in the log book.

(10 marks)

5. Write short notes on following

- a) Absolute Humidity
- b) Land breeze
- c) Stable atmosphere
- d) Fohn wind effect

(05 marks each)



## CINEC MARITIME CAMPUS

### Withdrawal Examination

#### OIC of a Navigational Watch on ships of less than 500 GT (NCV) – ND 101

##### COASTAL NAVIGATION

- \* Answer all questions
- \* Time 3 hours
- \* Total Marks 160
- \* Pass Mark 70 %
- \* Formulae and all intermediate steps taken in reaching your answer should be clearly shown.  
You may draw sketches where ever required

22<sup>nd</sup> May 2012

- 
- (1) 1. Briefly describe contents of the following documents
- (a) Weekly Notices to Mariners
  - (b) Annual Notices to Mariners
  - (c) Admiralty Sailing Direction
  - (d) Mariners Hand Book
- (5 marks each)
- (2) Draw following symbols as per NP 5011
- (i) Steep Coast
  - (ii) Dredge channel depth of 4.0m
  - (iii) Light Green flashing every 15 sec Ht of 12 m and Range of 6 mile
  - (iv) Obstruction of knowing depth of 4.5m
  - (v) Pilot Boarding Ground
  - (vi) Light vessel with a recon and a light visible for 15 miles and grown flashing three every 10 S
  - (vii) wreck, depth unknown which is considered dangerous to surface navigation
  - (viii) Fishing area entry prohibited
  - (ix) Submarine Cable
  - (x) Precautionary Area
- (4 marks each)

- (3) Plan a passage from Colombo Pilot to Galle with comprehensive details, also state the ETA if the vessel depart on 22nd 1500 hrs and maintain speed of 9 knots

( 40 marks)

- (4) At 1100 hrs an observer at sea read the horizontal sextant angle between Tangalla point and Rekawa point as  $41^{\circ} 55'$ . At the same time Rekawa point bore 0020 (G) 1E of the sextant was  $05'$  off the arc and Gyro was reading 20 (H). The vessel was steaming at 12 knots on a course of 2420 (G). The vessel was proceeding to Waligama bay through the traffic separation scheme south of Dondra Head. One hour later Nilewelli point ( $05^{\circ} 57.5' N, 080^{\circ} 43.2E$ ) was observed to Bore 0100 (G)

Find the following

- |       |   |            |
|-------|---|------------|
| (i)   | Position at 1100 hrs  | (10 marks) |
| (ii)  | Position at 1200 hrs  | (10 marks) |
| (iii) | Speed made good along the proposed track                                | (05 marks) |
| (iv)  | Course made good  | (05 marks) |
| (v)   | Compass course made good  | (10 marks) |
| (vi)  | Set and drift of current experienced                                    | (05 marks) |
| (vii) | Gyro course to steer along the proposed track counteracting the current |            |

(15 marks)



## **CINEC MARITIME CAMPUS**

### **Withdrawal Examination**

#### **OIC OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV) – ND 101**

#### **COASTAL NAVIGATION**

- \* Answer all questions
- \* Time 3 hours
- \* Total Marks 150
- \* Pass Mark 70 %
- \* Formulae and all intermediate steps taken in reaching your answer should be clearly shown.  
You may draw sketches where ever required

28<sup>th</sup> August 2012

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(1) Briefly describe contents of the following documents

- (a) Weekly Notices to Mariners
- (b) Routening Charts
- (c) Admiralty Sailing Direction
- (d) Mariners Hand Book

(6 marks each)

---

(2) Draw following symbols as per NP 5011

- (i) Dredge channel depth of 4.0m
- (ii) Light Green flashing every 15 sec Ht of 12 m and Range of 6 mile
- (iii) Obstruction of knowing depth of 4.5m
- (iv) Pilot Boarding Ground
- (v) Wreck, depth unknown which is considered dangerous to surface navigation
- (vi) Fishing area entry prohibited

(4 marks each)

(3) Your vessel is a laden tanker awaiting orders near Parsons Bank (48 25N, 006 35W) in depth of around 99m. Orders received at 1200hrs on 21st June to proceed to Southampton (50 53N 001 23W) for loading; Find following;

(i) Position of the vessel at 21st 1200 hrs  
(5 marks)

(ii) Propose a route to reach the destination, clearly giving the waypoints, True Courses and distance to steer. Justify the reason for choosing your proposed track. Evaluate the various methods of position fixing you could utilize during the passage.  
(40 marks)

(iii) What is the ETA destination.  
Your vessel draws 11.5 m and can steam at 15.5 knts.  
(10 marks)

---

(4) A vessel steering 090 (T) at 16 knts observed Bishop Rock Bank (49 52.5N 006 27W) light to bear 332 (G) at 1400 Hrs. Next observation 30 mnts later was the Wolf Rock (49 57N 005 49W) gave a value of 028 (G). The tidal stream was setting in the direction of 190 (T) at 4 knts throughout. The Gyro was known to be 2L.

(i) Position of the vessel at 1430 Hrs.  
(15 marks)

(ii) The Compass course made good during the period.  
(6 marks)

(iii) Speed made good during the period.  
(6 marks)

---

(5) Find the latest time on 28th August 1999 to cross a bar at Chittagong, Bangladesh for vessel having a draft 4.4m. It is advised to maintain an UKC 1.8m. The charted depth at the bar was known to be 2.5m  
(20 marks)





## CINEC MARITIME CAMPUS

### WITHDRAWAL EXAMINATION

### OIC OF A NAVIGATIONAL WATCH ON SHIPS OF LESS THAN 500 GT (NCV) – ND 101

#### GENERAL SHIP KNOWLEDGE

- \* Answer all questions
- \* Time 3 hours
- \* Total Marks 170
- \* Pass Mark 70 %
- \* Formulae and all intermediate steps taken in reaching your answer should be clearly shown.  
You may draw sketches where ever required

27<sup>th</sup> August 2012

- 
- 1) Write short notes on following
- a) BIMMS agreement
  - b) Centre of Gravity
  - c) Risk Assessment
  - d) IMSBC Code
  - e) Company Security Officer
  - f) STCW 2010

(5 marks for each)

- 
- 2) A ship of 10000 tonnes displacement has KG 5.6 m, Km 6.2 m. The following cargo is loaded 2000 tonnes at KG 3.7m; She deballasted 400 tonnes at KG 2.0m.  
Find how much deck cargo (KG 9m) may now be loaded if the ship is to sail with a minimum GM of 0.3m.

(25 marks)

- 
- 3) A Ship of 14000 t displacement, KM 9 m and KG 7.8 m has a 8 deg port list. Find how many tonnes she must shift transversely by 8 m in order to upright the vessel.

(25 marks)

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- 4) a) Sketch and name Parts of the Anchors (8 marks)
- b) What are the Major concern areas during Docking (10 marks)
- c) Draw a Cross section of a General Cargo vessel including Double Bottom (Solid floor) (12 marks)
- 
- 5) a) You are in coastal vessel which carrying General Cargo between Colombo and Chittagong. After discharging cargo you found following Cargo residues etc. Propose a plan to dispose.  
Air Bags/ synthetic seperation nets/waste papers/ expired pyrotechnics/expired medicines/bags of dust/ wooden boards (15 marks)
- b) What are the requiremnts to satisfy when disposing Cargo Residues from Oil Tanker outside special area. (6 marks)
- c) How would you update the SOPEP Manual on board. (4 marks)
- d) State differnt types of certificates and Documents to carry as per MARPOL annexe 1 and 5 (5 marks)
- 
- 6) Referring to the Tropical Revolving Storms;
- (a) What are the approaching signs of a TRS (5 marks)
- (b) You are Arrving port of Colombo from Bombay and about 200' to PBG and encountering TRS.
- (i) How would you confirm whether vessel is in Dangerous/navigable Semi Circles? (10 marks)
- (ii) What is the best action if vessel is in Navigable semi circle regard to above situation. (5 marks)
- (iii) Ch Officer advised your GM not sufficient. Propose methods to increase your GM. (10 marks)