

Candidate's Name:

Ports and Maritime Organization
Seafarers' Examination and Certification Directorate
Exams Code: CMCN

Subject: Terrestrial and Coastal Navigation & Nav Aid

Date:

Rank : Chief Mate (GT ≥ 3000)

Time allowed: 2,0 Hrs

Use deviation card No. 1, tide table 2000, chart No: 2447, Norries table, and **variation** as per chart.
Positions in the brackets are only for guidance and should not be used as actual position of symbols.

(Pass marks : 50)

Q.1) - A vessel steering $312^{\circ}C$ observes Ras e Nay Band Lt ($27^{\circ} 24' N$, $52^{\circ} 35' E$) 4.2° on stbd bow and a radar distance of 8 miles:

a) - Find vessel position for the time of observation, (0 Marks)

b) - From the position found at (a) find the compass course to steer to pass Ras al Motaf Lt. Vsl. ($27^{\circ} 36' N$, $51^{\circ} 26' E$) 3 miles to stbd. Assume current to set $13^{\circ}T$ at rate of 3 kts and a Northerly wind to cause 4° leeway throughout and vessel speed to be maintained at 12 kts. (10 Marks)

Q.2) - A vessel steering $135^{\circ}C$, speed 10 kts observe Al Farsi Lt Ho ($27^{\circ} 59' N$, $50^{\circ} 11' E$) to be as follow:

At 1000 hrsbrg $175^{\circ} C$;

At 1115 hrs.....brg $265^{\circ} C$, range 6 miles;

Find: **a) - Vessel position for 1000 hrs; (1 Marks)**

b) - Course and speed made good; (1 Marks)

c) - Rate of current; (1 Marks)

Assume current to be setting $23^{\circ} T$.

Q.3) - AT 0900 Hrs vessel at position (A) Jazireh-ye Lavan Lighthouse ($26^{\circ} 48,0' N$ $55^{\circ} 19' E$) bears $280^{\circ} (T)$ Distance: 20 Miles, is required to sail to position (B) 4 miles East of Ra's Tanurah ($27^{\circ} 06' N$, $55^{\circ} 57,0' E$).

a) - Find compass course to steer, if current sets 230° degrees (T) at 3 Knots and there is strong Northerly wind blowing, which is expected to cause 5° degree of leeway. Vessel speed is 12 Knots. **(10 Marks)**

b) - Find ETA of vessel at Position (B) (0 Marks)

Q.4) - A **composite great circle** with maximum latitude of 40° South is to be followed from **Napier** (New Zealand) to **Iquique** (Chile). The vessel is expected to be at the departure position off Napier at 1700 hours Local Time on December 21st, The voyage speed will be $15,0$ knots.

Departure position off **Napier : $39^{\circ} 30' S$ $177^{\circ} 00' E$**

Landfall position off **Iquique : $20^{\circ} 15' S$ $70^{\circ} 15' W$**

a) - Calculate the distance from departure position to landfall. (10 Marks)

b) - Find ETA at the landfall position. (0 Marks)

Q.9) - Find the predicted time and height of HW and LW at **Bowling** (ATT VOL.1) for the falling PM time on 26/Feb/2022.

(20 Marks)