

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations– June 2023
Programme Name: B Sc (NS)
Semester: III
Subject Code: UG21T5106
Subject Name: TERRESTRIAL NAVIGATION

Date: 22.05.2023

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Scientific Calculator is permitted.
- (iii) Norrie's Table permitted

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each.

1. The Shape of earth can be described as
 - a. Circular
 - b. Spherical
 - c. Oval
 - d. Oblate Spheroid
2. The meridian chosen to be the reference for measuring longitudes is called _____.
3. A straight line on a Mercator chart cutting all meridians at the same angle is called _____.
4. The point where the highest latitude is reached on a great circle track is called as _____.
5. A chart that helps for finding intermediate points without needing calculation in Great circle sailing is called _____.
6. The angle between the Magnetic North and Compass North is named as:
 - a. Variation
 - b. Deviation
 - c. Compass error
 - d. Declination
7. The deviation of a compass varies as the ship's head changes.
 - a) True
 - b) False.
8. On a Mercator chart, the distance measured between two parallels of latitude using minutes of longitude scale is called:

- a. D'Long
 - b. D'Lat
 - c. MP
 - d. DMP
9. A ship is steering a course of 330° (T) and a NE wind is causing a leeway of 4° . The effective course will be
- a. 330°
 - b. 334°
 - c. 326°
 - d. 228°
10. Which of the following is not a canal?
- a. Suez
 - b. Corinth
 - c. Panama
 - d. Java

Section B

Five Questions of 02 Marks each

11. Define Nautical mile. How does it compare to a Kilometre?
12. Calculate the East-West distance for a D'Long of $006^\circ 11.8'$ on Lat $36^\circ 12.0'N$ and what is this distance called?
13. The Compass bearing of a light house was observed to be $144.5^\circ(C)$. Find its True Bearing if variation was $4.5^\circ W$ and deviation $2.0^\circ E$.
14. Using Traverse Tables, find the D'Lat and Dep for a course of 155° (T) and distance 200 Nm.
15. What is the use of Great circle sailing?

Section C

Answer all the questions. (10 Marks Each)

16. Your ship is in position-A Lat $10^\circ 12.0'S$ Long $120^\circ 11.0'W$ sailed on course $260^\circ(T)$ for 458 Nm. Find the arrival position-B by plane sailing.
17. List out the characteristics of a Mercator chart.
18. Find the rhumb line course and distance, using Meridional parts, from starting position-A Lat $24^\circ 00.0'N$ / Long $074^\circ 15.0'W$ to position-B Lat $46^\circ 00.0'N$ / Long $053^\circ 45.0'W$.
19. Write briefly about:
- a. DR
 - b. EP
 - c. FIX
 - d. Set & drift
 - e. Leeway
20. Find the great circle distance and initial course between A $24^\circ 35'N$ $063^\circ 44'E$ and B $40^\circ 21'N$ $139^\circ 21'E$. (5 marks)

b) Box the Compass from North to west in an anti-clock wise direction. (5 marks)