

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – Dec 2025
Programme Name: DNS
Semester: One
Subject Code: UD11T6104
Subject Name: Terrestrial Navigation

Date: 10.12.2025

Duration: 03 Hrs

Max Marks: 70

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted,
- (ii) All Questions are compulsory
- (iii) Norrie's Tables / Nautical Almanac / Meridional parts table can be used. Tidal standard curve charts will be provided; Non-Programmable scientific calculator is permitted.

Section A

Answer all the questions – (10 x 01 mark) = 10 marks MCQs/Fill in the Blanks/ true or False as applicable.

1. The Quadrantile form of the course $150^\circ(T)$ is
 - A) S 30° E
 - B) S 30° W
 - C) S 60° W
 - D) S 60° E
2. D'long from A: 10° S 160° E to B: 15° N 160° W is
 - A) 20° E
 - B) 20° W
 - C) 40° W
 - D) 40° E
3. Distance along a parallel of latitude is also referred to as
 - A) DMP
 - B) Departure
 - C) D'long
 - D) D'lat
4. If Compass Co. $124^\circ (C)$, Var: $2^\circ E$, Dev: $12^\circ W$, then True course?
 - A) $138^\circ (T)$
 - B) $114^\circ (T)$
 - C) $134^\circ (T)$
 - D) $110^\circ (T)$
5. When the sun and the moon in conjunction cause _____ tides.
 - A) Spring
 - B) High
 - C) Neap
 - D) Low
6. Shape of the earth is an _____
7. A parallel of latitude is a _____ circle (Great/Small)
8. D'Long is measured as the arc of the _____
9. In Parallel sailing formula departure = Distance (True/False)
10. Depth on the chart are the depths below Chart Datum (True/False)

Section B**(5 x 2 marks = 10 Marks)**

11. Define Nautical Mile and Statute Mile.
12. Describe Vertex of a GC track, and its uses.
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. State the Mercator sailing formula for both course and distance
15. Enlist four differences between Raster Chart and Vector Chart.

Section C

16. **(2 x 5 Marks = 10 marks)**
 - a. State the components, segments and aspects of passage planning
 - b. Distinguish between DR, EP and Fix.
17. Find the Rhumb line course and distance using Mercator sailing, from a In position Lat. $49^{\circ} 50'N$. Long. $05^{\circ} 30'W$ to B in Lat. $37^{\circ} 50'N$. Long $25^{\circ} 40'W$ **(10 marks)**
18. **(2 x 5 Marks = 10 marks)**
 - a. Distinguish between Nominal and Luminous range of a light.
 - b. State the differences between Raster charts and Vector charts.
19. Find the Great circle distance and initial course between A – $24^{\circ} 35'N$ $063^{\circ} 44'E$ and B – $40^{\circ} 21' N$ $139^{\circ} 21'E$ **(10 marks)**
20. Find the height of tide at Darwin (Australia) at 1805hrs Standard Time on 20th January The extracts from the Tide Tables are given below: **(10 marks)**

Time	Height
0250	2.0 M
0830	6.6 M
1436	1.2 M
2105	7.5 M

Please read Q No 19 under section C as follows:

Q No 19 - Find the Great circle distance and initial course between A – $24^{\circ} 35'N$ $063^{\circ} 44'E$ and B – $40^{\circ} 21' N$ $139^{\circ} 21'E$

