

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations –June 2026
Program Name: DNS
Semester: 1
Subject Code: UD11T6104
Subject Name: Terrestrial Navigation

Date: 04.06.2026

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) All Questions are compulsory.
- (iii) Non-Programmable Scientific calculator permitted.
- (iv) Norrie's table is permitted.
- (v) Tide graph needs to be provided.

Section A

Answer all 10 questions (10 x 1 mark =10 Marks)

1. Shape of the earth is an _____
2. A parallel of latitude is acircle (Great/Small)
3. D'Long is measured as the arc of the _____
4. In Parallel sailing formula departure = Distance (True/False)
5. In Plane sailing formula, Departure/D'Long is equal to
(a) Cos co (b) Cos m Lat (c) Tan Co (d) Sin m Lat
6. The angle between the magnetic and the geographic meridian is known as
7. Depth on the chart are the depths below Chart Datum (True/False)
8. Leeway is allowed to correct the set due to current (True/False)

9. A small scale chart covers a large geographical area, whereas a large scale chart covers small geographical areas, such as harbours and anchorages. Medium scale charts are used in coastal navigation.

- (a) True
- (b) False

10. Acronym of ECDIS is :

- (a) Electronic Chart Display Innovation System
- (b) Electronic Chart Digital Immigration System
- (c) Electronic Chart Display Information System
- (d) Electronic Chart Display Informal System

Section B

Answer all five questions each carries 2 marks (5x2marks = 10 marks)

11. Define: Great Circle and Small Circle.

12. Define: Geographical Range and Nominal Range

13. List any two advantage of Mercator chart

14. Define Dead Reckoning (DR) Position.

15. Define Variation and Deviation wrt Magnetic Compass

Section C

Answer all five questions. (5 x 10 Marks = 50 marks)

16.

a. Given the compass error is 6°W , deviation is 2°E . Find the variation.

(3 marks)

b. By Mercator sailing find the true course and the distance between the position $49^{\circ}10' \text{ N } 12^{\circ}30' \text{ W}$ and $25^{\circ}15' \text{ N } 26^{\circ}50' \text{ W}$.

(7 marks)

17.

a. Differentiate between ENC and paper Chart

(4 marks)

b. Find the course and distance from position A: $49^{\circ}35'N$ $004^{\circ}00'W$ to position B: $50^{\circ}10'N$ $002^{\circ}55'W$ using plane sailing.

(6 marks)

18. Given the following extract from tide table, find the standard time during the afternoon on the 28th February at which there will be 5 metres of water over a shoal patch where charted depth is 2 metres sounding off the port Darwin (Australia) (10 marks)

TIME	HEIGHT
0018	2.7M
0557	6.2M
1223	1.5M
1832	7.0M

19. Find the Initial course and GC distance from $69^{\circ}30.0'N$ $060^{\circ}50.0'E$ to $44^{\circ}40.0'N$ $120^{\circ}20.0'E$. (10 marks)

20. a) Explain the four stages of passage planning

(5 marks)

b) A Ship in the position $40^{\circ}N$ $105^{\circ}12'E$ steams through a distance of 1000 miles on a course of $090^{\circ}(T)$. Find the final position. (5 marks)
