

Uploading Copy
16/06/2017
A10

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)

May/June End Semester Examinations
B.Sc. (Nautical Science) First Semester
(AY 2009- 2013 batches only)

Navigation – I
(Terrestrial Navigation & Voyage Planning (UG21T2107))

Date : 16.06.2017

Maximum Marks: 70

Time: 3 Hrs

Pass Marks : 35

Note: 1. Use of non programmable scientific calculator, Nautical almanac and Noories table are allowed.
2. Draw Diagrams/Sketches/Figures for explanation, where necessary

Section -A **(Terrestrial Navigation)** **(40 Marks)**

Note : Answer any **Four** questions from this section.
All questions carry equal marks (4 x 10 = 40 marks)

1. (a) Given initial position $12^{\circ} 49.5' S$ $176^{\circ} 48.7' E$,
D'lat $30^{\circ} 12.0' N$, D' long $012^{\circ} 36.5' E$. Find the final position?
- (b) Given initial position $15^{\circ} 30.6' N$ $008^{\circ} 20.8' W$, D'lat $02^{\circ} 56.8' N$,
D'long $32^{\circ} 11.6' E$. find the final position. [2x5 Marks]
2. Define the following with suitable figures . [5x2 Marks]
(i) Departure (ii) Rhumb Line (iii) DMP
(iv) Prime meridian (v) Great Circle
3. Discuss the Mercator projection with advantages and disadvantages of a Mercator Chart. [10 Marks]
4. Find the position arrived in the following starting position
Latitude $50^{\circ} 00.6' N$
Longitude $081^{\circ} 10.4' W$
Course $132^{\circ} (T)$
Distance 290nm [10Marks]

5. Find by Mercator sailing, the course and distance [10 Marks]

From A: Latitude $24^{\circ} 00' N$ Longitude $074^{\circ} 15' W$
To B: Latitude $46^{\circ} 00' N$ Longitude $053^{\circ} 45' W$

Section- B (Voyage Planning) (Marks : 30)

Note: Answer all the question in this section.

All question carries equal marks. (3 x 10 = 30 marks)

6. At 0300 hrs Le Harve Buoy Mo(A) 12 Sec bore $185^{\circ}(T)$ and Cape De Antifer Lt. (Fl 20s 29m) bore 078° . Find Ship's position. From the position at 0300 hrs, find the true course to steer to pass Pte de Barfleur Lt 10 Miles off to port. Find the time when Pte de Barfleur Lt will be abeam if ship's speed was 13 kts. [10 Marks]

7. Write in detail all the types of charts used at sea. [10 marks]

8. (a) Give the chart symbols / abbreviation for the following. [5 x 2 = 10 Marks]

- | | |
|---------------------|--|
| (i) Rock Awash | (ii) Wreck dangerous to surface navigation |
| (iii) Tidal stream | (iv) Current |
| (v) Submarine cable | |
