INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

End Semester Examination December 2017

Programme: B.Sc (Nautical Science)	**Semester:** I
Subject Name: Terrestrial Navigation	**Subject Code:** UG21T3106
Date:18.12.2017	**Maximum Marks:** 70
Time: 3 Hrs	**Pass Marks:** 35

Note: Norrie's Nautical Table, Nautical Almanac and Non-programmable Scientific calculator is permitted. Outline World map to be provided by Examination centre.

Section – A

Question No 1 is Compulsory **5 x 2 = 10 Marks.**

1. Define the following :
   a. Departure, b. Nautical mile, c. Great Circle, d. Equator,
   e. Geographical Mile.

Section – B

Answer any five out of eight questions, 5 x 12 = 60 marks

2. Find the Position arrived if the starting position is
   Latitude 10° 20.0′ N Longitude 060° 20′ E Course 155° (T)
   Distance 300 NM.

3. Explain with simple diagram Gnomonic Projection and the Mercator projection and compare its advantages and the disadvantages.

4. Find by Mercator Sailing, the course and distance between the positions:
   From: Latitude 24° 00′N Longitude 074° 15′W

   To: Latitude 46° 00′N Longitude 053° 45′W.

5. A vessel sailed from lat 27° 12′N, long 178° 42′ E doing 15kts by engines. She steered 067°(C), {Dev.3° E}, for 10 hours. Course was then altered to 096° (C) {Dev.1° E} and this course was maintained for 8 hours. Thereafter she steered, 230° (C), {Dev.3° W} for

another 6 hours. Find the position arrived, if she experienced a current setting 324° (T) at 2.5 knots throughout. Variation 7° W, throughout.

6. Find the Initial Course, Final Course, distance along the great circle track.

   From: Latitude 30° 20. 0′S Longitude 142° 45.0′W

   To: Latitude 50° 40.0′S Longitude 170°30.0′E.

7. Find the Initial Course, Final Course, distance along the Composite circle track.

   From: Latitude 45° 54. 0′S Longitude 170°45.0′E

   To: Latitude 49° 06.0′S Longitude 075°50.0′W. Max lat 55°S.

8.
   a. Define Variation and Deviation (4)
   b. Explain Vertex on a great circle track (4)
   c. If Compass Error is 5° (W) Dev is 5° (E) then how much is the Variation? (2)
   d. If the Variation is 13° (E) Compass Error is 13° (E) what is the Deviation? (2)

9. Indicate the following on the world map :- (12x1 =12marks)

   English Channel, Mediterranean Sea, Black sea, Red sea, Baltic Sea, Gulf of Aden, Wider Caribbean region, Strait of Gibraltar, Great Barrier Reef, Gulf of Mannar, Panama Canal, Suez Canal

****