

**INDIAN MARITIME UNIVERSITY**  
(A Central University ,Government of India)  
**End Semester Examinations June-July 2019**  
**B.Sc.(Nautical Science)**  
**Semester :I**  
**Terrestrial Navigation**  
**(UG21T3106)**

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Date:20-07-2019

Max Marks:70

Time-3 hours

Pass Marks-35

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Note-Question no-1 is compulsory.

Answer any 6 questions from remaining 8 questions(each of 10 marks)  
Use of Nories Nautical Table,Nautical Almanac and Non-Programmable  
Scientific Calculator is permitted.  
Outline of World Map to be Provided by the examination centre.

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1).Define the following. (2x5=10marks)

a)Departure b)Great circle c)Cable d)Compass error e)Meridional parts.

2) (10 marks)

Find the initial and final courses from A( $32^{\circ} 12' N, 018^{\circ} 15' E$ ) to  
B( $05^{\circ} 40' N, 034^{\circ} 20' W$ ).

3) (10 marks)

At 0430 hours, a ship in DR position  $13^{\circ} 55' N, 109^{\circ} 29' W$   
Steaming at a speed of 11 knots,steered the following courses  
Course  $309^{\circ}$  (T) for 01 hour 10 min.  
Course  $352^{\circ}$  (T) for 02 hours 20 min  
Course  $268^{\circ}$  (T) for 02 hours 05 min  
Course  $180^{\circ}$  (T) for 01 hour 25 min  
Course  $110^{\circ}$  (T) for 00hour 30 min  
Current was setting  $060^{\circ}$  (T) at 1.5 knots throughout.Find the ships  
Estimated position(EP) at 1200.

4)

a) What is a Great circle and Small circle ? (5 marks)

b) What is the effect of Polar compression on Nautical Mile? (5 marks)

5) (10 marks)

Find the compass course to steer to make good a true course of  $340^\circ$  if the variation is  $5^\circ\text{E}$  and the deviation is  $6^\circ\text{E}$ .

6) (10 marks)

Two vessels on the Equator were 60 miles apart. Both steered  $180^\circ(\text{T})$  until they reached latitude  $30^\circ\text{S}$ . Find the distance between them on latitude  $30^\circ\text{S}$ .

7) (10 marks)

Find the course and distance from  $12^\circ 14' \text{N } 073^\circ 12' \text{E}$  to  $23^\circ 37' \text{S } 010^\circ 19' \text{E}$ .

8) (10 marks)

Indicate the following on the world Map.

English Channel, Strait of Gibraltar, Mediterranean sea, Baltic sea, Wider Caribbean region, South China sea, Taiwan, Panama Canal, Suez Canal, St Lawrence seaway.

9) (10 marks)

Find the initial course, final course and the distance along the composite Track from A  $51^\circ 20' \text{N } 010^\circ 00' \text{E}$  to B  $52^\circ 00' \text{N } 55^\circ 00' \text{E}$ , having a ceiling latitude of  $53^\circ \text{N}$ .

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