

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

June 2016 End Semester Examinations
B.Sc. (Nautical Science) - 2013 batch onwards
Semester I

Navigation-I (UG21T2107)

Date : 23.06.2016/A.N

Time: 3 Hrs

Maximum Marks: 70

Pass Marks : 35

NOTE: Attempt any SEVEN questions. All questions carry equal marks **7x10=70**

Use of Non-programmable scientific calculator is allowed. Use of Norre's Table and 2008 Nautical Almanac permitted

1. Define the following: (a). Nautical Mile (b). Agonic Lines (c). DMP (d). Natural Scale (e). Compass Rose
2. (a). Box the compass from North to East in the first quadrant with a neat diagram.
(b). Explain Compass Error
3. (a). A vessel travelled 100 miles due East along the parallel of $50^{\circ} 30' N$. If the Longitude of the point she left was $03^{\circ} 50' W$. find her final Longitude.
(b). Two vessels on the equator, were 60 miles apart. Both steered $180^{\circ} (T)$ until they reached latitude $30^{\circ} S$. Find the distance between them on latitude $30^{\circ} S$.
4. (a). A vessel travelled for a distance of 346 miles and changed her Latitude by $4^{\circ} 00'$. If the course had been in the S.E. quadrant, find it using Traverse Tables.
(b). A vessel left position Lat. $41^{\circ} 44' S$. on a course of 158° . Find the distance she had travelled on reaching the parallel of $48^{\circ} 16' S$.
5. (a). On 19th March the observed noon position was $22^{\circ} 55' N$ $131^{\circ} 52' W$ and on the previous day noon position was $21^{\circ} 14' N$ $124^{\circ} 33' W$. Find the distance and track made good noon to noon.
6. A vessel sailed from Lat $36^{\circ} 20' S$ course $236^{\circ} (T)$ and changed her longitude 20° . Find the latitude reached and the distance sailed.
7. (a). Given the ship's head $295^{\circ} (C)$, find the true course if variation. is $6^{\circ} W$. Use Deviation. Card I.
(b). Given the ship's head by compass is $045^{\circ} (C)$, find the true course if variation is $5^{\circ} W$. Deviation. Card I.
(c). Find the compass co. to steer, if the true course is $135^{\circ} (T)$ variation $4^{\circ} E$, deviation card I.
8. (a). Give the chart symbols for the following:
 - i. Wreck dangerous for navigation.
 - ii. Submarine cable
 - iii. Flood Tide
 - iv. Anchoring Prohibited
 - v. Rock awash at chart datum
9. What are the different types of chart projections? Compare Mercator Chart and Gnomonic charts and discuss its advantages and disadvantages.