

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

May-June 2018-END SEMESTER EXAMINATION

B.Sc (Nautical Science)

Semester: V

NAVIGATION V-(UG21T2501)

Time: 3 hours
Date:02-07-2018

Max Marks:70
Pass Marks:35

Note: Use BA English Channel Chart.
Use of Norie's table and Non- Programmable Scientific Calculator Permitted
Deviation card will be provided by exam center-Chart Work-S K.Puri
Deviation Card -1

Answer any SEVEN Questions (7 x 10= 70 Marks)

1. Find the **initial course and the final course** along the Great Circle track between the (10m)

Position

From

Latitude $69^{\circ} 30.0'N$
Longitude $060^{\circ} 50.0'E$

To

Latitude $44^{\circ} 40.0'N$
Longitude $120^{\circ} 20.0'E$

2. Explain Gnomonic and Mercator projection and list its advantages and disadvantages

3. Find the initial course, final course and distance along **the Composite circle track.** (10m)

From

Latitude $45^{\circ} 54'S$
Longitude $170^{\circ} 45'E$

To

Latitude $49^{\circ} 06'S$
Longitude $075^{\circ} 50'W$

If the maximum latitude is $55^{\circ} S$

4. At noon on 14th Dec from position $05^{\circ} 46.0'N$ $080^{\circ} 36.7' E$, course was set to $220^{\circ} (C)$, Dev $1^{\circ} E$, Var $2^{\circ}W$, log 0. At 2000hrs, Engines broke down when the log showed 82. At 2200hrs, Engines were repaired and course was set to $200^{\circ}(C)$ Devnil, Var $2^{\circ} W$, log reset to 0. Ship maintained this course till noon next day when log showed 140. A Current was estimated to set $350^{\circ} (T)$ at 2 knots throughout. Find the EP at noon on 15th Dec. (10m)

5. List the information you will obtain from the following publications:

a) Admiralty Sailing Direction (5m)

b) M S NOTICE (5m)

6. At 1000 hrs the following compass bearing were observed

Cap Levy Lt.Ho	$120^{\circ} (C)$
Cap de la Hague Lt.Ho.	$210^{\circ} (C)$
Alderney Lt. Ho.	$250^{\circ} (C)$

Find the ship's position at 1000 hrs and also the Deviation of the Compass if Variation was $2^{\circ} E$. (10m)

7. a. On a Voyage from London to Liverpool, a ship heading $105^{\circ} (C)$, Anvil Point Lt .Ho. bore $325^{\circ} (C)$ and St.Catherine Point Lt.Ho. bore $048^{\circ} (C)$. Find the ship's position.

b. From this position ,course was set to pass Start Point Lt.Ho. 12miles off, on the starboard side . Find the Compass course to Steer.

c. While on this course , Bill of Portland Lt.Ho. bore $286^{\circ} (C)$ and 30 minutes later, it bore $314^{\circ} (C)$. Find the ship's position at the time of second bearing.

(Variation $13^{\circ} E$, Deviation as per Deviation card I Speed 16knots.)
10marks

8. From a vessel steering $071^{\circ} (C)$ an observation of the sun at 1600 hrs, gave the following results:

D.R. Position Latitude $49^{\circ} 09' N$, Longitude $03^{\circ} 44' W$ True Azimuth 238°
(T) Intercept $8'$ Away.

The vessel continued on her course at 1930 hrs . Casquets Lt was observed bearing 103° (C)The ship's speed was 12 knots and Variation $8^{\circ} W$ Find the vessels position at 1930 hrs. (Deviation Card I) (10m)

9. Write in brief about the following

- a. ALRS (5m)
- b.Sailing Directions (5m)
