

5. Following the position line observation in Question 4, the ship steamed 31 miles on a 280° course under the influence of current setting 060° at 1 kn. until noon, when the latitude by Meridian Altitude was found to be $51^\circ 15' N$.

Find the position of the ship at noon.

CHART WORK.

Paper 4 (2 hours).

- In the western approaches to the Firth of Clyde at 9 p.m. the following bearings by compass were taken. Tory Is. Lt. $S. 54^\circ W$. Fanad Pt. Lt. $S. 16^\circ E$., Inishtrahull Lt. $S. 58^\circ E$.
Find the position of the ship and from it set the compass course to steer (using Dev. Card 1) to pass Inishtrahull five miles distant to the Southward, making allowance for tide setting 070° at 1 knot, and estimate the time at which Inishtrahull will bear 180° . Ship steaming 10 knots.
- Whilst proceeding with ship's head on the course as given in answer to Question (1) Inishtrahull Lt. bore $S. 15\frac{1}{2}^\circ W$. by compass and Oversay Is. Lt. bore $N. 87\frac{1}{2}^\circ E$. by compass.
Find the position of the ship and from it set the compass course (using Dev. Card 1) to pass Altacary Head Lt. three miles distant.
- Whilst with ship's head on the compass course set in Question (2) Oversay Is. Lt. bore $N. 68\frac{1}{2}^\circ E$. by compass and 50 mins. later (ship steaming 10 knots) it bore $N. 36^\circ E$. by compass.
Find the position of the ship.
- What is the object of the Fixed Light and of the Red Light sectors of Fanad Point Lt.?
- What special precaution should be observed in the vicinity of Hunter's Rock in approaching L. Larne?

CARGO WORK AND ELEMENTARY SHIP CONSTRUCTION.

Paper 5 (3 hours).

- If you sounded a double bottom tank and found 16 ft. of water, what action should be taken?
- What is a Displacement Scale?
State its uses.
- How is the draft of a vessel affected when passing from salt water to fresh water?
Give reason.
The loaded draft of a vessel is 22 ft. 6 in. and the fresh water allowance $5\frac{1}{2}$ in. The vessel is loading in dock, density of water 1016. Calculate drafts forward and aft, to which you would load, vessel to be 6 in. by the stern.
- What is meant by—
(a) Centre of Gravity,
(b) Centre of Buoyancy?
How is the Centre of Gravity of a ship affected by placing a heavy weight on deck?
- What are deep tanks, and why are they fitted?
- Give a brief description of—
(a) Deck Stringer.
(b) Panting Beam.
(c) Beam Knee.
- What is a bilge keel? Give a rough sketch.
- What precautions must be taken when loading general cargo for several ports?
- State fully how a cargo of rice is stowed in a ship.

ENGLISH.

Paper 6 ($1\frac{1}{2}$ hours).

Write to a person who has no knowledge of the sea a general explanation of the Regulations for the Prevention of Collisions at sea.