

- d.* Determine the initial Great Circle course, and the distance from one given position to another, the latitude and longitude of vertex, the longitude from vertex, and the latitudes and longitudes through which the Great Circle will pass; laying the track, composite or otherwise, down on a Mercator's chart, and explaining briefly how the course and distance from one point to another on this track is then found.

This problem may, subject to the decision of the Examiner, be solved either by calculation, or by any tables, graphic method, or Great Circle chart known to and preferred by the candidate, and it will usually be set so as to leave the choice of method to the candidate.

- e.* Find the magnetic bearing of any fixed object when at sea or at anchor from bearings of the object taken with the ship's head on equidistant compass-points, and compute the deviation therefrom.

Construct a deviation-curve upon a Napier's diagram which will be furnished by the Examiner, and show that he understands its practical application.

Give satisfactory written and oral answers to certain practical questions as to the effect of a ship's iron upon the compasses, and the method of determining the deviation; and show how to compensate the deviation by magnets and soft iron by the aid of Beall's compass deviascope.

- f.* Questions on ship-construction, naval architecture, and stability;

He will be examined orally on the following subjects:—

- g.* Law as to the engagement, discharge, and management of the crew, and the entries to be made in an official log-book.
h. How to prevent and check an outbreak of scurvy on board ship.
i. Law as to load-line marks, and the entries and reports to be made respecting them.
j. Invoices, charter-party, bills of lading, Lloyd's agent, nature of bottomry, bills of exchange, surveys, averages, &c.
k. Prevailing winds and currents of the globe.
l. Trade routes.
m. Tides.

58. Seamanship.—The candidate will be required to show a knowledge of the following subjects in so far as those subjects relate to steamships:—

- a.* Construction of rafts and jury-rudders.
b. Resources for the preservation of the ship's crew in the event of wreck.
c. Management of a ship in heavy weather.
d. Rescuing the crew of a disabled ship.
e. Steps to be taken when a vessel is on her beam-ends, or in any danger or difficulty, or disabled or unmanageable and on a lee shore.
f. How to proceed when placing a ship in dry dock and directing repairs, and when putting into port in distress with damage to cargo and ship; and the procedure attendant thereto.
g. How to use steam appliances in the event of fire.
h. Economy in coal-consumption.
i. Best arrangement for towing vessels under different circumstances.
j. Any questions appertaining to the management of a steamship which the Examiner may think necessary to ask.

59. Additional Seamanship for a Candidate for an Ordinary Certificate.—A candidate for an ordinary certificate must, in addition to the foregoing requirements for a steamships certificate, understand and give satisfactory answers to the subjects in seamanship enumerated in subparagraphs (*a*) to (*f*) inclusive in so far as all those subjects relate to both wooden and steel sailing-ships, and to the following subjects:—

- k.* Heaving a keel out.
l. Any questions appertaining to the management of a wooden or steel sailing-ship which the Examiner may think necessary to ask.