

38. **Examination in Navigation.**—A candidate for an ordinary master's certificate will, in addition to the work prescribed for the grades of second and first mate that may be given to him, be required—

- (a.) To write an essay on some technical subject.
- (b.) To find the latitude by the altitude of the Polar Star at any time.
- (c.) To find the latitude by the meridian altitude of the moon.

(NOTE.—The candidate will be required to give a figure and explanation for each problem worked, and give a written explanation of any of the terms used in navigation or nautical astronomy that may be asked.)

- (d.) To 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 to compute the deviation therefrom; to construct a deviation-curve upon a Napier's diagram which will be furnished by the Examiner, and show that he understands its practical application; to give satisfactory written and oral answers to certain practical questions as to the effect of the ship's iron upon compasses, and the method of determining the deviation, and to show how to compensate the deviation by magnets and soft iron by the aid of Beall's compass deviascope.
- (e.) Questions on ship-construction and naval architecture, and a few elementary questions on stability.

He will be required to answer *viva voce* questions on the following subjects:—

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

39. **Examination in Seamanship.**—In addition to the qualifications required for the grades of second and first mate, an ordinary master will be required to show a knowledge of the following subjects:—

- (a.) Construction of jury-rudders for both wooden and iron vessels, also rafts.
- (b.) Resources for the preservation of the ship's crew in the event of wreck.
- (c.) Management of ship in heavy weather.
- (d.) Rescuing the crew of a disabled vessel.
- (e.) Steps to be taken when a ship is on her beam-ends, or in any danger or difficulty, or disabled or unmanageable and on a lee shore.
- (f.) Heaving a keel out.
- (g.) 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.
- (h.) Any other question appertaining to the management of a ship which the Examiner may think it necessary to ask.
- (i.) Also questions on the additional subjects which are specified in the rules of examination for masters' certificates of competency for foreign-going steamships. (See para. 52.)

**SPECIAL REGULATIONS RELATING TO THE EXAMINATION OF MASTERS AND MATES, TO APPLY ONLY WHERE THE CANDIDATE HAS SERVED AN APPRENTICESHIP IN AN APPROVED SEAGOING TRAINING-SHIP WITH A VIEW TO PROMOTION IN THE SERVICE OF THE COMPANY TO WHICH THE TRAINING-SHIP IS ATTACHED.**

40. (1.) **Recognition of Service on the Training-ship as qualifying for Examination for a Certificate as Second Mate.**—The training-ship must be a seagoing, cargo-carrying, square-rigged sailing-vessel, and the course of study and practical training which the cadet receives must be approved by the Board of Trade or the Marine Department.

At the end of four years' service in the training-ship the cadet will be qualified for examination for a certificate as second mate, provided (i) he can produce a testimonial to the effect that both his conduct