

- h.* Find the latitude by ex-meridian altitude of the sun or a star.
 - i.* Find the line of position and the true bearing of the sun, and the ship's position. (Candidates will, unless it is otherwise stated in the problem, be allowed to solve this problem by any method they may choose, provided it is correct in principle; but occasionally they will be required to solve it by Sumner's method or by the Marc St. Hilaire method of position lines.)
 - j.* Answer certain questions on meteorology.
- Candidates will be examined orally in the following subjects:—
- k.* Keeping a ship's log-book.
 - l.* Calculating the capacity of a given bunker or hold.
 - m.* Calculating a freight and its commissions.
 - n.* Measurement and equipment of ship's lifeboats, and the number of persons allowed to be carried in each class of boat.
 - o.* Testing of lifebuoys and life-jackets.
 - p.* Screening of ship's side lights.
 - q.* More advanced questions on the main part of a ship's construction and general use.
 - r.* Elementary questions on stability.

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

- a.* Shifting large spars, rigging sheers, taking lower masts in and out.
- b.* Mooring and unmooring ship; keeping a clear anchor; carrying out an anchor.
- c.* Management of a ship in stormy weather.
- d.* Obtaining a cast of the deep-sea lead in heavy weather.
- e.* Rigging purchases for getting heavy weights, anchors, machinery, &c., in and out.
- f.* Ventilation of holds and stowage of explosives.
- g.* Stowage of grain cargoes.
- h.* Disposing various kinds of cargo and weights in a stiff and in a tender vessel.
- i.* Rigging a sea-anchor, and what means to employ to keep a ship disabled or unmanageable out of the trough of the sea, and to lessen her lee drift.
- j.* Effects of the screw-race upon the rudder; and the effect produced on the direction of the head of the ship by going ahead (astern) with a right- (left-) handed screw when the rudder is ported (starboarded); also, the effect of twin screws under the same conditions, and when going ahead with one and reversing the other, &c.
- k.* How to turn a steamship short round.
- l.* Any other questions appertaining to the duties of a first mate of a steamship which the Examiner may think necessary to ask.

56. 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 (*i*) inclusive in so far as all those subjects relate to both wooden and steel sailing-ships, and to the following subjects:—

- m.* Casting a sailing-ship on a lee shore.
- n.* Securing masts of a sailing-ship in the event of accident to bowsprit.
- o.* Accidents on a sailing-ship and how to deal with them.
- p.* Any questions appertaining to the duties of the first mate of a sailing-ship which the Examiner may think necessary to ask.

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57. Navigation.—In addition to the following requirements the candidate will be examined in the navigation and seamanship prescribed for the grades of both second mate and first mate.

- a.* Write an essay on a technical subject.
- b.* Find the latitude by an altitude of the Pole star at any time.
- c.* Find the latitude by meridian altitude of the moon.