

MINISTRY OF TRANSPORT AND COMMUNICATIONS

Rules relating to the Examination of Master, First Mate and Second Mate Certificates of Competency Foreign Going

No.9

YANGON, dated the 23rd February 1974

[Amendment : 18.06.1989, 24.09.1992]

No.9.- In exercise of the powers conferred by section 21 of the Myanmar Merchant Shipping Act, and in supersession of the Ministry of Transport and Communications Notification No.293, dated the 13th June 1970, the Chairman of the Revolutionary Council of the Union of Myanmar makes the following rules for the examination of Master, First Mate and Second Mate Certificates of Competency Foreign Going.

CHAPTER I

MISCELLANEOUS

1. These rules may be called **the Rules relating to the Examination of Master, First Mate and Second Mate Certificates of Competency Foreign Going.**
2. In these rules "Appendix" means appendix to these rules.

CHAPTER II

GENERAL

3. Examination of Foreigner.- No foreigner may be examined for the Certificate of Competency as Master, First Mate or Second Mate Foreign Going.
4. Proof of Citizenship.- Every candidate for the Certificate of Competency Foreign Going will be required to produce proof of citizenship of the Union.
5. Days and places of examination.- The days and places at which examinations are held will be fixed and published by the Department of Marine Administration from time to time as shown in Appendix A.
6. How to apply.- Candidates for examination should fill up a form of application prescribed by the Department of Marine Administration as shown in Appendix B. The form properly filled in, together with the chalan for the examination fee and candidate's testimonials, discharges, birth certificates, first aid certificates, watch-keeping certificates and any other relevant documents should be lodged with the Office

of the Department of Marine Administration, Yangon, at least ten days before the day of examination. It is important that this procedure should be observed, as discharges, testimonials and all other relevant documents may have to be forwarded to the authorities concerned for verification and in the absence of such verification, the candidate cannot be examined. Candidates will be required to explain to the satisfaction of the Examiner any gaps in their service.

7. How to apply in special cases.- In cases where a candidate is in doubt whether or not his service complies with the requirements of these rules and wishes to submit his case for special consideration, all certificates, discharges, testimonials, Watch-keeping certificates and any other relevant documents together with the form of application properly filled in should be submitted to the Examiner of Masters and Mates or Director, Nautical Surveys, Department of Marine Administration.
8. Enquiries.- All enquiries regarding Examinations and references mentioned in these rules should be made to the Examiner of Masters and Mates or Director, Nautical Surveys, Department of Marine Administration, Yangon. The point on which the information is sought should be clearly stated.
9. Application.- Particulars of Sea Service.- A candidate's eligibility for examination will depend (among other things) upon the amount of sea service which he has performed on board various vessels in which he has been employed. It is therefore imperative that the particulars should be accurately filled in the form of application.
10. Misrepresentation.- Candidates who present themselves as having served a longer period of sea service or watch-keeping service than actually performed on board the vessel render themselves liable to prosecution.
11. Attempted Bribery.- If a candidate offers a gratuity to any officer or staff of the Government, he will be regarded as having committed an act of misconduct and will be rejected. He will not be allowed to be examined again until a period of at least twelve months has elapsed.
12. Testimonials required.- Testimonials as to character, including sobriety, and as to experience and ability on board ship for at least the last twelve months of sea service preceeding the date of application to be examined, will be required of all candidates.
13. Unsatisfactory Conduct.- Candidates who, after having signed articles, have neglected to join their vessels or who after having joined have deserted their ships or who have been found guilty of gross misconduct on board will be required to produce satisfactory proof of two years' subsequent service and good conduct as sea, unless the Government, after investigation, should see fit to reduce the time.

14. Deafness and other physical and mental illness.- If in the course of the examination the Examiner finds that a candidate is afflicted with deafness, with an impediment in the speech or with some other physical or mental infirmity, and upon further investigation is satisfied that the degree of infirmity is such as to render the candidate incapable of discharging adequately the ordinary sea-going duties as Master, First Mate or Second Mate, he will not allow the candidate to complete the examination and will return the examination fee. Every such case will be reported to the Government.

If the candidate subsequently produces a medical certificate to the effect that his hearing, speech or physical or mental condition has improved or is normal, the Government will consider allowing the candidate to sit again for examination.

15. Knowledge of Myanmar and English language.- Candidates must prove to the satisfaction of the Examiners that they can speak and write Myanmar and English languages sufficiently well to perform duties required of them on board the Myanmar vessels at home and abroad.

<Amendment 18.06.1989>

16. Issue of Certificates.- If the candidate passes the whole of examination he will receive a form as shown in Appendix C authorizing the Director- General to whom it is addressed to issue the Certificate of Competency in a form shown in Appendix D, E or F. If the candidate is partially successful or wholly unsuccessful, he will receive from the Examiner a form as shown in Appendix G giving a record of his passing or failing as the case may be. The candidate must retain this form and produce it to the Examiner when he next presents himself for examination.

17. Insufficient service.- If after a candidate has passed the examination it is discovered on further investigation that his service is insufficient to entitle him to receive the certificate for which he has passed, the certificate will not be granted to him. If, however, the Government is satisfied that the error in the calculation of the candidate's service did not occur through any fault or wilful misrepresentation on his part, he may either return the fee to him or place it to his credit. The certificate will not be granted until the candidate has made up his deficiency in service and has been re-examined in all subjects, but the Government may, at its discretion dispense with the re-examination.

18. Certificate of Service.- An officer who has attained the substantive rank of lieutenant in the executive branch of the Myanmar Navy may qualify for the award of a certificate of service as Master of a foreign-going ship without examination provided he is able to prove seven years' sea service in the sea-going

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19. Examination of Officers and Ratings of the Myanmar Navy.- Service in sea-going ships of the Myanmar Navy performed by Naval Officers and by ratings may be accepted as qualifying sea service for the purpose of admission to examinations for the Certificate of Competency Foreign Going, but the value of such service must be assessed in each case by an Examiner. Applications to be examined should be made in accordance with Rule 6, except that naval officers and ratings should furnish a statement of service together with testimonials in respect of all sea-going appointments and of the last active appointment duly certified by the Department of the Vice-Chief of Staff, Defence Services (Navy).

<Amendment 18.06.1989>

20. Copy of lost certificate.- An applicant for a certified copy of a lost Certificate of Competency should complete a form of application as shown in Appendix II, giving necessary particulars and hand it to the Director, Nautical Surveys, Department of Marine Administration, Yangon. A declaration as to the circumstances in which the certificate was lost must be made by the applicant before the Director, Nautical Surveys, who will state on the application whether a fee is to be charged or not. No fee will be charged if the applicant can prove that the certificate was lost through shipwreck or fire on board ship.
21. Radar Observer Certificate.- No candidate for a Certificate of Competency as Second Mate Foreign Going will be issued with the certificate unless or until he produces a Certificate of Proficiency as Radar Observer in Merchant Ships in a form as shown in Appendix I. A Radar Observer Certificate shall be valid for the purpose of this Rule if obtained after the completion of three years' qualifying sea service reckoned in accordance with the rules laid down in Chapter IV.

Subject to an overall maximum of fifteen months' remission, a maximum period of one week will be allowed to account as qualifying sea service in respect of attendance at an approved radar observer course. Those candidates who intend to take the course after they have passed the examinations for the Certificate of Competency may anticipate this remission when sea service is assessed for the purpose of admission to the examination for the Certificate of Competency.

A list of schools at which approved Radar Observer courses are held and authorized to issue with Radar Observer Certificates are shown in Appendix J.

If a candidate is issued with a Radar Observer Certificate after completing successfully the Radar Observatory course at one of the Foreign Radar schools approved by the respective governments, on application to the Director, Nautical Surveys, Department of Marine Administration, such certificate may be accepted for the purpose of this Rule with the approval of the Government.

22. First Aid Certificate-

- (a) Every candidate for the Master, First Mate or the Second Mate Certificate of Competency must produce a certificate issued by the Government recognized body or association to the effect that he has passed an examination in First Aid to the injured.
- (b) The certificate must be an adult certificate, i.e., obtained by the candidate when sixteen years of age or more, and the qualifying examination or re-examination must have been passed not more than three years before the date of the examination for the Certificate of Competency.
- (c) If the candidate does not possess such a certificate of proficiency in First Aid, he should apply to the Port Health Officer, Yangon, some time before he wishes to sit for examination for a Certificate of Competency. The Port Health Officer will inform him of the available facilities for the instruction and examination of candidates in First Aid.
- (d) Certificate of Proficiency in First Aid issued by any other reputable body or association may be accepted for the purpose of clause (a) provided it complies with the other requirements of this Rule.

23. Sight Tests-

- (a) Every candidate for a Certificate of Competency must pass the prescribed sight tests before he can be issued with a certificate. If circumstances make it necessary for him to be examined in navigation and seamanship before undergoing the sight tests, such examination will be cancelled if he fails to pass either of the sight tests. A pass certificate in the sight tests is valid for six months.

Detailed information about the conduct of the sight test examination and the standards required is contained in Appendix K.

Letter Test-

- (b) Every candidate for a Certificate of Competency must pass the letter test.

Lantern Test-

- (c) Every candidate for a Certificate of Competency must pass the lantern test or produce a valid pass certificate in the sight tests when seeking to obtain his Second Mate Certificate of Competency. He will not be required to undergo the lantern test on any subsequent occasions.

Examination in Sight Tests only-

- (d) The sight tests are open to all persons serving or intending to serve in merchant ships or fishing vessels and all such persons are advised to take the earliest opportunity of ensuring that their vision is up to standard. Any such person wishing to undergo the tests should make an application to the Examiner for Mates and Masters, Department of Marine Administration, Yangon, and pay a fee of Kyat two.

CHAPTER III

**QUALIFICATIONS REQUIRED FOR THE MASTER, FIRST MATE, AND
THE SECOND MATE CERTIFICATES OF COMPETENCY FOREIGN GOING INCLUDING THE SYLLABUS OF THE
EXAMINATION**

24. Qualifications required for the Second Mate Foreign Going

A candidate must be not less than twenty years of age and must have served four years at sea on foreign-going ships or equivalent service as provided for under Chapter IV.

25. Syllabuses –

- (a) In each paper throughout the syllabuses, questions may be set combining one or more paragraphs. Candidates should demonstrate their understanding of their work by means of sketches drawn with reasonable accuracy. Answer to problems in Practical Navigation should, where appropriate, be accompanied by a figure drawn reasonably to scale.
- (b) In the paper on Practical Navigation, total correction of altitudes by means of tables may be used. In the paper on Principles of Navigation each correction must be shown separately.
- (c) The papers on Principles of Navigation and Mathematics are intended to test the candidate's grasp of fundamental technical ideas and processes required in his work at sea. Mathematical Proofs of formulae are not required.

Syllabus for Second Mate Foreign Going

26. Paper I (Written)-

General Ship Knowledge (3 hours)

- (a) The names of the principal parts of a ship. General ideas on ship construction. The candidates will be expected to show his practical acquaintance with longitudinal transverse framing, beams and beam knees, Latertight bulkheads, hatchways, rudders and steering gear, shell plating double bottom and

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bilges, stern frames, propellers and propeller shafts, stern tubes, sounding pipes, air pipes, and general
pumping arrangements. The stiffening and strengthening to resist panting and pounding. Cause and
prevention of corrosion in a ship's structure.

- (b) The meaning of the terms Block Co-efficient, Displacement and Deadweight. Use of Displacement and
Tons per inch scales to determine weights of cargo etc., from draughts. Effect of density of water on
draught. Fresh water allowance. The laws of floating bodies. The meaning of the terms Buoyancy and
Reserve Buoyancy. General understanding of Centre of Gravity and Centre of Buoyancy and the effect
of adding or removing weights. Metacentric height. The danger of slack ballast tanks.
- (c) Rigging a ship for loading and discharging cargo and the use of derricks and winches. The stowage and
dunnaging of cargoes including bulk cargoes. Protection against damage by sweat. Bulk oil cargoes.
Calculations of capacities taken up by part cargoes and space remaining. Conversion of weight
measurement of cargo into space measurement and vice versa. Elementary ideas on the making and
use of cargo plans. Ventilation system of holds and tanks.
- (d) The names and functions of various parts of a ship's lifeboat. The type of construction. Capacity,
buoyancy and number of persons. Care and maintenance of lifeboat equipment, lifebuoys, lifejackets,
line throwing appliances, fire appliances, lights and sound signals.

27. Paper 2 (Written)-

Chartwork and Pilotage (2 hours)

- (a) Given the Variation and table of Deviations to convert True Course into Magnetic and Compass Courses
and vice versa. To find the compass course and distance between two positions. The effect of current
on speed. Allowance for leeway. Given compass course steered. The speed of the ship and the
direction and rate of the current, to find the true course made good. To find the course to steer
allowing for a current.
- (b) To fix the ship's position on a chart by simultaneous cross bearings, bearing and range or by wireless
cross bearings applying the necessary corrections. To fix the ship's position by bearings of one or more
objects with the run between, allowing for a current and to find the distance at which the ship will
pass a given point. To fix the ship's position by horizontal sextant angles.
- (c) The use of clearing marks and horizontal and vertical danger angles.

- (d) To find the time and height of high and low water at a Standard Port (Admiralty Tide Tables). The use of tables or diagrams to find the height of tide at any given time and thence the approximate correction to be applied to soundings or to charted heights of shore objects.
- (e) Candidates will be examined orally on the information given on a chart or plan, particularly about buoys, lights, depths and nature of bottom, contour line, tides and tidal streams, Recognition of the coast. The intelligent use of Sailing Directions. Chart correction.

28. Paper 3 (Written)-

Practical Navigation (3 hours)

- (a) Practical Problems on Plane, Parallel and Mercator Sailing.
- (b) The use of the Traverse Tables to obtain the position of the ship at any time, given compass courses and errors and the run recorded by log or calculated by time and estimated speed, allowing for the effects of wind and current, if any.
- (c) To find the latitude by Meridian Altitude of the Sun or a Star. Latitude by an observation of Polaris.
- (d) From an observation of the Sun or Star near the Meridian to find the position line and the latitude through which it passes in a given longitude.
- (e) To determine the position line and a position through which it passes from an observation of the Sun or a Star out of the Meridian.
- (f) To find the ship's position at the time of the second observation by the use of position lines obtained from two different observations and thence the noon position if required.
- (g) To find the True Bearing of the Sun or Star and the deviation of the compass for the direction of ship's head.

29. Paper 4 (Written)-

Mathematics (2 hours)

- (a) Algebra, Addition, Subtraction, Multiplication, Division, Law of Indices, insertion and removal of brackets, Simple equation problems. Development of Formulae, transposition and evaluation. Simultaneous equations of the first order involving two unknown problems. Simple factors. Fractions. The solution of the Quadratic Equation. Graphs. Axes of reference Co-ordinates. Construction and reading of graphical diagrams, e.g., weather statistics and displacement curves. Problems on graphs. The ideas of ratio, proportion and variation and the application to simple problems.

- (b) Common Logarithms.- The practical use of logarithm to base 10 : their use in simple calculations involving multiplication, division, simple powers and roots.
- (c) Mensuration, Areas and perimeters of rectangle, triangle, and circle. Volumes and surface areas of box shaped bodies, cylinders, wedges and spheres. Practical applications e.g. weight of general cargo of various shapes; volumes of holds, bunkers and tanks; weight of contents.
- (d) Practical Geometry.- The construction of plane triangles. Congruence of triangle. The right- angled triangles. Exterior angle equal to the sum of the interior opposite angles. Sum of angles in a triangle. Similar triangle and ratio of corresponding sides. Parallel lines and transversal. Properties of circle, chords and tangents. Angle in a semi-circle; angle subtended by any chord of a circle. Forces, resultant forces and their components. The vector diagram.
- (e) Trigonometry.- Measurement of angles, Circular measure Trigonometrical ratios up to one complete revolution. Haversine. Simple relationship between ratios. Complementary and Supplementary angles and their ratios. Simple Identities. Solution of right- angled and oblique-angled triangles including practical problems based thereon. The use of the Traverse Tables for solution of right-angled triangles. Elementary properties of spherical triangles. Solution of spherical triangles (given three sides or two sides and the included angle). Solution of right- angled and quadrantal spherical triangles.

30. Paper 5 (Written)-

Principles of Navigation (2 hours)

In this paper candidates may be asked to draw a figure reasonably to scale and to state the projection used.

Candidates will be required to have a general understanding of the following: -

- (a) The shape of the Earth, Poles, Equator, Meridians, Parallels of Latitude. The position of a place fixed by its latitude and longitude. Direction, bearing, distance, units of measurement. Difference of latitude, difference of longitude, departure, middle latitude and meridional difference of latitude and the relationships between them. Great and small circles on a sphere, Shortest distance on the surface of a sphere between two points.
- (b) The celestial sphere, celestial poles, celestial meridian above and below poles, celestial equator, celestial horizon, zenith, prime vertical, circle of altitude.
- (c) Solar system. The movement of the Earth and other heavenly bodies. Mean Sun. Ecliptic. First point of Aries. Declination. Sidereal Hour Angle. Azimuth. Rising and setting of heavenly bodies. Length of day

and night. Twilight. The position of a heavenly body on the celestial sphere both with and without reference to the observer, i.e., Azimuth with Altitude or Declination with Sidereal Hour Angles or Local Hour Angle. Recognition of stars of the 1st Magnitude by reference to the Principal Constellations.

(d) Time.- Greenwich and other Standard Times. Mean time. Apparent time. Sidereal time. Equation of Time. Relationship between longitude and time.

(e) Hour angle of a heavenly body in time and in arc. Greenwich Hour Angle of Sun, Moon, Planets and Aries. Sidereal Hour Angle of a star.

(f) Correction of Sextant altitude, Dip, Refraction, Horizontal Parallax, Parallax in altitude, Semi- Diameter and augmentations.

(g) Geographical position of a heavenly body. A circle of position on the earth and its practical application, i.e., position line, Intercept.

(h) Magnetic Meridian.- Variation and Deviation.

(i) The simple properties of Mercator Chart, Longitude and Latitude scales. The measurements of distance. Rhumb Lines. Meridional Parts.

(j) Chronometers, Management and care, winding, rating and comparing.

31. Paper 6 (Written)-

(a) **Myanmar (1(1/2) hours)**

(b) **English (1(1/2) hours)**

The papers will be designed to test the candidate's ability to write clear and grammatical Myanmar and English with due attention to spelling, legibility and neatness. It will be in no sense a test of technical knowledge. These papers may consist of an essay, a precise or an exercise in letter writing.

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32. Oral and Practical -

(1) (a) Rigging of ships.- Strength of rope including wire ropes. Rigging purchases of various kinds and knowledge of power gained by purchases. Knotting and splicing with strict reference to current practice. Seizings, racking, chain stoppers, etc.

(b) Sending topmasts up and down.

(c) Bending, setting and taking in lifeboat sails, Management of boats under oars or sails and in heavy weather. Beaching or landing. Coming alongside.

- (d) Helm Orders.- Conning the ship. Effects of Propellers on the steering of a ship. Stopping, going astern and manoeuvring. Turning a steam ship short round. Emergency manoeuvres. Man overboard.
- (2) (a) Marking and use of ordinary lead line.
- (b) Use and upkeep of mechanical logs and sounding appliances.
- (c) Use and upkeep of engine room and other telegraphs.
- (d) Rocket and line throwing apparatus.
- (3) (a) Anchors and cables and their use and stowage. Bringing a ship to a single anchor in an emergency.
- (b) Knowledge of use and maintenance of deck appliances and steering gear.
- (c) The use of life-saving appliances.
- (d) The use of Fire appliances including the Smoke Helmets.
- (4) (a) Preparations for getting under way. Duties prior to proceeding to sea, making harbour, entering a dock. Coming alongside and securing to a buoy, with special reference to the after end of a ship.
- (b) Keeping an anchor watch. Dragging anchor.
- (c) Duties of officer of the watch. Use of compass to ascertain risk of collision.
- (5) (a) A full knowledge of the content and application of the Regulations for Preventing Collisions at Sea. (Candidates will not be placed in the position of handling a sailing ship, but will be expected to recognise a sailing ship's lights and to have a knowledge of her possible manoeuvres according to the direction of the wind).
- (b) Distress and Pilot signals; penalties for misuse.
- (c) Uniform system of buoyage; work marking system.
- (d) A knowledge of the contents of the Government Book of Merchant Shipping Notices and the use of the Admiralty Notice to Mariners.
- (6) (a) To read and understand a barometer, thermometer, hydrometer and hygrometer. (The instruments supplied by the Meteorological office will be taken as standard.)
- (b) To use an azimuth mirror, pelorus (bearing plate) or other instrument for taking bearings.
- (c) To use a sextant for taking vertical and horizontal angles; to read a sextant both on and off the arc.
- (d) To correct a sextant into which has been introduced one or more of perpendicularity, side or index errors.
- (e) To find the index error of a sextant.

(f) To check chronometer by signal made by buzzer or other method; to compare two chronometers.

(7) The Examiner may ask the candidate questions arising out of the written work, if he deems it necessary on account of weakness shown by the candidate.

33. Signals.- To send receive signals in:

- (a) British Semaphore up to eight words per minute.
- (b) Morse Code by flash lamp up to six words per minute.
- (c) International Code of Signals.

Detailed information regarding the standards required is contained in Appendix I ..

34. Qualifications required for First Mate Foreign- Going.- A candidate must be not less than 21(1/2) years of age and must have served five and a half years at sea on foreign-going ships or equivalent service as provided for under Chapter IV. This period of service must include not less than eighteen months on a foreign going ship in a capacity not lower than third of three watch-keeping officers whilst holding a certificate as Second Mate Foreign Going. Watch keeping service performed on home or coasting trades may be accepted at the equivalent rates as provided in Rule 55 to a maximum period of 6 months. For interpretation of "Watch-keeping service" see Rule 57.

Syllabus for First Mate Foreign Going

35. Paper 1 (Written)-

Practical Navigation (3 hours)

This paper may include questions on the syllabus for Second Mate, extended to include Moon and Planets:-

- (a) To calculate the approximate time (to the nearest minute) of the meridian passage of a heavenly body, to calculate an approximate altitude for setting the sextant to obtain the Meridian Altitude of a heavenly body. To find the latitude by the Meridian Altitude of a heavenly body.
- (b) To find the direction of the position line and a position through which it passes from an observation of a heavenly body near or out of the meridian.
- (c) To obtain the ship's position by the combination of any two observations with or without run.
- (d) To calculate the initial course and the distance on a Great Circle or Composite Great Circle track between two positions and to determine one or more positions on the track.

36. Paper 2 (Written)-

Chart Work and Pilotage (2 hours)

In addition to the syllabus for Second Mate, questions on the following may be asked either in the written or oral parts of this paper:-

- (a) Distance of sighting lights, distance from a point of land of known height.
- (b) Construction and use of a line of soundings. The use of a single position line in approaching the coast.
The use of Wireless Beacons.
- (c) To find the times and heights of high and low water at a Secondary Port (Admiralty Tide Tables) by the use of Tidal Differences.
- (d) Candidates will be examined orally on the reliability of charts. Selection of suitable points for bearings.
Approaching an anchorage and entering narrow waters. Landfalls in thick and clear weather.
- (e) The candidates may be examined orally or practically on the use of a Gnomonic Chart and the transfer of a Great Circle or Composite track from such a chart to a Mercator Chart and on the use of Lattice Charts.

37. Paper 3 (Written)-

Ship Construction and stability (3 hours)

- (a) A general knowledge of the Principal structural members of a ship. The proper names of the various parts. Midship sections of Single deck, Tween deck and Shelter deck ships and Bulk oil carriers. Functions, construction and stiffening of watertight bulkheads, including collision bulk-head. Stern frame and stem and how secured. Rudders and the methods of attachment. Construction, stiffening and closing arrangements of hatchways. Hawse-pipes and how secured. Rivets and riveting. Testing a line of rivets. Testing of tanks and other watertight work.
- (b) Stresses and strains in ships in a seaway or due to loading and ballasting. A knowledge of those parts of a ship specially strengthened to withstand such stresses where damage by excessive corrosion is liable to occur.
- (c) Ability to set out in a clear manner a report on damage sustained during a voyage.
- (d) Buoyancy and Reserve Buoyancy.- The righting couple when a ship is inclined by external force.
Transverse and Longitudinal Metacentric Height. Initial Stability and its limitation to small angles of inclination. The computation of areas by Simpson's First and Second Rules and the Five- eight Rule.
- (e) Determination of Centre of Gravity of a ship in a new condition, the Centre of Gravity in the old condition being given. The effect on the position of the Centre of Gravity of adding removing or shifting weight. Stiff and tender ships.

Change in stability during a voyage. Effect of a shift of cargo or solid ballast.

The danger of "free surface" of liquids (without proofs or calculations).

(f) Change of trim.- (M.C.T 1" and C.F. given).

(g) Use of stability curves and data supplied to a ship.

38. Paper 4 (Written)-

Meteorology (2 hours)

- (a) The principles of the barometer, Mercurial and Aneroid, Marine Mercurial barometer. How to read and reduce the readings to standard datum. The use of the Gold slide. Barograph.
- (b) The principles of the thermometer and hygrometer and their uses at sea.
- (c) The principles and use of the hydrometer.
- (d) A knowledge of the distribution of mean pressure and the prevailing winds and current systems of the globe. Relationship between pressure distribution and wind. Buys Ballot's Law.
- (e) The characteristics of, and weather associated with the principal pressure system, e.g. anticyclones depressions. Permanent and semi-permanent anti-cyclones and depressions and their effects, e.g. Trades, Monsoons.
- (f) Tropical revolving storms, their localities, seasons and tracks. Rules for avoiding tropical storms. Use of barometric observations at a single station in conjunction with weather signs.
- (g) Water vapour in the atmosphere, evaporation, condensation, precipitation, meaning of saturation relative humidity, formation of clouds, fog and mist.
- (h) Anabatic and Katabatic Winds. Land and Sea Breezes.
- (i) The beaufort wind scale and weather notation in use at sea.
Method of estimating direction and force of wind at sea.
- (j) A knowledge of the types of weather messages adopted by the International Meteorological Organization which are available to shipping. Coding and decoding messages contained in Part V and VI of Weather Messages for Shipping.

39. Paper 5 (Written)-

Ship Maintenance, Routine and Cargo Work (3 hours)

- (a) Keeping a ship's log (Mate's log).
- (b) Organization of crew for routine, maintenance and emergency duties.

- (c) Inspection and maintenance of the ship and her equipment, e.g. bulkheads, double bottoms, deep tanks, bilges, pipe lines, strums, rudder, anchors and cables and steering gear. Drainage of holds and tanks. Drydocking routine.
- (d) Properties and uses of paints and other protective covering. Scaling and painting. Treatment of woodwork. Cement work.
- (e) Indents and stores. Repair lists.
- (f) Simple calculations of stresses in spans, derricks, topping lifts, etc. Strength of ropes, wire ropes and chains. Various types of ropes, wire ropes, slings and their uses. Purchases and power gained.
- (g) Use and maintenance of cargo working gear and the organization of cargo work. A knowledge of relevant parts of the Factory Act. General principles of cargo stowage and handling, e.g. dunnaging, ventilation and slinging. The carriage of special cargoes such as Refrigerated Cargoes, Steel, Rails, Liquids in bulk, Deck Cargoes and Timber Deck Cargoes, Bulk Stowage. The use of shifting boards, Separation. Precaution to be taken with solid ballast. Ventilation of different types of cargoes. Sweat-its cause and prevention.
- (h) Given a cargo list, to show a hold or holds, making a rough stowage plan, having regard to stability, behaviour of vessel in a seaway, damage and contamination of cargo and accessibility at optional ports of discharge.

40. Paper 6 (Written)-

Elementary Magnetism, Electricity and the Gyro-Compass (2 hours)

1. Magnetism-

- (a) A simple magnet, Poles of a magnet. The law of attraction and repulsion. The molecular theory of magnetism as applied to ferro-magnetic materials. The conception of magnetically “hard” and “soft” iron. The shape of the magnetic field round a magnet. The meaning of the terms Intensity of Magnetization, Magnetic Susceptibility and Permeability. (No mathematical formulae will be required).
- (b) The Earth’s magnetic field. The Earth’s magnetic poles. Magnetic equator. The Earth’s total magnetic force. Angle of dip. Horizontal and vertical components. Magnetic variation. (No mathematical formulae will be required).
- (c) The effect of constraining a compass needle to the horizontal plane. The effect of introducing a disturbing force into the vicinity of a compass needle.

(d) The care and maintenance of different types of ship's compasses.

2. Electricity-

- (a) A simple conception of the Electronic Theory.- Current, difference of potential, resistance and their units. Ohm's Law, Effect of an electric current- (i) Heating effect, Power. The electric unit; (ii) Chemical effect. Simple cells, primary and secondary; (iii) Magnetic effect. Field due to a current. Field of a current carrying solenoid and the effect of introduction of ferro-magnetic material into such a field. Magneto- striation.
- (b) The electric motor.- Measuring instruments-moving coil and moving iron. Electro-magnetic induction. Movement of a conductor in a field. Variation in magnitude of a field. Effect of make and break of a current. Induction coil. Unit of Inductance. Dynamo principle-simple commutator.
- (c) Electro static field.- Unit of capacity. Condenser or Capacitor.
- (d) Fuses, switches and simple ship's circuits.- Use of measuring instruments. How to measure current and voltage.
- (e) Principal symbols used in diagrams.

3. Gyro- Compass-

A simple non-mathematical treatment of the following: The principle of the Free gyroscope. The effect of the earth's rotation. Tilt and drift. Precession. Gravity control. Damping.

41. Oral-

1. (a) Shifting large spare and rigging sheers.
(b) The handling of heavy weights with special reference to strength of gear used.
(c) Use and care of all deck and above deck appliances and fittings-winch, capstans, windlasses, emergency steering gear and fittings used between anchor and cable locker. Hoisting in boats.
2. Anchor.- different kinds; advantages and disadvantages of each. Cables and their care. Preparations for anchoring. Operation of anchoring with single anchor and use of second anchor. Clearing a foul anchor. Mooring Clearing a foul hawse. Anchoring in a tideway and in a confined space. Slipping a cable. To carry out an anchor with boats. Getting underway.
3. (a) Coming alongside a wharf, etc. Manoeuvring in rivers and harbours. Effects of current, wind, shallows and draught on manoeuvring.
(b) Management of steamships in a stormy weather. Means to employ to keep a vessel, disabled or unmanageable, out of the trough of the sea and lessen her lee drift.

(c) To take a cast of the deep sea lead.

4. (a) An outline knowledge of the regulations concerning life-saving appliances.

(b) Accidents, e.g. collision, running aground, accidents to hatches, leaks, fires and their treatment.

Running repairs. Handling a disabled ship.

(c) A practical knowledge of the screening of ship's navigation lights.

(d) Preparations for drydocking and undocking. Use of shores, bilge blocks and bilge shores.

(e) The requirements to keep records under the Oil in Navigable Waters Act.

5. Regulations for Preventing Collisions at Sea, etc., as Rule 32. (Oral: Second Mate).

6. The Examiner may ask the candidate questions arising out of the written work, if he deems it necessary on account of weakness shown by the candidates.

42. Signals-

1. To send and receive signals in-

(a) British Semaphore up to eight words per minute.

(b) Morse Code by flash lamp up to six words per minute.

(c) International Code of Signals.

2. The practical use of shipborne W/T D/F.

43. Qualifications required for Master Foreign Going- A candidate must not be less than 23 years of age and must have served seven years at sea on foreign-going ships or equivalent service as provided for under Chapter IV. This period of service must include-

(a) not less than two years on a foreign-going ship in a capacity not lower than third of three watch-keeping officers whilst holding a certificate not lower than Second Mate Foreign Going.

AND

(b) not less than eighteen months on a foreign-going ship in a capacity not lower than third of the three watch-keeping officers whilst holding a certificate not lower than First Mate Foreign Going.

Watch-keeping service performed on home or coasting trade may be accepted at the equivalent rates as provided in Rule 55 to a maximum period of 6 months.

Syllabus for Master Foreign Going

44. Paper 1 (Written)-

Practical Navigation (3 hours)

- (a) A short recapitulation paper in navigation on the syllabus for Second Mate and First Mate which may include chart work and pilotage.
- (b) The Admiralty method of tidal predictions and the use of harmonic constants. (Admiralty Tide Tables).

45. Paper 2 (Written)-

Magnetic and Gyro Compass (3 hours)

A more detailed knowledge of the elementary principles of magnetism than is required for First Mate.

- (a) The inverse square law, simple problems involving unit poles. The field strength, magnetic moment of a magnet, the period of a suspended magnet vibrating in the earth's field.

- (b) Magnetic compass. The method of determination and compensation by means of components of the effects of the ship's magnetic field on the magnetic compass. The approximate co-efficients A, B, C, D and E and their use. Conditions which might produce co-efficients A and E. Constants Lambda and Mu. The ship's multiplier. Methods of obtaining a table of deviations. Analysis of a table of deviations to obtain approximate co-efficients. To determine the deviation caused by the ship's permanent magnetism and/or induced magnetism in vertical soft iron by means of observations taken in two widely separated magnetic latitudes.

- (c) General principles of compass correction and the method of correction for co-efficients B, C and D.

The cause and effect of retentive magnetism and Gaussin error.

Sitting of compasses with particular reference to the proximity of magnetic material and electrical appliances. Heeling error, its cause, effects and the method of correction. Effect of heeling error magnets on soft iron correctors.

- (d) Gyro compass. A fuller knowledge of the theory than that required for First Mate, but mathematical proofs will not be required.

To include in addition to the above: Course and speed error. Correction for latitude. Ballistic deflection and its relation to course and speed error. Rolling error and how it is minimized.

The principal parts of a gyro compass and the repeating system. The more important fundamental differences in the construction of the better known types of gyro compasses and the methods used to eliminate or allow for the principal errors.

46. Paper 3 (Written)-

Ship Construction and Stability (3 hours)

- (a) A fuller knowledge of ship construction than is required for lower grades of certificates. The structure and its uses. Bending slabs and methods of bending. General structure. Keels, framing, stem, stern frame and rudder post, transverse and longitudinal girders, centre through plates, keelsons and intercostals, double bottoms, side stringers, shell plating, bulkheads, deep tanks, pillars, propeller brackets, rudders, superstructures. Masts and derricks.
- (b) Types of vessels, e.g. general traders and bulk oil carriers. Strength and construction in relation to their trade.
- (c) Classification of ships. Surveys. General idea of tonnage measurements. Freeboard and a general outline of conditions of assignment.
- (d) Immediate treatment of accident damage: collisions bad weather, stranding. General ideas on welding in ship repair work. Drawing up of simple specifications. The direction of simple repairs.
- (e) A fuller knowledge of stability than is required for First Mate. Simple calculations involving volumes, moments and effects of free surface of liquids. (Proofs of formulae will not be required.) Effects of bilging and flooding compartments. Permeability. Trim and moment to change trim. Stability and trim when grounding. The inclining experiment effect of beam and freeboard on stability. Practical operation to ensure ship stability at sea: Deck cargoes, homogeneous cargoes, suspended weights and cargoes liable to shift. Dangers of a ship with a heavy list and precautions when righting. Management of ballast tanks. Ballasting.

47. Paper 4 (Written)-

Shipmaster's Business (2 hours)

- (The legal knowledge required will not go beyond the outline of the Merchant Shipping Acts, the Oil in Navigable Water's Act, and Mercantile Law which a shipmaster must know in order to conduct the business of a ship).
- (a) Registration of ships. The Certificate of Registry and its legal significance.
 - (b) Certificates and other documents required to be carried on a ship, how they are obtained and the period of their legal validity. Suez and Panama Canal certificates.
 - (c) Engagement, discharge and management of a ship's crew. Manning qualifications. Ship's Articles of Agreements, Wages and other remuneration. Social Security Board contributions. Discipline and treatment of offences. Fines and forfeitures. Deserters, deceased seamen, engagement of substitutes.
 - (d) The official log book and the law relating to entries.

- (e) Crew accommodation.
- (f) Hygiene of ships, living spaces, holds, etc. Water, Fresh and preserved food. Procedure required on board in cases of infectious disease, illness, or accident. Quarantine, procedure. Fumigation.
- (g) Entering and clearing ship.
- (h) Loadline marks and their general and seasonal use. Entries and reports to be made respecting freeboard and draught.
- (i) The safety of the ship, crew and passengers. Assistance of vessels in distress and salvage. Duties in case of collision and accident.
- (j) The law relating to the reporting of ice, derelict and other dangers to navigation and tropical revolving storms. Compulsory and non-compulsory pilotage.
- (k) The meaning of the terms Passenger Ship and Emigrant Ship.
- (l) A general knowledge of shipping practice and documents with particular reference to charter parties and bills of lading, and an understanding of their principal clauses, e.g., freight, deviation, always afloat, ice, lay-days, demurrage, despatch. Protests. Certificate of Seaworthiness. A simple knowledge of the law relating to carriage of cargo and the ship-owner's liabilities and duties.
- (m) A knowledge of the more important clauses contained in a policy of marine insurance. The meaning of Average, Particular Average, General Average. Procedure in the case of general average. Procedure at a port of refuge. Lloyd's agents.

48. Paper 5 (Written)-

Elementary Engineering and Electricity including

Electronic Navigational aids (3 hours)

1. Engineering-

- (a) The meaning of the general engineering terms sensible heat, latent heat, saturated steam, superheated steam, work and power, horse power, propeller pitch, slip.
- (b) A simple knowledge of the following: types of marine boilers, coal and oil fired furnaces, procedure for raising steam. The action of the reciprocating steam engine, turbine machinery and diesel engines. Procedure when warming up, turning, starting, stopping, and reversing engines.
- (c) The use of the condenser, evaporator and hot well, use of circulating, air, feed, bilge, and ballast pumps. Valve chests.

(d) Fuel consumption and economical speeds, estimation of minimum fuel consumption to complete a given voyage, Simple slip problems.

(e) A simple knowledge of the types of refrigeration systems used on board ships.

2. Electricity-

(a) The simple alternator. Alternating current: frequency, phase relationship between two alternating quantities ; effects of inductance, capacity and resistance. Resonance. Tuned circuits. The power transformer. The simple telephone and microphone.

(b) RF oscillations. Radiation of electro-magnetic waves in free spaces-frequency, velocity and wavelength and their relationship. Reception of electro-magnetic waves. Effects of the ionosphere ground wave, sky wave.

(c) Thermionic valves. Thermal emission. Diode valve use as a rectifier. Triode valve, use as voltage amplifier and use as simple oscillator.

(d) Cathode ray tubes Construction and action; electro-static and electro-magnetic deflection. The time base as applied to CRT.

3. Electronic Navigational Aids-

(a) A simple knowledge of how radar works. Displays, range and bearing discrimination, calibration, range strobes, monitoring, spurious echoes, side lobe effects, blind sectors, anomalous propagation and weather effects. Its use as an anti-collision device and navigational aid and an appreciation of its limitations.

(b) The general principles underlying hyperbolic navigation. Fundamental differences between various systems.

(c) A general knowledge of ship W/T direction finding. Rotating loop and goniometer systems. Maximum and minimum signals sense. Quadrantal error. Calibration. Sunset and sunrise effects. Land effects. A general knowledge of shore-based W/T directional systems.

(d) The general principles of echo sounding. Methods of transmission. Timing device. The receiver. Method of recording. Reliability of indications.

49. Paper 6 (Written)-

Meteorology (2 hours)

In addition to the syllabus for First Mate:

(a) The principal cloud types.

- (b) Simple ideas of air masses and fronts.
- (c) Adiabatic changes in the atmosphere, Stability and instability.
- (d) The frontal theory of the formation of depressions.
- (e) To construct a synoptic chart (excluding fronts) from a number of coded groups as given in sections V and VI of the Meteorological Office's Ship's Code and Decode Book.
- (f) The decode groups as given in the International Analysis Code (Section IV) of the Ship's Code and Decode Book and draw the weather map.
- (g) The use of a synoptic chart or weather map for deducing the probable weather and anticipated changes at a specified point or points.
- (h) The main types of floating ice and their origin. General ideas of distribution and seasonal movements. Navigation in the vicinity of ice.
- (i) General points to consider in the selection of ocean routes.

50. Oral –

1. (a) Exceptional circumstances. Loss of rudder; shifting a damaged rudder. Construction of jury rudders. Making and launching of rafts. Collision. Leaks. Damage of all kinds. Running repairs and precaution in case of accidents. Grounding-methods of refloating. Beaching a vessel. Steps to be taken when disabled in distress.
- (b) Preservation of crew and passengers in the event of wrecked Abandoning a wrecked ship. Rockets and rocket apparatus. Communications with the shore.
- (c) Assisting a vessel in distress. Rescuing crew of a disabled ship.
- (d) Towing and being towed.
- (e) Bad weather manoeuvres. Precautions at anchor and at sea. Use of oil. Anchoring and working anchors and cables in all circumstances. Approaching rivers and harbours and manoeuvring in them.
- (f) Drydocking. General procedure and precautions to be observed. Distribution of weight. Drydocking with full cargo for inspection of propellers or shafting. Bilge blocks. Leaving the vessel water borne. Putting into port with damage to ship and/or cargo, both from business and technical points of view. Safeguarding of cargo.
- (g) Prevention of fire at sea. Spontaneous combustion. Full knowledge of the use of fire appliances and the precautions to be taken in their use. Special reference to the extinguishing of oil fuel fires.

- (h) Methods of fumigating holds and living spaces and safeguards in applying them.
- (i) General organization of ship's work and handling and training of crew. A knowledge of training facilities available to members of the crew.
- (j) Compensation and adjustment of compasses. Demonstrations on Beall's compass deviascope or instructional binnacle.

2. Collision Regulations as Rule 32.

(Oral: Second Mate).

3. The Examiner may ask the candidate questions arising out of the written work, if he deems it necessary on account of weakness shown by the candidate.

51. Signals-

To send and receive signals in :

- (a) British semaphore up to eight words per minute.
- (b) Morse code by flash lamp up to six words per minute.
- (c) International code of signals.

CHAPTER IV

RULES FOR ESTIMATING SEA SERVICES

52. Sea Service.- Qualifying sea service except as hereinafter provided must be performed in the Deck Department.

For the purpose of these rules, sea service is reckoned from the commencement of the voyage to its termination. Certificates of discharge for service in the foreign trade will generally be accepted as proof of sea service, but certificates of discharge for service in the home or coasting trades will, when necessary, be sent for verification to the authority concerned. Examiners will be careful to see that these discharges have not been tampered with in any way. Where service in charge of a watch is required, certificates of watch-keeping service must also be produced (See Appendix M).

For the Certificate of Competency as Master, First Mate or Second Mate Foreign Going the qualifying service usually required is service performed in ordinary trading vessels. While these rules provide for the acceptance in part of certain kinds of non-trading service (e.g. that performed in fishing vessels, pilot vessels etc.), non-trading service not specially provided for in these rules cannot be accepted as qualifying service without the special sanction of the Government.

53. Nature of service determined by actual position on board ship.- Sea service, in whatever trade it may be performed, cannot be regarded as qualifying for examination for Certificates of Competency, unless it can be verified by reference to the articles of the ship in which it was performed.
54. Service in Foreign Going Vessels.- Watch-keeping service performed on a ship on foreign going articles will be accepted in full if the vessel has proceeded out side home trade limits during the course of the voyage. Where a voyage has been made in the home trade limits as a preliminary to or at the finish of the foreign going voyage, the home trade voyage shall be considered part of the foreign going voyage for the purpose of calculating watch-keeping service in the case of officers who have served throughout.
55. Service in the home and coasting trades.- The equivalent rates for service in the home or coasting trades for admission to examination for Certificates of Competency Foreign Going are as follows: -
- (i) Service in home trade vessels of 1,600 tons gross and over shall count in full.
 - (ii) Service in vessels of 500 tons gross and over, but less than 1,600 tons gross, shall count in full where the most distant ports visited are at least 500 miles apart. Where the most distant ports are less than 500 miles apart, service will count at two-thirds rate.
 - (iii) Service in vessels of less than 500 tons gross in the home trade shall count at two-thirds rate.
- NOTE.- Candidates for Certificate of Competency as First Mate or Master Foreign Going must have actual foreign-going experiences as provided for in Rule 34 and Rule 43.
56. Service in ships trading abroad.- Service in ships trading exclusively abroad may be accepted either in full or at two-thirds rate on the same basis as that for home or coasting trade in Rule 55. Ships so employed will not normally be regarded as foreign-going ships unless the most distant ports visited are at least 500 miles apart.
57. Watch-keeping Service.- Where watch-keeping service is required, candidates must prove by production of certificates that during the whole period claimed they have been in full charge, or in effective charge of a watch for not less than eight hours out of every 24 hours service claimed.
- “Effective charge of a watch” means responsibility for the watch, but does not preclude occasional supervision by a senior officer who does not at any time take charge of the watch. Where, however, the senior officer does take charge, the watch is doubled and the fact should be noted for entry in the Certificate of Watch-keeping Service.

An officer who is the junior of two officers keeping double watches during a voyage may count towards the qualifying service for First Mate under Rule 34 and for Master under Rule 43 two-thirds of the watch-keeping time so served up to a maximum of nine months (i.e., 13 (1/2) months, actual service).

The exact nature of a candidate's service must be clearly established by one or more certificates signed by the Master in the form indicated in Appendix M.

Candidates for Certificates of Competency as Master Foreign Going whose watch-keeping service is performed in a higher capacity than second or third watch-keeping officer whilst holding a First Mate's Certificate shall have such service reckoned : -

- (a) If as first watch-keeping officer next in seniority to Master at one and one-half times actual service.
- (b) If as first watch-keeping officer not next in seniority to Master, or as second of two watch-keeping officers, at one and one-fifth times actual service.

58. Mixed Service.- Where a candidate has performed his sea service in more than one capacity, or partly in the foreign trade and partly in the home trade, proportionate allowances will be made for each kind of service, provided that in other respects such service complies with the requirements of these rules.

59. Evidence of Service in foreign vessels.- The testimonials of service of Myanmar seamen serving in foreign vessels which cannot be verified at the Department of Marine Administration must be confirmed either by the Consul or some other recognized official authority of the foreign country, or by the testimony of some credible person having personal knowledge of the facts to be established. The production, however, of such proofs will not necessarily be deemed sufficient. Each case will be decided on its own merit.

<Amendment 18.06.1989>

60. Service as carpenter, sailmaker, cook, steward, etc.- Candidates whose service has been performed in capacities other than apprentice, midshipman, cadet, deck boy, ordinary seaman or able seaman e.g., men who have served as carpenter or sailmaker or as cook in small vessels. where cooking is only part of a man's duty- must satisfy the Examiner that they have, during the whole time claimed, performed deck duties in addition to their own particular work. These facts may possibly be established by the production of satisfactory certificates from the Masters with whom the candidates have served. Such service will only be accepted as equivalent to two-thirds of the time served as ordinary deck hand. In the absence of satisfactory evidence, the applicant will be required to perform additional service in the capacity of seaman. Service as cook (under condition other than the above) or as steward or purser or in the engine room will not be accepted.

61. Service as Radio Officer.- If a candidate has been engaged on articles as a Radio Officer and has performed deck duties in addition, two-thirds of such service may be counted as qualifying service, provided that the candidate can produce a certificate from the Master, to the effect that he has performed deck duties throughout the voyage for a reasonable proportion of time each day and that he has not spent more than two hours a day on regular wireless watch.

If a candidate has been engaged on articles as a Radio Officer, and has only served as such, one quarter on his service may be counted as qualifying service, up to a maximum of 12 months' qualifying service.

If a candidate has been engaged on articles as a deck rating, and has served both as a deck rating and as a Radio Officer, two-third of such service may be counted as qualifying service. The candidate must, however, prove that during the whole period claimed, he performed deck duties in addition to the duties of a Radio Officer.

62. Apprentices.- The whole of the time claimed under indentures of apprenticeship will be accepted as actual sea service to qualify under Rule 24 for Second Mate's Certificate, provided (a) that the indentures have not been cancelled through some fault of the candidates, but are endorsed by the Owner or Master to whom he was bound to the effect that he has performed his service faithfully during the time he remained as apprentice; and (b) that the candidate has service at sea four-fifths of the time claimed, that is to say, has not spent more than one-fifth of the time in home ports.

In cases where an apprentice is qualified for examination before the expiration of his indenture, e.g., where he has had training ship or other sea service prior to being bound, which together with his actual time as apprentice makes up the required four years, or where his indentures are for a period of more than four years, a letter from the Owner or Master will be accepted in place of the endorsement referred to above.

In the event of the candidate being short of the required four-fifths of the time claimed as apprentice out of the Union of Myanmar, he will be required to show sufficient additional sea service, either as seaman or junior to make up four-fifths of the time claimed.

The general concession to apprentices set out above cannot however, be taken to cover a case in which, during a large part of the period of apprenticeship, the vessel on which the apprentice is serving has been laid up in a foreign port. The proportion of the period of apprenticeship which can be accepted as qualifying service in such a case depends on the individual circumstances and each case will be considered on its merits. The Examiners will make as generous an allowance for such service as they

Rules relating to the Examination of Master, First Mate and Second Mate Certificates of Competency Foreign Going properly can, but they cannot forgo the essential condition that candidates for Certificates of Competency must have sufficient experience of actual service at sea.

<Amendment 18.06.1989>

63. Midshipmen and Cadets.- The whole of the time served as midshipman or cadet under indentures will be accepted subject to the same conditions as those laid down for apprentices. Similar considerations apply even when the candidate is not bound by indentures, provided that the service as midshipman or cadet has been continuous, that on the date of the termination of the period of service claimed in this capacity the candidate was on articles or attending at a recognized school, and that he can comply with the requirements of these rules in serving or making up the four-fifths period at sea during the time claimed.
64. Promotion during Apprentice or Cadet Services.- When an apprentice, cadet or midshipman, whether bound by indentures, or not, is promoted to uncertificated junior officer in the same company, for the last year of apprenticeship or cadetship, such officer's service will be treated, for the purpose of assessing sea service, as cadet or apprentice service.
65. Training ships.- One half the time served after the age of 14 on board an approved training ship will be allowed to count as qualifying sea service, provided that the candidate can produce a satisfactory certificate from the appropriate Committee or Captain Superintendent testifying to his good conduct and proficiency up to the time of leaving the ship, subject to a given limit in the case of each training ship and to the condition that the total remission of sea service in respect of attendance at training ships and approved schools as set out in Rule 66 shall never exceed twelve months.
- A list of approved training ships and the amount of time allowed in each case is given in Appendix N.
66. Shore schools for nautical training.- (1) Time spent after the age of 14 at a school for nautical training conducted on premises ashore may be allowed to count in some proportion as service at sea provided that-
- (a) after an inspection by one of its Officers and by the recommendation of the Director, Nautical Surveys, Department of Marine Administration, the Government is satisfied that the school gives a training that justifies time spent there being reckoned as part of the necessary qualifying time for a Certificate of Competency; and
 - (b) the candidate produces a satisfactory certificate as regards conduct and proficiency from the authorities of the school on leaving it.
- (2) The schools to which these arrangements may apply are of three kinds:-

- (a) Schools at which boy resides and receives training for a period of years; or courses of not less than one academic year, in navigation and seamanship, after the age of 16 at a nautical residential training college. The maximum remission of sea service that will be allowed in respect of attendance at such a school will be fixed at the time of approval; it will never exceed twelve months.
- (b) Courses in navigation and seamanship at junior technical schools or similar non-residential institutions, which boys, attend before going to sea; the maximum remission of sea service in these cases will be fixed at the time of approval; it will never exceed six months.
- (c) Senior courses in navigation at technical or other similar non-residential schools which candidates attend after completing the whole or the larger part of the service required to qualify for examination, remission of sea service in these cases will be fixed at the time of approval : it will never exceed three months.

In the cases of schools of classes under clause (a) and (b), the certificate must show whether or not he has completed the course.

In the case of schools of classes under clauses (b) and (c), the certificates which the candidate produces under clause (b) of sub-rule (1) must in addition testify to the candidates' continuous and regular attendance at all the approved classes, and also, in the case of schools of class under clause (c), must state the total number of hours during which he has attended at the school.

- (3) A candidate who, at different times, has attended two or more approved schools of nautical training will be allowed a remission of sea service in respect of attendance at each of them, subject to the condition that the total remission of sea service in respect of attendance at approved schools and training ships will never exceed 12 months.

A list of approved schools of nautical training is given in Appendix O.

- 67. Foreign Nautical Training Ship.- On application time spent after the age of 14 on board a Nautical Training ship of shore establishment in the Foreign countries may be counted towards a qualifying sea service for the Second Mate Certificate of Competency Foreign Going in some proportion to a maximum of twelve months provided it is approved by the respective Governments.
- 68. Excursion steamers.- In the case of excursion steamers, only such service as can be proved to have been performed at sea will be accepted.

69. Service in fishing or pilot vessels.- Service performed exclusively in trawlers and other deep sea fishing vessels or in pilot vessels will count at two- thirds rate towards qualifying for Certificate of Competency as Second Mate Foreign Going. In addition to such service in trawlers, or in pilot vessels, a candidate must prove at least 18 months' service in ordinary trading vessels in the foreign, home or coasting trade. In the event of apprentice to the Pilotage service the amount of remission of sea service will in each case be treated on its merits.
70. Service in Tugs or Lighthouse Tenders.- Service performed in sea-going Tugs or Lighthouse Tenders will be accepted (subject to the provisions of Rule 55 for the purpose of qualifying a candidate for the Second Mate Certificate of Competency Foreign Going on condition that one year must have been served in ordinary trading ships in the foreign, home or coasting trade.
71. Service in Dredgers and Lightships.- Service in dredgers and lightships will not be accepted as sea service for the Second Mate Certificate of Competency Foreign Going.
72. Service on rivers.- Service performed on rivers, no matter of what size, and service performed entirely within smooth or partially smooth water limits will not be accepted.

CHAPTER V

SUCCESS AND FAILURE IN THE EXAMINATION

73. Appropriate percentages.- For his written work, the candidate will be furnished with sheets of blank ruled paper on which he will be required to answer in a clear and legible hand the questions on the paper, and to start each answer by writing in the margin the number of the questions to which it relates. To pass in the written portion a candidate will be required to obtain the appropriate percentage in the subjects shown in the following tables and also to obtain 70 per cent of the total marks for all subjects.

1.- Second Mate Foreign Going

Percentages

Time.

Marks.

Pass.

First day -

Rules relating to the Examination of Master, First Mate and Second Mate Certificates of Competency Foreign Going

(1)	General Ship Knowledge	...	3	hrs.	200	50
(2)	Chart Work	...	2	hrs.	200	70

Second day -

(3)	Practical Navigation	...	3	hrs.	200	70
(4)	Mathematics...	...	2	hrs.	150	50

Third day -

(5)	Principles of Navigation	...	2	hrs.	150	50
(6)	(a) Myanmar	...	1(1/2)	hrs.	100	50
	(b) English...	...	1(1/2)	hrs.	100	50

Signals and Orals as arranged by Examiner.

2.- First Mate Foreign Going

Percentages

Time.

Marks.

Pass.

First day -

(1)	Practical Navigation	...	3	hrs.	200	70
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Second day -

(2)	Ship Construction	...	3	hrs.	200	50
(3)	Meteorology	...	2	hrs.	100	...

Third day -

(4) Ship Maintenance	...	3 hrs.	200	50
(5) Magnetism and Electricity		2 hrs.	150	...

Signals and Orals as arranged by Examiner.

3. – Master Foreign Going

				Percentages
		Time.	Marks.	Pass.
First day -				
(1) Practical Navigation	...	3 hrs.	200	70
(2) Magnetic Compass	...	3 hrs.	200	50
Second day -				
(3) Ship Construction	...	3 hrs.	200	50
(4) Shipmaster business	...	2 hrs.	150	50
Third day -				
(5) Engineering, radio aids	...	3 hrs.	150	...
(6) Meteorology	...	2 hrs.	100	...

Signals and Orals as arranged by Examiner.

Time tables shown above are liable to be changed and candidates are advised to ascertain from the Office of the Department of Marine Administration, Yangon, of the latest changes.

74. Partial passes- A pass in either the written, oral or signals part of the examination shall remain valid. The candidate shall not be required to appear again for any part of the examination which he has already passed.

Candidates failing in the oral part of an examination for a Certificate of Competency through serious weakness in practical knowledge may, at the Examiner's discretion, be required to perform further sea service before being re-examined. Such sea service will not exceed six months and may be performed in any capacity on deck in any sea-going ship.

In case of a second or subsequent failure in the written or oral parts of the examination for a Certificate of Competency, or in both such parts, two months must elapse from the date of the last failure before the candidate can be re-examined. If a candidate has served on a vessel for a period of not less than six months since the last failure in either or both parts, next attempt shall be treated as a first attempt within the meaning of this Rule.

<Amendment 24.09.1992>

75. Acceptance of partial passes in foreign countries.- Partial passes in an examination for Master, First Mate or Second Mate Certificate of Competency Foreign Going or its equivalent obtained in foreign countries before date of coming into effect of these rules may be accepted as partial pass for the examination subject to Rule 74 with the approval of the Government.
76. Non- attendance at oral examination.- Candidates should proceed to the oral examination whether or not they have passed in the written part. A candidate who does not proceed to the oral examinations at the time appointed will be regarded as having failed in both parts unless he produces a medical certificate or other satisfactory evidences of his inability to attend the oral examination.
77. Examination in Signalling.- A candidate who is eligible by sea service for examination for any grade of certificate in which signalling is required may take this part of the examination during any week in which examinations are held within the six months immediately before and after he presents himself for examination in the written and oral portions. A candidate for Second Mate Foreign Going may take this part of the examination up to six months before he is eligible by age or sea service for the remainder of the examination, but partial pass shall be valid in accordance with the provisions of Rule 74. If the signal portion is taken separately, the special fee (as prescribed in Rule 99) must be paid for each attempt.
78. Correction by tables.- In the Principles of Navigation paper for Second Mate Foreign Going, the correction of altitudes by total correction tables will not be allowed.
- Every correction must appear on the papers of the candidate.

79. Candidates may use own method.- Candidates will be allowed to work out the various problems according to any method which they have been accustomed to use, provided that such method is correct in principle.
80. Degree of precision required.- When making calculations for obtaining a ship's position, candidates are expected to work to 0.2 of a minute of arc and to the nearest second of time.
- The method of calculation used in obtaining a position line should be capable of giving an answer within one nautical mile.
- In calculation of compass errors, bearings and courses, the answer should be worked out to within 0.5 of a degree.
- In calculating the correction to apply to soundings, it will be sufficient if the candidate's answer is within half of a foot of a precise result.
81. Sextant.- Particular attention will be paid to the sextant, the examination in which will be conducted orally and practically. Candidates will be required to measure both vertical and horizontal angles and will be examined practically as to their knowledge of the adjustments and the use of the various screws. They must be able to read correctly on and off the arc and to find the index error both by the horizon and by the sun.
82. Rule of the Road.- In the examination on Rule of the Road, the Examiner will test the candidate's knowledge of the sense and intention of the Rules of the Collision Regulations. Mere ability to repeat the Rules word for word will not suffice to ensure the candidate's passing, nor will the lack of it necessarily entail failure, provided that the Examiner is satisfied that the candidate grasps the full significance, content and practical application of the Rules. Examiner will not ask for the content of the Rules by their number, but by the subject with which they deal, and they will discourage the use by candidates of verses as aids to memorizing the Rules. Examiners will not place a candidate for a power driven vessel certificate in the position of handling a sailing ship but will lay stress on the candidate's ability to recognize a sailing ship's lights and on his knowledge of a sailing ship's possible manoeuvres according to the direction of the wind.

CHAPTER VI

CONDUCT OF THE EXAMINATION

83. Notice of Examination.- The Examination will begin each day at a time appointed by the Examiner. A meal break will be given each day, generally between 1 p.m and 2 p.m. As far as possible, candidates will be given ample notice of the day and time of their oral examination.
84. Punctuality.- Candidates must appear punctually at the examination room at the time appointed.
85. No strangers admitted.- No person other than those whose duties require them to be present will be allowed in the room during the examination and no Instructors will be allowed on the premises.
86. Loose papers and books. Before the examination begins, the tables or desks will be cleared of all scraps of papers and books (other than those permitted in the examination room).
87. Use of books and tables.- The following table and books may be supplied by the Government at the examination room: -

Nautical Tables	...	(Including Logarithm tables)	Norie
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(Full Edition) or Burtons:

Azimuth Tables	...	Burdwoods, Davies.
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Admiralty Tide Tables

Nautical Almanances.

Candidates who wish to use tables other than the above may bring such tables into the examination room, on condition that they submit them to the Examiner for scrutiny and approval before the examination begins. These tables must contain no manuscript notes. Subject to the Examiner's approval, no restriction will be placed on the use of any tables, but candidates must understand the theory on which the tables are based and such tables must be capable of giving an answer within the required limit of accuracy as set out in Rule 80. When tables other than those supplied by the Government are used in answering a question, the name of the tables and a note of what is actually obtained from them should be stated on the candidates' answer paper.

88. Use of instruments.- All instruments necessary for use in the examinations may be supplied by the Government. Candidates will be allowed to use their own drawing instruments provided that the examiner's approval is obtained before the examination begins.

89. Un authorized books and papers strictly forbidden.- Candidates are forbidden to bring books or papers of any kind whatsoever, other than nautical tables, into the examination room. If this Rule is infringed, the offender will be regarded as having failed and he will not be allowed to present himself for re-examination for a period of three months.

A candidate who uses his own nautical tables or instruments without first obtaining the permission of the Examiner will be treated similarly.

90. Injury to books, instruments, etc.- If a candidate defaces, blots, writes in, or otherwise injures any book or form or damages any instrument belonging to the Government, his service papers (i.e., certificates, testimonials, etc.) will be retained until he has replaced the damaged book, document or instrument. He will not be allowed to remove the damaged book, document or instrument and will be regarded as having failed.

91. Leaving room or building.- No candidate may leave the examination room without permission and without giving up the paper on which he is engaged. In no circumstances will a candidate be allowed to leave the building while the examination is proceeding. A candidate who breaks this Rule will be regarded as having failed the examination.

92. Silence.- Silence must be kept in the examination room.

93. All work to be shown.- No candidate will be allowed to work out his problems on waste paper or to write on the blotting paper supplied for his use in that examination. A candidate who breaks this Rule will be regarded as having failed the examination.

A sheet of blotting paper will be issued to each candidate with the first examination paper and it must be returned each day to the Examiner when the last paper is completed. The Examiner will be careful to see that the blotting paper has not been used by the candidate in solving his problems or for conveying information to other candidates. All work except sketches, must be in ink.

94. Penalty for copying, etc.- In the event of any candidate being discovered affording any assistance or giving any information to another, or accepting assistance or information from another, or communication in any way with another, during the time of examination or copying any part of the problems for the purpose of taking them out of the examination rooms, he will be regarded as having failed and will not be allowed to present himself for re-examination for a period of six months. A candidate guilty of a second offence of this kind will not be allowed to present himself for re-examination until 12 months have elapsed.

95. Penalty for breach of rules.- Any candidate violating any of these rules, or being guilty insolence to the Examiner, or of disorderly or improper conduct in or about the examination rooms, will render himself liable to the postponement of his examination, or, if he has passed to the detention of his certificates for such period as the Government may direct.

95A. Optional Examination. The candidate who has successfully completed the First Mate (Foreign Going) examination may successively take the written portion of the Master (Foreign Going) examination. The remaining oral and signal portions are to be taken only after fulfilling the required sea service stated in Rule 43 of this Rule. The Certificate of Competency as Master (Foreign Going) shall be issued only after completion of all portions of the prescribed syllabus.

<Amendment 24.09.1992>

CHAPTER VII

FEES

96. Fee always paid first.- Applicants for examination, and persons enquiring as to their eligibility, will be required, when making their application on Form Exn. 2 (Myanmar) shown in Appendix B, to pay the examination fee before any steps are taken to enquire into their services or to test their qualifications. If the candidate is found to be ineligible, the fee will either be returned to him or placed to his credit until he is eligible.

<Amendment 18.06.1989>

97. Where to pay fees.- The fees for examinations must be paid to the Director-General, Department of Marine Administration.

98. Fees in case of failure.- The fee paid for examination includes the fee of Kyat two for examination in the sight tests and if the candidate fails to pass those tests, the fee, with the exception of Kyat two will be returned to him. If a candidate fails to pass any other part of the examination, no part of the fee will be returned to him.

99. Table of fees.- The fees are as follows :

K

Third Mate Foreign Going Certificate

...

150

Second Mate Foreign Going Certificate	...	300
First Mate Foreign Going Certificate	...	400
Master Foreign Going Certificate	...	600
Portion of Examination (written or oral)	...	250
Portion of Examination (written or oral for First Mate).		150

100. Examiner's Fee.- The Examiner shall be paid the fees, as may be prescribed by the Government, for setting and correcting examination papers.

By order,
THA KYAW,
Deputy Minister,
Ministry of Transport and Communications.

----- Attachment -----

- [ATTACH LIST 1] 01 APPENDIX A Examination Days and Places
- [ATTACH LIST 2] 02 APPENDIX B APPLICATION TO BE EXAMINED FOR A CERTIFICATE OF COMPETENCY AS MASTER, FIRST MATE OR SECOND MATE FOREIGN GOING (Before filling in the required particulars the Candidate should read carefully the Notice and the Declaration in Division I overleaf)
- [ATTACH LIST 3] 03 EXN. 16 (Myanmar) APPENDIX C
- [ATTACH LIST 4] 04 APPENDIX D Certificate of Competency as Second Mate of a Foreign-Going Ship No.
- [ATTACH LIST 5] 05 APPENDIX E Certificate of Competency as First Mate of a Foreign Going Ship No.
- [ATTACH LIST 6] 06 APPENDIX F Certificate of Competency as Master of a Foreign-Going Ship No.
- [ATTACH LIST 7] 07 Exn. 16-C.(Myanmar) APPENDIX G RESULT OF EXAMINATIONS
- [ATTACH LIST 8] 08 APPENDIX H. Application for Loss of Certificate of Competency
- [ATTACH LIST 9] 09 APPENDIX I Radar Observer on Merchant Ships THIS IS TO CERTIFY THAT –
- [ATTACH LIST 10] 10 APPENDIX K Sight Test Details as to the Conduct of the Tests
- [ATTACH LIST 11] 11 APPENDIX L Examination in Signalling
- [ATTACH LIST 12] 12 APPENDIX M Specimen Certificate of Watch-Keeping Service