



MARINE DEPARTMENT
GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION

Certificates of Competency and Licences for Deck Officers Determinations

(2012 Edition)

Made under Regulation 8, 10 and 15 of the
Merchant Shipping (Seafarers)(Certification of Officers) Regulation

Marine Department
The Hong Kong Special Administrative Region

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MERCHANT SHIPPING (SEAFARERS) ORDINANCE
(CHAPTER 478)

**Certificates of Competency and Licences
for Deck Officers' Determinations**

(2012 Edition)

Made under Sections 8, 10 and 15 of the
Merchant Shipping (Seafarers)(Certification of Officers) Regulation

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CHAPTER 1

COMMENCEMENT, INTERPRETATION & GENERAL REQUIREMENTS

1.1 Commencement

1.1.1 This Certificates of Competency and Licences for Deck Officers' Determinations (the Determinations) is made by the Seafarers' Authority under powers granted by the Merchant Shipping (Seafarers) (Certification of Officers) Regulation and is the fifth edition that shall be effected on 1 January 2012.

1.1.2 The Determinations supersedes all previously published Rules and Determinations regarding certification and licensing of deck officers for sea-going ships and river-trade vessels.

1.2 Interpretation

1.2.1 In the Determinations, unless the context otherwise requires:

"approved" means approved or recognized by the Director of Marine;

"certificate of competency" means a certificate of competency issued by the Director under the Merchant Shipping (Seafarers)(Certification of Officers) Regulation;

"chemical tanker" means a ship constructed or adapted and used for the carriage in bulk of any liquid product listed in chapter 17 of the International Bulk Chemical Code;

"Director" means the Director of Marine;

"dynamically supported ship or craft (DSC)" means any vessel as defined in the International Maritime Organization's Assembly Resolution A.373(X) "Code of Safety for Dynamically Supported Craft";

"examiner" means a person appointed by the Director to be an Examiner of Masters and Deck Officers;

"fishing vessel" means a vessel for the time being employed in sea fishing or a Government fishery research vessel, but does not include a vessel used otherwise than for commercial purposes;

"high speed craft (HSC)" means any vessel as defined in the International Maritime Organization's "International Code of Safety for High Speed Craft";

"liquefied gas tanker" means a ship constructed or adapted and used for the carriage in bulk of any liquefied gas or other products listed in chapter 19 of the International Gas Carrier Code;

"oil tanker" means a ship constructed and used for the carriage of petroleum and petroleum products in bulk;

"pleasure craft" means a vessel used primarily for sport and recreation purposes;

"river trade" means within the limits of the River Trade area as defined in the Shipping and Port Control Ordinance;

"Seafarers' Authority" means the Director for the purposes of the Determinations;

"seagoing" means beyond the limits of the River Trade area as defined in the Shipping and Port Control Ordinance;

"STCW Convention" means the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 as amended;

"Type Rating Certificate (TRC)" means a Certificate to man a specific station on a particular type and model of dynamically supported craft or high speed craft.

1.3 **General Requirements**

1.3.1 The subsequent chapters of the Determinations set out the training and qualification requirements for deck officers and the conditions to be satisfied by any person to qualify for a certificate of competency as a deck officer, or an extension of the validity of such a certificate, or an endorsement to such a certificate, the manner in which the attainment of such standards or the satisfaction of such conditions is to be established, the procedure for the conduct of examinations, and the subjects and syllabuses for those examinations.

1.3.2 The officers manning the stations of Master, Chief Mate, Officer in charge of a Navigational Watch and any other person assigned specific duties and responsibilities or having an immediate responsibility for the cargo in the following types of vessel:

- (a) oil tanker;
- (b) chemical tanker;
- (c) liquefied gas tanker.

shall hold their certificates of competency that bear endorsements to the effect that the holders have satisfied the Director in regard to the requirements for training and service set out in Chapter 11.

1.3.3 An officer manning the station of Master or Deck Officer of any passenger DSC/HSC or any cargo DSC/HSC of 500 gross tonnage and upwards shall, in addition to the appropriate certificate of competency, be required to hold a valid Type Rating Certificate (TRC) for the type and model of craft in which he/she intends to serve. The conditions to be satisfied by any person to qualify for, or revalidate a TRC, the procedure for the conduct of examinations and the syllabus to be examined are set out in Chapter 13.

1.3.4 Any candidate who feels aggrieved by any decision of the examiner may appeal to the Director within 30 days of being informed of such decision.

1.3.5 The Director may, at his discretion, permit exemption from any or all of the provisions of the Determinations.

1.4 **Transitional Provisions**

1.4.1 Until 1 January 2017, the Director may continue to issue, recognize and endorse certificates in accordance with the fourth edition of this Determinations in respect of those seafarers who commenced approved seagoing service, an approved education and training programme or an approved training course before 1 July 2013.

- 1.4.2 Until 1 January 2017, the Director may continue to renew and revalidate certificates and endorsements in accordance with the fourth edition of this Determinations.

CHAPTER 2

SEAGOING AND RIVER TRADE CERTIFICATES

GENERAL PROVISIONS

2.1 Classes of Certificate and Validity

2.1.1 The classes of certificates of competency are as follows:

Seagoing

Certificate of Competency (Deck Officer) Class 1

Certificate of Competency (Deck Officer) Class 2

Certificate of Competency (Deck Officer) Class 3

River trade

Certificate of Competency (Deck Officer) (River Trade) Class 1

Certificate of Competency (Deck Officer) (River Trade) Class 2

Certificate of Competency (Deck Officer) (River Trade) Class 3

2.1.2 Seagoing classes of certificates of competency are valid for unlimited service area. River trade classes of certificates of competency are only valid for service on vessels trading wholly within the limits of the river trade area.

2.1.3 All seagoing and river trade classes of certificates are valid for sea service for a period of not more than 5 years and fall due for revalidation on the expiry date shown on the certificate.

2.1.4 In order to revalidate a certificate, the holder must show evidence of meeting the conditions for revalidation which are set out in Chapter 12.

2.2 Proof of Nationality

2.2.1 All candidates for examination for a certificate of competency will be required to produce proof of name, nationality and date of birth.

2.3 Date and Place of Examinations

2.3.1 The dates upon which written examinations are to be held in the following year will be published annually in a Gazette Notice issued by the Director.

2.3.2 Candidates for examination will be informed, at the time of making application, of the place at which the examination will be held.

2.3.3 Candidates who are making application for only the oral part of any examination should follow the procedure set out in paragraph 2.4, ensuring that their application is lodged at least one month before the date upon which they wish to be examined. The time and date of the oral examination appointment will then be advised.

2.4 Application

- 2.4.1 Intending candidates for either a part, or for the whole, of any certificate of competency examination must complete an application form (M.O. 706) which may be obtained from the Marine Department, Seafarers' Certification Section, or by post from:

Marine Department
Seafarers' Certification Section
3/F Harbour Building
38 Pier Road
Central
Hong Kong

The application form could also be downloaded from the Marine Department's website.

- 2.4.2 Applicants should return the completed application form to the Seafarers' Certification Section at least one month before the intended date of examination, together with the documents as stated in the application form.

- 2.4.3 Candidates who have made a previous attempt at the same examination, when making application for re-examination, must also submit their copy of the record of results, issued by the examiner following their previous attempt.

- 2.4.4 It is important that the correct procedure for application is followed as discharges and testimonials may have to be forwarded for verification which can take time, and in the absence of such verification the candidate cannot be accepted for examination.

- 2.4.5 Applications from candidates abroad may be made by post to the Seafarers' Certification Section, accompanied by the examination fee and copies of the relevant supporting documents. Original documents should not be sent through the post in such cases, but should be presented to the examiner on the applicant's next return to Hong Kong prior to the date of examination. Notification by the examiner of acceptance for the examination will be given as soon as possible after receipt of the application.

- 2.4.6 Candidates who fail in all, or in a part, of an examination may attend for the next scheduled examination for the relevant certificate provided that accommodation is available in the examination hall, even if this means that they are unable to give the full one month notice required by paragraph 2.4.2. In order to take advantage of this facility candidates must submit written application to resit the examination, or part of examination, together with the appropriate fee, immediately upon receiving notification of the examination results.

2.5 **Enquiries**

- 2.5.1 Candidates may make enquiries about examinations and when doing so, should ensure that the point on which information is sought is clearly stated. Enquiries should be addressed to:

The Examiner of Masters and Mates
Marine Department
3/F Harbour Building
38 Pier Road
Central
Hong Kong

Tel. No. : (852) 2852 4362

2.5.2 Candidates writing to request a provisional estimate of their sea service should include a detailed summary of their service with the enquiry but should not include original documents.

2.6 **Particulars of Sea Service**

2.6.1 A candidate's eligibility for examination will depend, amongst other factors, on the amount of sea service performed and upon the seagoing ranks in which the candidate has served. It is, therefore, imperative that the particulars which candidates enter on the application form are accurately stated.

2.6.2 The amount of sea service set down in the Determinations for each class of certificate is the **absolute minimum** that can be accepted. Unless candidates can prove the full amount they will not be admitted to the examination.

2.7 **Testimonials and Watchkeeping Certificates**

2.7.1 Testimonials as to character, sobriety, experience and ability on board ship, and good conduct for the full period of sea service covered by the application will be required of all candidates. Such testimonials must, except in special cases, be signed by the Master(s) of the vessel(s) in which the candidate has served.

2.7.2 Candidates for those certificates of competency for which service as a watchkeeping officer is a requirement must also produce Certificates of Watchkeeping Service signed by the Master(s) of the vessel(s) in which they have served. A specimen form of certificate, recommended for the purpose, is shown in Appendix I.

2.8 **Use of Information**

2.8.1 Information required by the application form will be used by Marine Department for the process of application for examination and issue of certificate. This information may be divulged to other departments and agencies authorised to process the information for the mentioned purposes. Limited personal data of successful applicant may be used via the Marine Department's website for verification of the issued certificate of competency by any third parties.

2.8.2 Supply of information is obligatory. A candidate should ensure that all the information filled in the application form is accurate. Failure to do so may, besides subject to paragraph 2.9, result in an unsuccessful application.

2.8.3 For making correction and access to personal data after submission of application form, a candidate may contact the following officer:

Officer-in-charge
Marine Department
Seafarers' Certification Section
3/F Harbour Building
38 Pier Road
Central
Hong Kong

2.9 **Fraud or Misrepresentation**

2.9.1 Candidates are reminded that the Merchant Shipping (Seafarers)(Certification of Officers) Regulation provides that any person who, in connection with an application for the issue of a certificate of competency, or in connection with the endorsement to, or extension of validity of, a certificate of competency:

- (a) makes a false pretence; or
- (b) supplies false information,

knowing it to be false, or not believing it to be true, commits an offence and is liable, amongst other things, to a fine and to imprisonment.

2.10 **Attempted Bribery**

2.10.1 Any candidate who offers an advantage to any officer of the Marine Department shall be guilty of an offence under the Prevention of Bribery Ordinance and shall be liable on summary conviction to a fine and to imprisonment. Such a candidate will not be re-examined for such a period as may be decided by the Director.

2.11 **Unsatisfactory Conduct**

2.11.1 Candidates who have neglected to join their vessels after signing crew agreements, or who have left their vessels after joining, other than upon discharge, or who have committed misconduct on board, will be required to produce satisfactory proof of two years subsequent service at sea with good conduct unless the Director, after investigation, should see fit to reduce this period.

2.12 **Deafness and other Physical or Mental Handicaps**

2.12.1 If, in the course of any examination, the examiner finds that a candidate is afflicted with deafness, an impediment in speech, or with some other physical or mental handicap which he considers sufficient to render the candidate incapable of discharging adequately the ordinary seagoing duties of the holder of a certificate of competency, he will not allow the candidate to complete the examination and the candidate will be refunded of the examination fee.

2.12.2 If such a candidate subsequently produces a medical certificate to the effect that the particular handicap has been overcome or has improved or that the candidate's condition is now normal, the Director will reconsider the candidate for examination.

2.13 **Knowledge of English and Languages for Examinations**

2.13.1 All candidates for seagoing and river trade classes of certificates of competency must demonstrate to the satisfaction of the examiner that they can master English sufficiently well to perform the duties required of them on board a Hong Kong registered ship.

2.13.2 All oral/practical examinations for seagoing classes of certificates of competency will be conducted in English.

2.13.3 The oral/practical examinations for class 1 river trade certificates of competency will always be conducted in English, but candidates for the oral/practical examination for a

- river trade class 2 and class 3 certificates of competency may elect to have their oral/practical examination partly conducted in English and Chinese. Such candidates must indicate their preference at the time of making application.
- 2.13.4 Written examinations for seagoing and river trade classes of certificates of competency may be conducted in either Chinese or English. However candidates for seagoing classes of certificate who choose to conduct the examination in Chinese must have at least one subject selected by the examiner to be examined in English.
- 2.13.5 Candidates for written examinations which are conducted in English will be expected to demonstrate a reasonable standard of grammar, spelling, and composition in their answers.
- 2.13.6 Candidates for written examinations which are conducted in Chinese will be expected to demonstrate a reasonable standard of grammar, fluency, accuracy and the comprehensive ability in the use of Chinese language.
- 2.14 **Quality Standards**
- 2.14.1 The education and training courses which a candidate attends to satisfy the training requirements for the issue of a certificate of competency shall generally follow a quality standards system or an alternative system acceptable to the Director.
- 2.15 **Issue of Certificates**
- 2.15.1 Candidates who are successful in all parts of an examination, and who meet all the requirements for the issue of a certificate of competency of the class applied for, will be issued with a certificate of competency. When the certificate is ready it will be forwarded by registered post to the candidate's address as given on the application form, unless the candidate wishes to make other arrangements.
- 2.15.2 To avoid unnecessary delays in the issue of certificates, it is important that candidates should inform the examiner promptly of any change to the address given on the application form.
- 2.15.3 A candidate who is partially successful, or unsuccessful, in the examination will receive from the examiner a record of results form stating the results of the examination. This form must be retained by the candidate and produced whenever any subsequent attempt is made at the examination.
- 2.15.4 A candidate who has passed all parts of the examination but who has not yet obtained the subsidiary qualifications necessary to become eligible for the issue of a certificate will be issued with a record of results form. Upon production of this form and proof that the requisite subsidiary qualifications have been obtained, the candidate will be issued with a certificate of competency in the normal manner.
- 2.16 **Insufficient Service**
- 2.16.1 If, after a candidate has passed the examination, it is discovered that his sea service is insufficient to entitle him to receive a certificate of competency of the class for which he has been examined, he will not receive such a certificate. If, however, the Director is satisfied that the error in the calculation of sea service did not occur through any fault or misrepresentation on the part of the candidate, the appropriate certificate will be granted when he has made up the deficiency in sea service.

2.17 **Fees**

- 2.17.1 Applicants for examination will be required to pay the examination fee before any steps are taken to verify their eligibility for examination. Candidates who are found to be ineligible will have their fees returned.
- 2.17.2 The fee paid for examination for a certificate of competency is not refundable in the event of failure to pass any part of the examination.
- 2.17.3 A candidate who fails to appear for any part of any examination at the appointed time may be regarded as having failed by default in that part of the examination and the examination fee will be forfeited unless the candidate produces reasonable proof that failure to attend was unavoidable.
- 2.17.4 Details of the current scale of fees may be obtained from the Seafarers' Certification Section.
- 2.17.5 A candidate who, due to circumstances beyond his control, has to postpone an examination for which he has already made application, may do so for a maximum period of one year beyond the date of the examination applied for. If the candidate wishes to be examined at a date one year after the date of the previously arranged examination, his paid examination fee will be forfeited and he will be required to resubmit his application with fee as if it were a new application. A candidate wishing to postpone examination should apply in writing 3 days in advance. When he subsequently applies to sit the postponed examination, he will be required to pay any increase in fee which may have come into effect since his original application.

2.18 **Issue of Replacement Certificate**

- 2.18.1 If a certificate of competency is lost, the holder may apply to the Seafarers' Certification Section for a replacement certificate. A fee will be charged for the replacement certificate unless the holder can show that the loss was as a result of shipwreck or fire. An applicant for a replacement certificate will be required to make a declaration to the examiner regarding the circumstances in which the certificate was lost.

CHAPTER 3

SEAGOING AND RIVER TRADE CERTIFICATES

SEA SERVICE

3.1 General

- 3.1.1 This chapter specifies provisions relating to qualifying sea service.
- 3.1.2 Except where otherwise specified, the qualifying sea service required for any certificate of competency is the service performed in ships which proceed to sea and which are actively engaged in commercial trading. The Director may, at his discretion, accept a proportion of non-trading service in lieu of some service in trading vessels but, in general, non-trading service not specifically provided for in the Determinations will not be accepted.
- 3.1.3 Qualifying sea service means time spent on board ship reckoned from the date of engagement to the date of discharge. Subject to verification, as and when necessary, certificates of discharge will be accepted as proof of sea service. Where watchkeeping service is also a requirement, candidates must produce Certificates of Watchkeeping Service in addition to proof of sea service.
- 3.1.4 Proof of sea service for candidates serving on Hong Kong registered ships can be verified by the Mercantile Marine Office of Marine Department. Sea service on other ships must be confirmed by the Master(s) of the ship(s) concerned, or by the Consul or other recognized authority of the flag State. However, such confirmation will not necessarily be deemed sufficient.
- 3.1.5 Calculations of voyage length for the purpose of establishing sea service should be made in calendar months and days. When it happens that a candidate has signed off and signed on again on the same day, that day may only be counted once. To calculate total sea service, the length of each voyage should be added together in months and days. The total of days should then be divided by 30 to give months, and residual days. The months should then be added as the total months.
- 3.1.6 Candidates for river trade certificates of competency having sea service on vessels which have not opened articles of agreement will have the total time employed on the vessels accepted as qualifying sea service. Such service must, however, be attested to by the representative of the owners of the vessel.
- 3.1.7 Qualifying sea service for river trade certificates of competency must be performed in the deck department of commercial vessels of not less than 50 gross tonnage (GT).
- 3.1.8 Notwithstanding any provisions in Chapter 6 relating to qualifying service for river trade classes of certificates of competency, any candidate who has qualified for entry to the examinations for any class of seagoing certificate of competency shall also be deemed to have met the requirements for examination for the corresponding class of river trade certificate of competency.

3.2 Non-Trading Service and Local Service in Hong Kong

- 3.2.1 Service in marine craft belonging to armed forces which regularly proceed to sea may be counted in full towards the requisite service for any Class 3 certificate of

competency provided that adequate evidence of sea going service is produced. Candidates claiming such service must, in addition, have served for at least 12 months in trading vessels.

3.2.2 Service in cable ships, sail training vessels, fishery cruisers, research vessels, salvage vessels, navigational aids tenders, oil rig supply vessels, oil rig standby vessels, and other vessels engaged in similar activities will be counted in full only if the time actually spent at sea constitutes at least two thirds of the total time spent on board. If the actual time spent at sea falls below this proportion, the qualifying sea service shall then be calculated as 1.5 times the period actually spent at sea. Candidates claiming this type of service will be required to produce a statement, or certificate, from the owners of the vessel(s) showing the amount of time actually spent at sea.

3.2.3 Service in storage tankers or laid up vessels, in river trade passenger vessels which are registered vessels, and in hovercraft, hydrofoils, and other craft of novel construction which proceed beyond the limits of any harbour will be accepted in full up to a maximum amount of 3 months when applying for seagoing classes of certificates of competency.

3.3 **Remission of Sea Service**

3.3.1 Candidates for seagoing classes of certificate of competency only may have the required periods of sea service reduced by remissions granted in respect of attendance at approved courses of training and in respect of service in certain ranks as detailed in the following paragraphs.

3.3.2 Remission may be granted under more than one heading but in no case will the total period of remission exceed the maximum allowances stated below:

Class 3	maximum remission 24 months
Class 2	no remission
Class 1	maximum remission 12 months

3.3.3 Candidates for Class 1 certificates of competency may be granted remission in respect of periods of approved service as Chief Mate as described in paragraph 3.3.4, subject to the provision that the total remission does not exceed that specified in paragraph 3.3.2.

3.3.4 Candidates for Class 1 certificates of competency may be granted remission of sea service equivalent to 100% of any time served in the rank of Chief Mate on seagoing ships while holding a Class 2 certificate, up to a maximum of 12 months actual service in that rank.

3.3.5 No remission will be granted from the period of 6 months which candidates for a Class 3 certificate of competency are required to spend on duties associated with bridge watchkeeping during the final 12 months of sea service for that certificate.

3.3.6 Candidates for a sea-going Class 3 certificate of competency who have satisfactorily completed the recognized Higher Diploma or the Diploma Courses in Maritime Studies at the Vocational Training Council and have passed the final examination may be granted with 18 months or 12 months of remissions respectively from the sea service required for the certificate. Additional remission of six months may be granted to the same candidates for a river-trade Class 3 certificate of competency. If appropriate supplementary electives/programmes are completed successfully during the course of his/her study, further remission may be granted subject to the limit set out in paragraph 6.1.2.

- 3.3.7 Candidates for a sea-going Class 3 certificate of competency who hold a Bachelor Degree in Shipping Technology and Management or International Shipping and Transport Logistics, or a Higher Diploma in International Transport Logistics granted by the Hong Kong Polytechnic University will be granted 12 months remission from the sea service requirement for the certificate. Additional remission of six months may be granted to the same candidates for a river-trade Class 3 certificate of competency. If appropriate supplementary electives are completed successfully during the course of his/her study, further remission may be granted subject to the limit set out in paragraph 6.1.2.
- 3.3.8 Candidates for a Class 3 certificate of competency who have previously obtained a Certificate of Attendance issued by the Seamen's Training Centre and have completed the 46 week pre-sea Deck Cadet Officer Course are granted 23 weeks of remission from the qualifying sea service requirements for that certificate.

CHAPTER 4

SEAGOING AND RIVER TRADE CERTIFICATES

PARTICULARS OF ADDITIONAL AND SUBSIDIARY QUALIFICATIONS

4.1 Sight Test Certificate

4.1.1 A sight test certificate is an essential requirement for entry to all deck officer certificate of competency examinations. No candidate will be accepted, except in exceptional circumstances, for any part of any examination unless he is in possession of a valid medical fitness and sight test certificate issued by a recognized medical practitioner.

4.1.2 It is important that every person who contemplates a career at sea as a deck officer is aware that an ability to reach the required standard in the sight test when he first commences a career does not guarantee success in subsequent sight tests whenever he applies for examination for a certificate of competency. It is possible that certain latent defects of eyesight which may cause that person's standard of vision to fall as he grows older. These defects can only be discovered by a more searching examination. It is therefore very desirable that anyone embarking on a career at sea as a deck officer should first undergo a thorough examination of his eyesight by an ophthalmologist.

4.1.3 Details of eyesight standards to be met by applicants are available from the Seafarers' Certification Section.

4.2 Medical Fitness Certificate

4.2.1 Proof of medical fitness is an essential requirement for the issue of any seagoing and river trade certificate of competency, licence or Type Rating certificate, or for the revalidation of one of these. Medical fitness may be proven by the production of a certificate of medical fitness issued not more than two years beforehand by a recognized medical practitioner. No seagoing and river trade certificate, licence, Type Rating certificate or revalidation will be issued until a valid medical fitness certificate is presented.

4.2.2 In view of the importance attached to medical fitness at sea and the fact that a certificate of competency or a licence will neither be issued nor revalidated without a valid medical fitness certificate, candidates for examination and persons contemplating a career at sea are strongly advised, in their own interests, to ensure that they will be able to meet the medical fitness standards before they embark on training or courses of study leading to examination.

4.2.3 Candidates in Hong Kong may obtain from the Seafarers' Certification Section a list of medical practitioners who are approved by the Director to issue medical fitness certificates. The list could also be downloaded from the Marine Department's website. Certificate holders or candidates abroad who are unable to attend at one of the approved practitioners in Hong Kong and who require a medical fitness certificate for revalidation or the issue of certificate should, if they are in a country which is a signatory to the STCW Convention, obtain the form of certificate approved by the Administration of that country. In other cases they should refer to the Seafarers' Certification Section for guidance.

4.3 Basic Training Certificates

4.3.1 In accordance with Section A-VI/1 of the STCW Code, the following approved basic training or instruction needs to be provided to seafarers before they are assigned to any shipboard duties:

- (a) personal survival techniques;
- (b) fire prevention and fire fighting;
- (c) elementary first Aid; and
- (d) personal safety and social responsibilities.

4.3.2 Seafarers qualified in accordance with paragraph 4.3.1 are required, every five years, to provide evidence of having maintained the required standard of competence.

4.4 **Certificates of Proficiency in Survival Craft, Rescue Boats and Fast Rescue Boats**

4.4.1 In accordance with Section A-VI/2 of the STCW Code, there are two kinds of certificates under this category. They are:

- (a) Proficiency in Survival Craft and Rescue Boats Other Than Fast Rescue Boats; and
- (b) Proficiency in Fast Rescue Boats

4.4.2 Seafarers qualified in accordance with paragraph 4.4.1 are required, every five years, to provide evidence of having maintained the required standard of competence.

4.5 **Advanced Fire-Fighting Certificate**

4.5.1 In accordance with Section A-VI/3 of the STCW Code, seafarers designated to control fire-fighting operations shall have successfully completed advanced training in techniques for fighting fire.

4.5.2 Seafarers qualified in accordance with paragraph 4.5.1 are required, every five years, to provide evidence of having maintained the required standard of competence.

4.6 **Medical First Aid or First Aid at Sea Certificate**

4.6.1 Medical First Aid or First Aid at Sea certificate is not subject to a limiting period of validity. Attendance at an approved course of instruction is a requirement for admission to the examination for this certificate.

4.7 **Medical Care or Ship Captain's Medical Certificate (SCMC)**

4.7.1 A Medical Care or Ship Captain's Medical certificate or the equivalent approved certificate is not subject to a limiting period of validity.

4.7.2 Possession of an Elementary First Aid and Medical First Aid or First Aid at Sea certificate and attendance at an approved course of instruction are essential requirements for admission to the Medical Care or Ship Captain's Medical certificate examination or the equivalent approved certificate examinations.

4.8 **Security-Related Training**

4.8.1 In accordance with Section A-VI/6 of the STCW Code, there are two kinds of trainings under this category. They are:

- (a) Security-Awareness Training; and
- (b) Training for Seafarers With Designated Security Duties

4.8.2 Until 1 January 2014, relevant seafarers who commenced an approved seagoing service prior to 1 January 2012 shall be able to establish that they meet the requirements in paragraph 4.8.1 by:

- (a) approved seagoing service, for a period of at least six months in total during the preceding three years; or
- (b) having performed security functions considered to be equivalent to the seagoing service required in above item (a); or
- (c) passing an approved test; or
- (d) successfully completing approved training.

4.9 **Efficient Deck Hand Certificate (EDH)**

4.9.1 There is no limiting period of validity for this certificate.

4.9.2 Candidates for river trade classes of certificate of competency who are unable to comply with the sea service requirements for the issue of an EDH certificate will be permitted to attend for the appropriate river trade certificate of competency examination provided that they produce a letter testifying to their success in the EDH examination in lieu of an EDH certificate.

4.10 **Global Maritime Distress and Safety System (GMDSS) - General Operator Certificate (GOC) or Restricted Operator Certificate (ROC)**

4.10.1 This certificate is issued by the Director-General of Telecommunications of Hong Kong and has a period of validity of five years.

4.11 **Radar Navigation Certificate - Operational Level**

4.11.1 This certificate has no limitation period of validity.

4.11.2 Candidates for a River Trade Class 3 certificate of competency who are unable to attend a course for the Radar Navigation Certificate - Operational Level or to meet the qualifying requirements for admission to the course may substitute a certificate of attendance at an approved Radar Operators course.

4.11.3 The elements of an approved Radar Navigation Certificate - Operational Level shall include radar navigation, radar plotting and use of ARPA. Details of syllabus and course arrangement shall be subject to the approval of the Director.

4.12 **Radar Navigation Certificate - Management Level**

4.12.1 This certificate has no limiting period of validity.

- 4.12.2 A Radar Simulator course attendance certificate issued before 1st October 1984 will be accepted in lieu of a Radar Navigation Certificate - Management Level.
- 4.12.3 Candidates for a River Trade Class 2 certificate of competency who are unable to obtain the Radar Navigation Certificate - Management Level or to meet the qualifying conditions for the issue of such a certificate may substitute a certificate of attendance at an approved Radar Simulator course.
- 4.12.4 The elements of an approved Radar Navigation Certificate - Management Level shall include management level training in the use of radar and ARPA, including bridge teamwork and search and rescue. Details of syllabus and course arrangement shall be subject to the approval of the Director.
- 4.13 **Operational Use of Electronic Chart Display and Information Systems (ECDIS) Certificate**
- 4.13.1 There is no limiting period of validity for this certificate.
- 4.13.2 This certificate is not required for those who serve exclusively on ships not fitted with ECDIS. In this case, these limitations shall be reflected in the certificates issued to the seafarer concerned.
- 4.13.3 The elements of an approved Operational Use of ECDIS certificate shall include knowledge of the capability and limitations of ECDIS operations, and proficiency in operation, interpretation, and analysis of information obtained from ECDIS. Details of syllabus and course arrangement shall be subject to the approval of the Director.
- 4.14 **Short Course Certificates obtained outside Hong Kong**
- 4.14.1 Equivalent certificates to those listed in this chapter issued by Administration or training institute of any other country which at the time of issue was a signatory to the STCW Convention may be accepted as meeting the requirements of the Determinations. In all cases, evidences and verifications are required where appropriate to certify that training in the particular subjects has been performed in accordance with the requirements.

CHAPTER 5

SEAGOING CERTIFICATES

QUALIFYING REQUIREMENTS

5.1 To qualify for the issue of an initial deck officer certificate of competency of sea going type of any class in Hong Kong, a candidate must:

- (a) have completed approved basic training courses in accordance with Section A-VI/1 of the STCW Code on:
 - (i) personal survival techniques;
 - (ii) fire prevention and fire fighting;
 - (iii) elementary first Aid; and
 - (iv) personal safety and social responsibilities.
- (b) have completed an approved advanced fire-fighting course or equivalent;
- (c) have completed and passed the assessment of an approved medical first aid or first aid at sea course or equivalent;
- (d) have completed and passed the assessment of an approved proficiency in survival craft and rescue boats course or equivalent; and
- (e) have completed and passed the assessment of an approved course on security-awareness training or equivalent in accordance with Section A-VI/6 paragraph 5 of the STCW Code;
- (f) have a valid medical fitness certificate and pass the sight test.

5.2 Class 3 Certificate of Competency

5.2.1 To qualify for the issue of a Class 3 certificate of competency, a candidate must:

- (a) be not less than 18 years of age.
- (b) have completed an education to the standard of Secondary level or equivalent level.
- (c) have served not less than 36 months of qualifying sea service.
- (d) have spent not less than 6 out of the final 12 months of sea service engaged on duties associated with bridge watchkeeping under the supervision of a certificated officer and be able to produce a certificate to that effect signed by the Master(s) under whom he has sailed. Duties associated with bridge watchkeeping may include the duties of a lookout but not those of a helmsman.
- (e) pass the examination specified in Chapter 8 unless holding valid exemptions from that examination or from parts of it as allowed in Chapter 7.
- (f) in addition to those stated in paragraph 5.1, hold the following subsidiary and additional certificates/qualifications or acceptable alternatives:

- (i) GMDSS (GOC)
- (ii) Radar Navigation – Operational Level
or training containing elements in 4.11.3
or Radar Observer plus ARPA
- (iii) Efficient Deck Hand or appropriate experience
- (iv) Proficiency in Communications
- (v) Training for Seafarers with Designated Security Duties
- (vi) Operational Use of ECDIS.

5.2.2 A maximum period of remission of sea service of 24 months in respect of approved training course/programme may be granted from the sea service requirement stated in paragraph 5.2.1. Such approved training programme shall include an on-board training period to be documented in an approved training record book. The on-board training period will also be reckoned as requisite qualifying sea service mentioned in paragraph 5.2.1. Details of other courses which are approved for remission and the remission available from each are contained at Chapter 3.

5.2.3 Sea service as a General Purpose rating will count at two thirds of the full rate until the first year of qualifying service is completed (i.e. for a maximum of 18 months actual service in that capacity), thereafter such service will count in full.

5.3 **Class 2 Certificate of Competency**

5.3.1 To qualify for the issue of a Class 2 certificate of competency, a candidate must:

- (a) have served not less than 12 months qualifying sea service as a watchkeeping officer in the deck department while holding a seagoing Class 3 certificate of competency or a certificate specified as equivalent to that certificate.
- (b) pass the examination specified in Chapter 8 unless holding valid exemptions from that examination or from parts of it as allowed in Chapter 7.
- (c) in addition to those stated in paragraph 5.1, hold the following subsidiary and additional certificates/qualifications or acceptable alternatives :
 - (i) GMDSS (GOC)
 - (ii) Radar Navigation – Management Level
or training containing elements in paragraph 4.12.4
or Radar Simulator Course
 - (iii) Medical Care or Ship Captain's Medical Certificate.

5.3.2 At least 6 months of the 12 months qualifying sea service specified in paragraph 5.3.1 must have been gained in vessels trading between locations which are more than 500 miles apart by sea.

5.4 **Class 1 Certificate of Competency**

5.4.1 To qualify for the issue of a Class 1 certificate of competency, a candidate must:

- (a) have served not less than 36 months of qualifying sea service as a watchkeeping officer in the deck department while holding a seagoing Class 3 certificate of competency or a certificate specified as equivalent to that certificate.
- (b) pass the examination specified in Chapter 8 unless holding valid exemptions from that examination or from parts of it as allowed in Chapter 7.

- (c) in addition to those stated in paragraph 5.1, hold the following subsidiary and additional certificates/qualifications or acceptable alternatives :
 - (i) GMDSS (GOC)
 - (ii) Radar Navigation – Management Level
or training containing elements in paragraph 4.12.4
or Radar Simulator Course
 - (iii) Medical Care or Ship Captain's Medical Certificate.

5.4.2 At least 12 months of the 36 months of qualifying sea service specified in paragraph 5.4.1 must have been gained in vessels trading between locations which are more than 500 miles apart by sea.

5.4.3 A maximum period of remission of sea service of 12 months may be granted in respect of time served as Chief Mate between the attainment of a Class 3 certificate of competency and this certificate. Details of the service which are approved for the granting of remission are contained in Chapter 3.

5.5 **Holders of Certificates of Competency issued by other Administrations**

5.5.1 Holders of certificates of competency issued by other Administrations whose certificates fall on the list of equivalent certificate of competency may apply for examination for the next higher grade of Hong Kong certificate of competency. However they should not be given more favourable treatment. They must comply with the sea service and basic subsidiary training requirements at the level of Hong Kong Class 3 certificate.

CHAPTER 6

RIVER TRADE CERTIFICATES

QUALIFYING REQUIREMENTS

6.1 To qualify for the issue of an initial deck officer certificate of competency of river trade type of any class in Hong Kong, a candidate must:

- (a) have completed approved basic training courses in accordance with Section A-VI/1 of the STCW Code on:
 - (i) personal survival techniques;
 - (ii) fire prevention and fire fighting;
 - (iii) elementary first Aid; and
 - (iv) personal safety and social responsibilities.
- (b) have completed an approved advanced fire-fighting course or equivalent;
- (c) have completed and passed the assessment of an approved medical first aid or first aid at sea course or equivalent;
- (d) have completed and passed the assessment of an approved proficiency in survival craft and rescue boats course or equivalent; and
- (e) have completed and passed the assessment of an approved course on security-awareness training or equivalent in accordance with Section A-VI/6 paragraph 5 of the STCW Code;
- (f) have a valid medical fitness certificate and pass the sight test.

6.2 River Trade Class 3 Certificate of Competency

6.2.1 To qualify for the issue of a River Trade Class 3 certificate of competency, a candidate must:

- (a) be not less than 18 years of age.
- (b) have completed an education to the standard of Form 3 or equivalent level.
- (c) have served not less than 36 months of qualifying sea service;
or hold a Hong Kong Local Certificate of Competency as Master (up to 300 tons) or Coxswain Grade 1 certificate issued by the Marine Department.
- (d) have spent not less than 500 hours of bridge watchkeeping duties (including lookout) under the supervision of a certificated officer in the final 12 months of Qualify Sea Service. The watchkeeping duties must be recorded clearly in hours and certified by the supervising officer and the master on a record certificate. A sample of the certificate can be found at Appendix I - Form 3.
- (e) pass the examination specified in Chapter 8 unless holding valid exemptions from that examination or from parts of it.

- (f) in addition to those stated in paragraph 6.1, hold the following subsidiary and additional certificates or acceptable alternatives as specified in Chapter 4:
 - (i) Efficient Deck Hand or appropriate experience
 - (ii) GMDSS (GOC or ROC)
 - (iii) Proficiency in Communications
 - (iv) Approved Radar Operators Course or Radar Navigation - Operational Level.

6.2.2 A maximum period of remission of sea service of 24 months in respect of approved training course/programme may be granted from the sea service requirement stated in paragraph 6.2.1. Such approved training programme shall include an on-board training period to be documented in an approved training record book. The on-board training period will also be reckoned as requisite qualifying sea service mentioned in paragraph 6.2.1. Details of other courses which are approved for remission and the remission available from each are contained in Chapter 3.

6.2.3 Sea service as a General Purpose rating will count at two thirds of the full rate until the first year of qualifying service is completed (i.e. for a maximum of 18 months actual service in that capacity), thereafter such service will count in full.

6.3 **River Trade Class 2 Certificate of Competency**

6.3.1 To qualify for the issue of a River Trade Class 2 certificate of competency, a candidate must:

- (a) have served not less than 12 months of qualifying sea service as a watchkeeping officer on vessels employed in the river trade area while holding a seagoing Class 3 certificate of competency or a River Trade Class 3 certificate of competency, or a certificate specified as equivalent to either of these certificates.
- (b) pass the examination specified in Chapter 8 unless holding a valid exemption from that examination or from a part of it.
- (c) in addition to those stated in paragraph 6.1, hold the following subsidiary and additional certificates or their acceptable alternatives as specified in Chapter 4 :
 - (i) GMDSS (GOC or ROC)
 - (ii) Radar Navigation - Management Level or approved Radar Simulator course
or Radar Simulator (HSC) course.

6.4 **River Trade Class 1 Certificate of Competency**

6.4.1 To qualify for the issue of a River Trade Class 1 certificate of competency, a candidate must:

- (a) have served for not less than 36 months of qualifying sea service on vessels sailing in the river trade area as a watchkeeping officer while holding a seagoing Class 3 certificate of competency or a River Trade Class 3 certificate of competency, or a certificate specified as equivalent to either of these certificates.

- (b) pass the examination specified in Chapter 8 unless holding a valid exemption from that examination or from a part of it.
 - (c) in addition to those stated in paragraph 6.1, hold the following subsidiary and additional certificates or their acceptable alternatives as specified in Chapter 4 :
 - (i) GMDSS (GOC or ROC)
 - (ii) Medical Care or Ship Captain's Medical Certificate
 - (iv) Radar Navigation – Management Level or Approved Radar Simulator course
or Radar Simulator (HSC) course
- 6.4.2 At least 6 months of the qualifying period of sea service specified in paragraph 6.4.1 must have been spent either as officer in sole charge of a watch, or as the second of two or more officers keeping a watch at the same time.
- 6.5 **River Trade Eligibility - General**
- 6.5.1 Notwithstanding any other requirement of this Chapter, any candidate who has qualified for entry into the examinations for any class of seagoing certificate of competency will also be deemed to have met the requirements for examination for the corresponding class of River Trade certificate of competency.
- 6.5.2 Sea service gained as a NVO will be counted at one third of the full rate up to a maximum amount of 9 months towards the sea service specified in para. 6.3.1(a) & 6.4.1(a). However such sea service may be counted at two-third of the full rates up to a maximum amount of 12 months provided that 500 hours of bridge watch-keeping duties (including lookout) are carried out under the supervision of a certificated officer. Each hour of such watch-keeping duties must be recorded clearly and certified by the master of the vessel. A sample certificate can be found at Appendix I - Form 3.

CHAPTER 7

SEAGOING AND RIVER TRADE CERTIFICATES

EXAMINATION PROCEDURES

7.1 **General**

- 7.1.1 Examinations will begin at a time appointed by the examiner.
- 7.1.2 No person will be allowed to enter the examination room other than candidates and those whose duties require them to be present.
- 7.1.3 Total silence must be maintained in the examination room.
- 7.1.4 The following publications and tables are specified by the Director and copies of them are available for the use of candidates in the examination room:
- Norries Nautical Tables (full edition)
Burtons Nautical Tables
Admiralty Tide Tables Volumes 1, 2, 3, and 4
Nautical Almanac (NP 314)
- 7.1.5 Candidates who wish to use their own copies of the above tables, or who wish to use tables other than those 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.
- 7.1.6 Subject to the examiner's approval, no restriction will be placed on the use of any tables. However, candidates should understand the theory on which such tables are based on and the tables used should be capable of giving an answer within the required limits of accuracy as stated in paragraph 7.3. When tables other than those specified by the Director are used in answering a question, the name of the tables should be stated on the candidate's answer paper.
- 7.1.7 Candidates may use their own drawing instruments and non-programmed calculators provided that the examiner's approval is obtained before the examination begins. Candidates are required to produce fully worked out calculations. Answers where the process of calculation is not shown may be subject to a deduction of marks.
- 7.1.8 Other than Nautical Tables which have been approved by the examiner, no books or papers of any kind whatsoever may be brought into the examination room. Any candidate infringing this rule will be regarded as having failed the examination and will not be accepted for re-examination for a period of 6 months.
- 7.1.9 Candidates who deface, or otherwise injure or damage, any property of the Marine Department will have their service papers, (certificates, testimonials etc.) retained until such time as they have replaced the damaged items.
- 7.1.10 No candidate is permitted to leave the examination room without permission and without giving up the paper on which he is engaged. A candidate who does so will be regarded as having failed in that paper.

- 7.1.11 All work must be shown and any rough work which is done on scrap paper supplied for the purpose must be handed in at the end of the examination.
- 7.1.12 During the course of an examination, any candidate who is found to be:
- referring to an unauthorised book or paper;
 - copying from another candidate;
 - affording assistance or information to another candidate;
 - accepting assistance or information from another candidate;
 - communicating in any way with another candidate;
 - copying any part of the questions or answers for the purpose of taking them from the examination room;
 - guilty of insolence to the examiner; or
 - guilty of disorderly or improper conduct in the examination room;
- will be regarded as having failed the examination as a whole and will not be accepted for re-examination for such period as may be decided by the Director.

7.2 **Written Examinations**

- 7.2.1 Candidates will be provided with as many sheets of ruled paper as are necessary for them to complete the written work, all of which, except for sketches, must be completed in ink. Each answer should be started by writing in the margin the number of the question to which it relates. Candidates should, in their own interests, write in a clear and legible hand.
- 7.2.2 Unless a question specifies the required method of solution, candidates will be allowed to solve problems by any method, provided that the method used is correct in principle, affords the required degree of precision, and is clearly shown on the answer paper.
- 7.2.3 Answer scripts from written examinations, including charts used should be retained for a period of not less than 60 days following an examination in case a candidate wishes to appeal to the Director against the decision of examiner.

7.3 **Degree of Precision Required**

- 7.3.1 Candidates should work to a degree of precision consistent with the data supplied in the question and the problem concerned. Information from tables should be extracted as accurately as possible consistent with the inherent accuracy of the tables, and final answers should be given to the best degree of precision which is justified, and no more.
- 7.3.2 When making calculations to obtain a ship's position, candidates are expected to work to 0.2 of a minute of arc, and to the nearest second of time.
- 7.3.3 Any method of calculation which is used to obtain a position line should be capable of providing an answer correct to within one nautical mile.

7.3.4 Answers to calculations of compass errors, bearings and courses, should be worked to within 0.5 degrees of arc.

7.3.5 Tidal calculations should be worked to provide an answer which is within 15 cm of a precise result.

7.4 **Validity of Partial Passes**

7.4.1 Except as provided elsewhere in this section, a pass in any subject of the examinations for a certificate of competency will remain valid for 2 years from the date of examination subject to the discretion of the examiner in an individual cases.

7.5 **Resits**

7.5.1 A candidate who fails only in one paper of a part of the written examination may, at the discretion of the examiner, be permitted to resit that paper. A failure at the resit will mean that the candidate is deemed to have failed that paper of the examination. A pass in the resit will mean that the candidate is deemed to have passed that paper of the examination.

7.6 **Oral and Practical Examinations**

7.6.1 The oral/practical part of each examination is intended to ascertain the candidate's competency in the practical aspects of an officer's duties.

7.6.2 During the course of the examination, the examiner will test candidates', among other things, knowledge of the sense and the intention of the International Regulations for Preventing Collisions at Sea. A mere ability to recite the regulations word for word will not suffice to ensure a candidate's passing, nor will a lack of such ability necessarily result in failure, provided that the candidate is able to satisfy the examiner that he grasps the full significance, content, and practical application of the regulations. Examiners will not ask for the content of the regulations by number, but by the subject with which they deal. The use of verses as aids to memorizing the regulations will be discouraged.

7.6.3 Examiners will not place candidates in the position of handling a sailing vessel, but will test the candidate's ability to recognize the lights and signals of a sailing vessel and the candidate's understanding of a sailing vessel's possible manoeuvres according to the direction of the wind.

7.6.4 A candidate who fails in an oral/practical examination through serious weakness in practical knowledge may, at the examiner's discretion be given a time penalty which may include a requirement to perform further sea service before being re-examined. Such sea service will not exceed 6 months and may be performed in any deck capacity in any seagoing ship.

CHAPTER 8

SEAGOING AND RIVER TRADE CERTIFICATES

EXAMINATION STRUCTURE AND MARKING

8.1 **Seagoing Class 3 Certificate of Competency**

8.1.1 The examination for this certificate is in three parts as follows. The three parts may be taken together or separately.

Part A

Coastal Navigation;	2½ -hour written paper,	Pass mark 70%
Offshore Navigation;	2-hour written paper,	Pass mark 70%

Part B

General Ship Knowledge;	3-hour written paper,	Pass mark 50%
Watchkeeping & Meteorology;	2½ -hour written paper,	Pass mark 60%

Part C

Seamanship & Safety; Oral and Practical examination.

Note : Proficiency in	1-hour written paper	Pass mark 70%
Communication;	Oral / Practical	Pass mark 90%

8.2 **Seagoing Class 2 Certificate of Competency**

8.2.1 The examination for this certificate is in three parts as follows. The three parts may be taken together or separately.

Part A

Navigation;	3-hour written paper,	Pass mark 60%
Passage Planning;	3-hour written paper,	Pass mark 60%

Part B

Ship Technology;	3-hour written paper,	Pass mark 50%
Shipboard Operations;	3-hour written paper,	Pass mark 60%
Commerce and Law;	3-hour written paper,	Pass mark 50%

Part C

Seamanship & Safety; Oral and Practical examination.

8.3 **Seagoing Class 1 Certificate of Competency**

8.3.1 For candidates who have passed Parts A and B of the Class 2 examination at the Marine Department, the examination for a Class 1 certificate of competency will be solely an oral/practical examination. Candidates for Class 1 who do not hold a Class 2 certificate of competency issued by Marine Department via examination under the Determination, or whose Class 2 certificate of competency was issued under previous Determinations or Rules, or hold a Class 2 certificate of competency issued by other Administration, will be required to pass Part A and Part B of the Class 2 examination in addition to the Class 1 oral/practical examination.

8.4 **River Trade Class 3 Certificate of Competency**

8.4.1 The examination for this certificate is in two parts as follows.

Part A

General Nautical Knowledge;	2-hour written paper,	Pass mark 50%
Chartwork;	2-hour written paper,	Pass mark 70%

Part B

Meteorology;	Oral examination
Seamanship & Safety;	Oral and Practical examination

These two examinations in Part B will normally be taken concurrently. The results of each will be recorded separately and candidates will be required to achieve a pass in both subjects.

Note : Proficiency in	1-hour written paper	Pass mark 70%
Communication;	Oral/Practical	Pass mark 90%

8.5 **River Trade Class 2 Certificate of Competency**

8.5.1 The examination for this certificate is in two parts as follows. The two parts may be taken together or separately.

Part A

Business & Law;	2-hour written paper;	Pass mark 50%
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Shipboard Operations;	1½ -hour written paper;	Pass mark 50%
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Ship Construction, Stability & Engineering Knowledge;	3-hour written paper;	Pass mark 60%
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Navigation Aids & Instruments;	2-hour written paper;	Pass mark 60%
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Part B

Seamanship & Safety;	Oral and practical examination.
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8.6 **River Trade Class 1 Certificate of Competency**

- 8.6.1 For candidates who have passed Part A of the Class 2 examination at the Marine Department, the examination for a Class 1 Certificate of Competency will be solely an oral/practical examination. Candidates who do not hold a Class 2 Certificate of Competency issued by the Marine Department under the Determination or whose Class 2 certificate of Competency was issued under previous Determinations or Rules, will be required to pass Part A of the Class 2 examination in addition to the Class 1 oral/practical examination.

CHAPTER 9

SEAGOING AND RIVER TRADE CERTIFICATES

EXAMINATION SYLLABUSES

9.1 Introduction

9.1.1 The examinations set under these syllabuses will use the SI system of units, or where this is impractical, the appropriate and accepted nautical units.

9.1.2 The syllabuses are intended to be progressive from class to class and the syllabus for a higher class in any examination is always presumed to include the syllabus for the corresponding subject, if any, in the preceding class of certificate of competency. Examination questions may be set which combine more than one paragraph in the syllabus.

9.1.3 A candidate may be asked questions arising out of the written work in the oral and practical examination if the examiner deems it necessary on account of any weakness shown by the candidate.

9.2 Proficiency in Communications (1-hour)

Function : *Navigation at the operational level*

Competence (i) : *Use the IMO Standard Marine Communication Phrases and use English in written and oral form.*

Criteria : *English language navigational publications and messages relevant to the safety of the ship are correctly interpreted or drafted. Communications are clear and understood.*

English Language

- (a) Adequate knowledge of English language to enable the officer to use charts and other nautical publications, to understand meteorological information and messages concerning ship's safety and operation, to communicate with other ships, coast stations and VTS centres and to perform the officer's duties also with a multilingual crew.
- (b) The ability to use and understand the IMO Standard Marine Communication Phrases (IMO SMCP) to cover shipboard terms and operations to do with mooring and anchoring, deck work and cargo work; bridge watchkeeping, instructions from pilots, and instructions to ratings; emergency situations, safety of life at sea, and fire fighting.
- (c) Radio Telephony, simple operation of VHF and R/T sets.
- (d) Procedures in handling messages to do with entering and leaving port and structured according to the IMO Standard Marine Communication Phrases.
- (e) Procedures for the handling of distress traffic, urgency, safety messages and navigational messages.

Competence (ii) : Transmit and receive information by visual signalling

Criteria : Communications within the operator's area of responsibility are consistently successful.

Visual Signalling

- (f) The ability to transmit and receive, by Morse light, distress signal SOS as specified in Annex IV of the International Regulations for Preventing Collisions at Sea, 1972, as amended and appendix 1 of the International Code of Signals.
- (g) The ability to transmit and receive, by Morse light, visual signalling of single-letter signals as specified in the International Code of Signals.
- (h) The ability to recognize flags of the International Code of Signals and to know their single letter meanings.
- (i) The ability to use the International Code of Signals.

9.3 Seagoing Class 3 Certificate

PART A

Paper 1 - Coastal Navigation (2½ -hour)

Function : Navigation at the operational level

Competence : Plan and conduct a passage and determine position

Criteria : The primary method of fixing a ship's position is the most appropriate to the prevailing circumstances and conditions. Information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied.

Terrestrial and Coastal Navigation

- (a) The ability to determine a ships position and to properly monitor a coastal passage using the following types of information or any combination thereof:

DR position and estimated position.

Positions fixed using position lines obtained visually or by radar as bearings or ranges from shore land-marks, lighthouses, beacons and buoys.

Position lines and fixes by electronic navigational aids.

Information obtained from log, propeller revolutions, soundings, winds, tides, currents and estimated speed.

Parallel indexing by radar.

Transit bearings and single bearings used as clearing and leading lines.

Horizontal and vertical angles.

Transferred position lines, single position lines.

- (b) A thorough knowledge of navigational charts, light lists and sailing directions and their correction using Notices to Mariners and navigational warnings by radio and NAVTEX and ship's routing information.
- (c) Basic knowledge of the principles of passage planning, and watchkeeper's duties in implementing a passage plan.
- (d) The ability to lay off suitable courses and prepare charts and information for a coastal passage, and to calculate ETA.
- (e) A thorough knowledge of navigational procedures in connection with traffic separation schemes and other routing schemes, and the use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures.
- (f) The correction of courses for compass error. A knowledge of the separate effects of variation and deviation on compass headings.
- (g) The ability to assess and compare the accuracies and reliabilities of the types of information as in (a).
- (h) The ability to adjust course, amend the allowance for tidal stream, set, and/or leeway and amend ETA as a result of information obtained as in (a).
- (i) Landfalls and approaching harbours and anchorages. The use of visual indications, radar and appropriate instruments in making landfall and during an approach.
- (j) The use of Admiralty Tide Tables.
- (k) Ability to calculate tidal conditions. To use tide tables in conjunction with Tidal Stream Atlas and charted information to obtain tidal stream predictions.

Paper 2 - Offshore Navigation (2-hour)

Function : Navigation at the operational level

Competence : Plan and conduct a passage and determine position

Criteria : The primary method of fixing a ship's position is the most appropriate to the prevailing circumstances and conditions. Information obtained from nautical charts and publications is relevant, interpreted correctly and properly applied.

Celestial Navigation

- (a) Ability to use celestial bodies to determine a ship's position.
- (b) From an observation of any heavenly body to find a position line, using any suitable method.

- (c) To obtain a position by the use of position lines obtained from celestial observations.
- (d) Identification of stars and planets commonly used in navigation; precomputation of altitudes and azimuths of stars and planets; procedures for morning and evening star sights.
- (e) To find latitude by meridian altitude and by observation of Polaris.
- (f) Ability to determine and allow for compass errors by finding the true bearing of a heavenly body.
- (g) The ability to find by calculation the great circle and/or the rhumb line course and distance between two positions and DR and estimated positions given run and predicted current effect.

Part B

Paper 1 - General Ship Knowledge (3-hour)

Function (1) : Controlling the operation of ship and care for persons on board at the operational level

Competence : Maintain seaworthiness of ship

Criteria : Actions to ensure and maintain the watertight integrity of a ship are in accordance with accepted practice.

Stability conditions comply with the IMO intact stability criteria under all conditions of loading.

Ship Construction

- (a) General knowledge of the principal structural members of a ship and the proper name for the various parts.
- (b) Basic ship types. Ship propulsion systems.
- (c) Hull nomenclature, main dimensions and tonnages, on-board plans and drawings.

Ship Stability

- (d) Working knowledge and application of stability, trim, stress tables, diagrams and stress calculating equipment.
- (e) Understanding of the fundamentals of watertight integrity.
- (f) Stability criteria. Hull form coefficients, displacement, deadweight, lightweight. Curves and tables of displacement and TPC. load line markings. Density, relative density, archimedes principle, flotation. Effects of density of water on draught and freeboard. FWA, DWA. The marine hydrometer and its uses. Buoyancy, reserve buoyancy, partial loss of intact buoyancy.
- (g) Transverse stability; definitions of 'G', 'B', and 'M'. Equilibrium positions of 'G', 'B', and 'M'. Righting lever and righting moment.

- (h) Stability information; stability information supplied to ships. Uses of hydrostatic data for stability, draught and trim. Adding and removing weights. Free surface effect, danger of slack tanks.

Function (2) : Cargo handling and stowage at operational level

Competence : Monitor the loading, stowage, securing, care during the voyage and the unloading of cargoes

Inspect and report defects and damages to cargo spaces, hatch covers and ballast tanks

Criteria : Cargo operations are carried out in accordance with cargo plan or other document and established safety rules and regulations, equipment operating instructions and shipboard stowage limitations.

The handling of dangerous, hazardous and harmful cargoes complies with international regulations and recognized standards and codes of safe practice.

Communications are clear, understood and consistently successful.

The inspections are carried out in accordance with laid down procedures and defects and damages are detected and properly reported.

Cargo handling and stowage

- (a) Cargo handling, stowage & securing.
- (b) Knowledge of the effect of cargo including heavy lifts on the seaworthiness and stability of the ship.
- (c) Knowledge of safe handling, stowage and securing of cargoes including solid bulk cargoes and dangerous, hazardous and harmful cargoes and their effect on the safety of life and of the ship.
- (d) Ability to establish and maintain effective communications during loading and unloading.
- (e) Definitions of various terms used in the carriage of goods, i.e. bale capacity, grain capacity, stowage factors, broken stowage, measurement cargoes, deadweight cargoes.
- (f) Cargo handling equipment. The meaning of Safe Working Load. The correct rigging and safe operation of derricks, cranes, stores hoists, etc.
- (g) Types of hatch covers in general use and their safe opening, closing, sealing and securing. Tank lids, trunkway doors, ventilation systems, hatches and other openings to cargo spaces.
- (h) The stowage of general and mixed or unitised types of cargoes in general cargo ships. The making and use of cargo plans. Preparation of holds. Use of dunnage. Separation of cargoes. Loading and discharging processes and the securing of

different types of cargo including heavy items. How to prevent or minimise cargo damage due to sweat and pilferage.

- (i) The stowage of dry cargoes in bulk carriers. Loading and discharging methods. Action to be taken in the case of grab damage. The preparation of holds for most common types of bulk cargoes. The principal hazards to ship and crew associated with the carriage of solid bulk cargoes, and how the effects of these may be minimised.
- (j) The handling, stowage, securing and carriage of deck cargoes.
- (k) Containerised and Ro-Ro cargoes. Methods of handling and securing in fully specialised or partly conventional ships. Principal hazards to be avoided during loading, carriage and discharge. Checks to be made to ensure correct out-turn. Main container types.
- (l) Liquid cargoes. Loading and discharging processes in tankers and OBO's. The hazards associated with petroleum, liquefied gases and bulk chemical cargoes and general safety precautions and measures. Gas testing instruments. Gauging and venting systems. Cargo pipeline systems. Tank cleaning and gas freeing processes.
- (m) Salt water ballast. The requirement to ballast in light ship condition. The control of ballast operations simultaneously with loading and discharging. Filling, discharging and stripping methods. Reasons for the avoidance of overflowing ballast on deck. The hazards of excessive free surface or stress produced by the combination of ballast and cargo operations. Checks to be made on the integrity of ballast tanks.

Inspect and report defects and damages to cargo spaces, hatch covers and ballast tanks

- (n) Knowledge and ability to explain where to look for damages and defects most commonly encountered due to loading and unloading operations, corrosion and severe weather conditions. Ability to state which parts of a ship shall be inspected each time in order to cover all parts within a given period of time.
- (o) Identify those elements of ship structure which are critical to the safety of ship. State the causes of corrosion in cargo spaces and ballast tanks and how corrosion can be identified and prevented.
- (p) Knowledge of procedures on how the inspections shall be carried out. Ability to explain how to ensure reliable detection of defects and damages. Understanding of the purpose of the “Enhanced Survey Programme”.

Paper 2 - Watchkeeping and Meteorology (2½ -hour)

Function (1) : Navigation at the operational level

Competence (i) : Maintain a safe navigational watch

<i>Criteria : The conduct, hand over and relief of the watch conforms with accepted principles and procedures.</i>
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Watchkeeping

- (a) Thorough knowledge of effective bridge team work procedures. The use of routing in accordance with the General Provisions on Ships' Routing.
- (b) Operation and care of gyro-compasses and systems under the control of the master gyro including automatic pilot systems.
- (c) A knowledge of the principles of magnetic and gyro-compasses including errors and their correction.
- (d) A knowledge of the operation and use of bridge instrumentation.
- (e) Knowledge of the capability and limitations of ECDIS operations. Proficiency in operation, interpretation, and analysis of information obtained from ECDIS.

Competence (ii) : Plan and conduct a passage and determine position

Criteria : Performance checks and tests to navigation systems comply with manufacturer's recommendations and good navigational practice. The selection of the mode of steering is the most suitable for the prevailing weather, sea and traffic conditions and intended manoeuvres. Measurement and observation of weather conditions are accurate and appropriate to the passage. Meteorological information is correctly interpreted and applied.

Electronic systems of position fixing and navigation

- (e) Ability to determine the ship's position by use of electronic navigational aids including Decca, Loran C & Global Positioning System, Omega, Direction Finder and the knowledge on their principles of operation and associated errors.

Echo sounders

- (f) Ability to operate the equipment and apply the information correctly, and the knowledge on their principles of operation and associated errors.

Compass - magnetic and gyro

- (g) Knowledge of the principles of magnetic and gyro compasses

Ability to determine errors of the magnetic and gyro compasses, using celestial and terrestrial means, and to allow for such errors.

Speed and distance measuring instrument

- (h) Knowledge of the principles of log and speed measuring equipment and associated errors.

Steering control systems

- (i) Knowledge of steering control systems, operational procedures and change-over from manual to automatic control and vice-versa. Adjustment of control for optimum performance.

Meteorology

- (j) Ability to use and interpret information obtained from meteorological instruments and the ability to apply the meteorological information available.
- (k) Knowledge of the characteristics of the various weather systems, reporting procedures and recording systems.
- (l) General structure of the atmosphere and the significance of variations in sea surface atmospheric pressure; simple relationship between pressure gradient, wind speed and direction.
- (m) A knowledge of global mean pressure distribution. Daily and seasonal variations. Prevailing winds, land and sea breezes. Monsoons.
- (n) The Beaufort wind scale. Water vapour in the atmosphere. Evaporation, condensation, precipitation. Meaning of saturation, relative humidity and dew point.
- (o) Formation and classification of clouds. Fog, mist and haze.
- (p) Synoptic and prognostic charts. Types of weather charts received by FAX.
- (q) The structure of weather reporting by shore and ship stations.

Competence (iii) : Respond to a distress signal at sea

Criteria : The distress or emergency signal is immediately recognized. Contingency plans and instructions in standing orders are implemented and complied with.

Search and rescue

- (r) A knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual.

Function (2) : Controlling the operation of the ship and care for persons on board at the operational level

Competence (i) : Ensure compliance with pollution prevention requirements

Criteria : Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed.

Prevention of pollution of the marine environment and anti-pollution procedures

- (a) Knowledge of the precautions to be taken to prevent pollution of the marine environment. Emergency action to be taken in case of spillage.
- (b) Anti-pollution procedures and all associated equipment.
- (c) Marine pollution by ships, likely causes, e.g. leakage during transfer of oil cargo or fuel, discharges during cleaning of holds or tanks, contamination of ballast.

Competence (ii) : Monitor compliance with legislative requirements

Criteria : Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified.

- (d) Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security and protection of the marine environment.

Competence (iii) : Others

<i>Criteria : Duties of watch and shipboard operations are complied with proper procedures to ensure safety of ship and persons on board.</i>

- (e) Duties of an officer in charge of mooring operations, stationed forward or aft. Securing tugs. Securing alongside and to buoys. Entering and leaving docks and drydocks. Preparation for getting under way. Embarkation and disembarkation of pilots.
- (f) Anchors and cables and the usual arrangements for their handling, stowage and securing. Procedure of coming to a single anchor. Duties of an officer in charge of anchor handling operations. Use of an anchor when approaching or leaving a berth.
- (g) Duties of a deck officer on watch in port, during cargo work in various types of vessels, and in drydock or repair yard. The contents of relevant Merchant Shipping Notices and their application, with special attention to the following:
Access to the vessel and holds etc.
Lighting on deck, in holds, and overside.
The covering or fencing of hazardous openings.
Procedures to be followed for entry into enclosed spaces or prior to commencing hot work.
Safety precautions which may be required for work processes.
- (h) A knowledge of the various items of Life-saving equipment and Fire-fighting equipment which are provided in cargo and passenger vessels, and their maintenance.
- (i) A knowledge of the requirements for emergency organisation and training. The duties of an officer in organising and taking part in drills dealing with fire fighting and other emergencies and abandon ship. The organisation of emergency parties.
- (j) A knowledge of the contents and application of the relevant sections of the "Code of Safe Working Practices for Merchant Seamen" and Merchant Shipping Notices.

Competence (iv) : Application of leadership and teamworking skills

<i>Criteria : Effective leadership behaviours are demonstrated. Decisions are most effective for the situation.</i>

- (k) Working knowledge of shipboard personnel management and training.
- (l) A knowledge of related international maritime conventions and recommendations, and national legislation.
- (m) Ability to apply task and workload management.
- (n) Knowledge and ability to apply effective resource management.
- (o) Knowledge and ability to apply decision-making techniques.

Part C

Oral and Practical Examination - Seamanship and Safety

Function : *Navigation at the operational level*

Competence (i) : Maintain a safe navigational watch

Content of Examination	Criteria for Satisfactory Examination
<i>Watchkeeping</i> A knowledge of the content of STCW, "Principles to be Observed in Keeping a Navigational Watch" and "Watchkeeping in Port". A thorough knowledge of the content and application of the International Regulations for Preventing Collisions at Sea. A knowledge of IALA buoyage systems A and B. To demonstrate the ability to use a sextant, chronometer and azimuth mirror.	 The conduct, hand over and relief of the watch conforms with accepted principles and procedures. A proper look-out is maintained at all times to accepted principles and procedures. Lights, shapes and sound signals conform with requirements are correctly recognized. Proficiency in the practical use of sextant, Chronometer and azimuth mirror
<i>Bridge resource management</i> Knowledge of bridge resource management principles.	 Resources are allocated and assigned as needed in correct priority to perform necessary tasks.

Competence (ii) : Manoeuvre the ship

Content of Examination	Criteria for Satisfactory Examination
<i>Ship manoeuvring and handling</i> The effects of deadweight, draught, trim, speed and under keel clearance on turning circles and stopping distances. The effects of wind and current on ship handling. Manoeuvres and procedures for the rescue of person overboard. Squat, shallow water and similar effects. Proper procedures for anchoring and mooring. Helm orders. Conning the ship. Engine orders and controls. Basic ideas about manoeuvring. The effects of rudder and propellers.	 Safe operating limits of ship propulsions, steering and power systems are not exceeded in normal manoeuvre. Adjustments made to the ship's course and speed to maintain safety of navigation.

Competence (iii) : Respond to emergencies

Content of Examination	Criteria for Satisfactory Examination
<p><i>Emergency procedures</i></p> <p>Precautions for the protection and safety of passengers in emergency situations.</p> <p>Initial action to be taken following a collision or a grounding; initial damage assessment and control.</p> <p>Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port.</p> <p>Understanding of fundamental actions to be taken in the event of partial loss of intact buoyancy.</p> <p>Action required in emergency situations such as man-overboard, engine or steering failures, stopping the ship. Knowledge of items listed in IMO/ILO "Document of Guidance, 1985", Section 12 Appendix I, as applicable to deck watchkeepers.</p> <p>Survival at sea. Knowledge required by an officer in charge of a survival craft. Procedure on abandoning ship. Survival techniques. Life-Saving signals and rescue methods.</p>	<p>The type and scale of the emergency is promptly identified, and initial action and, if appropriate, manoeuvring of the ship are in accordance with contingency plans and are appropriate to the urgency of the situations and nature of emergency.</p>

9.4 **Seagoing Class 2 Certificate**

Part A

Paper 1 - Navigation (3-hour)

Function : Navigation at the management level

Competence (i) : Establish watchkeeping arrangements and procedures

Criteria : Watchkeeping arrangements and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure the safety of navigation, security, protection of the marine environment and safety of the ship and persons on board.

- (a) Effective bridge teamwork procedures.
- (b) Bridge watchkeeping arrangements for all conditions. Standing orders. IMO requirements for navigational instruments, charts and publications.

- (c) Pilots; watchkeeping duties and bridge procedures with a pilot embarked. The Master/Pilot relationship. Exchange of information.
- (d) Practice in sending and replying to messages by voice using the IMO Standard Marine Communication Phrases.
- (e) Compiling distress, urgency, safety and navigational messages for transmission by telex.
- (f) Compiling messages and replies in appropriate forms to and from pilot stations, harbour control, VTS, agents, owners and charterers etc.
- (g) Knowledge of how to obtain navigational warnings and weather information.
- (h) Contents, use and updating of relevant Lists of Radio Signals.
- (i) Procedures concerning medical advice by radio.
- (j) The Master's responsibilities with regard to radio communications.

Competence (ii) : Forecast weather and oceanographic conditions

Criteria : The likely weather conditions predicted for a determined period are based on all available information and actions to be taken.

- (k) Ability to understand and interpret Synoptic and Prognostic charts and their use in forecasting area weather taking into account the local weather conditions and information provided by FAX transmissions as applicable to surface navigation. Ice reports.
- (l) Knowledge of the characteristics of various weather systems, including tropical revolving storms and avoidance of storm centres and the dangerous quadrants. Ocean currents, ice regions and areas of persistent fog.
- (m) Use all appropriate navigational publications on tides and currents. The principles and practice of climatic routeing and weather routeing.
- (n) Meteorology and maritime climatology; air masses and their typical characteristics. The significance of lapse rates. Polar and inter-tropical fronts. The principal pressure systems and associated weather. Thunderstorms and line squalls.

Competence (iii) : Determine position and the accuracy of resultant position fix by any means

Criteria : The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. The accuracy of fixes is within accepted levels.

Position Determination in all conditions

- (o) Error theory as applied to navigation in practice in the appreciation of the accuracy of position fix.

- (p) Position finding by all methods in current use. Considerations underlying the choice of navigational systems for different trades and geographical regions.

Competence (iv) : Determine and allow for compass errors

Criteria : The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information.

- (q) Knowledge of the principles of magnetic and gyro-compasses.
- (r) An understanding of systems under the control of the master gyro and a knowledge of the operation and care of the main types of gyro-compass.
- (s) The magnetic compass; its use, construction, care and maintenance. The Earth's magnetic field. Directive force. Forces in a ship causing deviation and usual means of compensation. An appreciation of the separate effects of "hard" and "soft" iron. The recording of deviations and means of obtaining a table or curve of deviations. Occasions on which compass adjustment is required.

Competence (v) : Manoeuvre and handle a ship in all conditions

Criteria : All decisions concerning berthing, unberthing, manoeuvring and anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces and external factors to be expected.

- (t) The principles of ship handling; ship handling and manoeuvring. Stopping distances and turning circles. The use of manoeuvring data to plan turns and determine wheel-over points. Monitoring of turns. The effects of shallow water, squat and interaction. The effects of bow and stern thrusters and stabilisers.

Competence (vi) : Co-ordinate search and rescue operations

Criteria : The plan for co-ordinating search and rescue operations is in accordance with international guidelines and standards.

- (u) A thorough knowledge of and ability to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. Rendezvous navigation. The GMDSS and other shore-based SAR organisations and reporting systems.

Paper 2 - Passage Planning (3-hour)

Function : Navigation at the management level

Competence : Plan a voyage and conduct navigation

Criteria : The reasons for the planned route are supported by facts and statistical data obtained from relevant sources and publications.

- (a) Voyage and passage planning and navigation for all stages; i.e. ocean, coastal, landfall, pilotage, and for all conditions and constraints such as restricted waters, meteorological conditions, ice, restricted visibility, Traffic Separation Schemes and areas of extensive tidal effects.

- (b) Routing in accordance with the general principles on ship's routing.
- (c) Reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures.
- (d) The proper application of all navigational precautions; procedures required for the preparation and execution of a passage plan.
- (e) Maintain the safety of navigation through the use of ECDIS and associated navigation systems to assist command decision making.

PART B

Paper 1 - Ship Technology (3-hour)

Function (1) : Controlling the operation of the ship and care for persons on board at the management level

Competence (i) : Control trim, stability and stress

Criteria : Stability and stress conditions are maintained within safe limits at all times.

- (a) Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability; knowledge of the principal structural members of a ship and how they function to resist stresses. Methods of compensating for discontinuity of strength. Local and special stiffening.
- (b) Specialist ship types; typical sections and layout of compartments and special structural requirements. The use of special steels, aluminium and fire-resistant materials in ship construction.
- (c) Means of closing openings including hull doors, ramps etc. General ideas of subdivision requirements.
- (d) Properties of paints and coatings. Modern methods of combating corrosion.
- (e) General ideas on welding processes in construction and repair work. Types of weld, common faults and visual examination of welding.
- (f) Testing of tanks and other watertight work. The preparation of damage reports and repair lists. A knowledge and use of on-board ship plans.
- (g) Procedures in dry docks and repair yards with regard to the ordering and checking of repairs and maintenance. Main points for attention in dry dock.

Competence (ii) : Maintain safety and security of the ship's crew and passengers and the operational conditions of life-saving and fire-fighting and other safety systems

Criteria : Procedures for monitoring fire detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures.

- (h) Maintenance of operational conditions of life-saving and fire-fighting systems and emergency equipment required by SOLAS for passenger ships and cargo ships.
- (i) A thorough knowledge of life-saving appliance regulations (SOLAS)

Competence (iii): Develop emergency and damage control plans and handle emergency situations

Criteria : Emergency procedures are in accordance with the established plans for emergency situations.

- (j) Preparation of contingency plans for response to emergencies.
- (k) Ship construction, including damage control.
- (l) Methods and aids for fire prevention, detection and extinction.
- (m) Functions and use of life-saving appliances.

Function (2) : Navigation at the management level

Competence : Operate remote control of propulsion plant and engineering systems and services

Criteria : Plant, auxiliary machinery and equipment are operated in accordance with technical specifications and within safe operating limits at all times.

- (a) Operating principles and characteristics of the major types of marine power plants. General knowledge of marine engineering terms.
- (b) Ship's auxiliary machinery including pumps, winches, windlasses, hatches, derricks, cranes and other equipment.
- (c) Propulsion; main methods, bow and stern thrusters and stabilisers. Factors affecting performance, manoeuvring, power and economy.
- (d) Ship's electrical generation and distribution, the more common systems and methods. Typical emergency generators and emergency electrical supply systems.
- (e) The principles of refrigeration and its shipboard applications.
- (f) Steering gear, main and emergency. Principles of operation and control of the main types, automatic and manual. Tests and checks. Change over procedures.
- (g) Control systems; remote control and monitoring systems and methods for main and auxiliary machinery, pumps, valves etc. Simple knowledge of different types of sensors and transducers and the general electronic, hydraulic etc. principles which are employed in control systems.
- (h) General ship maintenance; planning and recording of maintenance work. Maintenance of hatches, watertight doors, ventilators and other closing arrangements, and cargo handling equipment etc. Replacement and lubrication schedules.

Paper 2 - Shipboard Operations (3-hour)

Function (1) : Controlling the operation of the ship and care for persons on board at the management level

Competence : Control trim, stability and stress

<i>Criteria : Stability and stress conditions are maintained within safe limits at all times.</i>

- (a) Knowledge of IMO recommendations concerning ship stability. A full knowledge of the use of stability and hydrostatic information carried on board ships.
- (b) Knowledge of the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and counter measures to be taken.
- (c) Changes in trim, draught and heel due to loading, discharging and shifting weights and floating in water of different densities. The requirement for the ship to be upright with a safe trim.
- (d) The effect of list and trim on stability, including the effect of change of waterplane in heavy weather.
- (e) The angle of loll. Correction of a heavy list.
- (f) The use and measurement of Load Lines and freeboard as applied to loading calculations. The effects of hog, sag, water density and temperature. Draught surveys.
- (g) An understanding of those aspects of the conditions of assignment which affect the stability and seaworthiness of a ship.
- (h) The effects of variations in centre of gravity, righting lever and freeboard on the value and range of stability. The concept of dynamical stability. Wind and wave excitation.
- (i) Trim and stability requirements and calculations applied to dry docking.
- (j) Stability requirements for special cargoes; e.g. grain, concentrates, deck cargoes.
- (k) Shearing forces and bending moments, their nature and the significance of values and curves. How to plan cargo and ballast operations to minimise stresses.

Function (2) : Cargo handling and stowage at the management level

Competence (i) : Plan and ensure safe loading, stowage, securing, care during the voyage and unloading of cargoes

<i>Criteria : Cargo operations are planned and executed in accordance with established procedures and legislative requirements. Stowage and securing of cargoes ensures that stability and stress conditions remain within safe limits at all times during the voyage.</i>
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- (a) Knowledge of and ability to apply relevant international regulations, codes and standards and recommendations relating to the safe handling, stowage, securing and transport of cargoes.
- (b) Knowledge of the effect on trim and stability of cargoes and cargo operations.
- (c) Use of stability and trim diagrams and stress calculating equipment, including automatic data-based (ADB) equipment and knowledge of loading cargoes and ballasting in order to keep hull stress within acceptable limits.
- (d) Stowage and securing of cargoes on board ships including cargo handling gear, securing and lashing equipment.
- (e) Loading and unloading operations with special regard to the transport of cargoes identified in the Code of Safe Practice for Cargo Stowage and Securing.
- (f) General knowledge of tankers and tanker operations.
- (g) Planning, loading, discharging, stowing and securing with particular regard to heavy weights.
- (h) The correct use of cargo gear with special attention to lifting appliances. Safe working loads and associated limits. Proof loads. Calculations of approximate stresses on parts of cargo lifting gear. Equipment tests.
- (i) Certificates and records to be kept on board ship.
- (j) Preparation of holds for general and dry bulk cargoes. Loading port surveys.
- (k) Containers; their stowage and securing in holds and on deck in specialised and conventional ships. Planning and stability considerations.
- (l) Knowledge of the operational and design limitations of bulk carriers.
- (m) Ability to use all available shipboard data related to loading, care and unloading of bulk cargoes.
- (n) Ability to establish procedures for safe cargo handling in accordance with the provisions of the relevant instruments such as IMDG Code, IMSBC Code, MARPOL 73/78 Annexes III and V and other relevant information.
- (o) Ability to explain the basic principles for establishing effective communications and improving working relationship between ship and terminal personnel.

Competence (ii): Assess reported defects and damages to cargo spaces, hatch covers and ballast tanks and take appropriate action.

Criteria : Evaluations are based on accepted principles, well-founded arguments and are correctly carried out. The decisions taken are acceptable, taking into consideration the safety of the ship and the prevailing conditions.

- (p) Knowledge of the limitations on strength of the vital constructional parts of a standard bulk carrier and ability to interpret given figures for bending moments and shear forces.

- (q) Ability to explain how to avoid detrimental effects on bulk carriers of corrosion, fatigue and inadequate cargo handling.

Competence (iii) : Carriage of dangerous cargoes

<p><i>Criteria : Planned distribution of cargo is based on reliable information and established guidelines and legislative requirements. Information on dangers, hazards and special requirements is recorded in a format suitable for easy reference in the event of an incident.</i></p>
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- (r) International regulations, standards, codes and recommendations on the carriage of dangerous cargoes, including the International Maritime Dangerous Goods (IMDG) Code and IMO "Emergency Procedures for Ships Carrying Dangerous Goods".
- (s) Carriage of dangerous, hazardous and harmful cargoes; precautions during loading and unloading and care during the voyage.
- (t) Bulk cargoes; coal, grain, ores etc. Their tendency to shift. The influence of stowage and distribution on stress and stability. Pulsing effects with ore concentrates. Moisture content limits for safe carriage. International regulations, standard, codes and recommendation on the carriage of dangerous cargoes including the International Maritime Solid Bulk Cargoes (IMSBC) Code.
- (u) Petroleum cargoes; IMO requirements as from SOLAS and MARPOL. Tanker and OBO layout and equipment. Tanker operations including safety and pollution avoidance.
- (v) Chemical and liquefied gas cargoes; operational procedures, safety and anti-pollution requirements.

Paper 3 - Commerce and Law (3-hour)

Function : Controlling the operation of the ship and care for persons on board at the management level

Competence (i) : Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment

<p><i>Criteria : Procedures for monitoring operations and maintenance comply with legislative requirements. Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment.</i></p>

- (a) Knowledge of international maritime law embodied in international agreements and conventions.
- (b) Certificates and other documents required to be carried on board ships by international conventions. Their period of validity and how they may be obtained and extended. The Master's responsibility concerning damage and repair to ship's structure or equipment.

- (c) Responsibilities under the relevant requirements of International Convention on Load Lines. Load line zones and seasonal areas; their significance in planning for cargoes and voyages. The requirements for load line surveys and inspections.
- (d) Responsibilities under the requirement of the International Convention for the Safety of Life at Sea. Safety Equipment, Safety Construction, Safety Radio.
- (e) Responsibilities under the International Convention for the Prevention of Pollution from Ships and surveys and their requirements. Methods and aids to prevent pollution of the marine environment by ships.
- (f) Maritime declarations of health and the requirements of the International Health Regulations.
- (g) Responsibilities under international instruments affecting the safety of the ship, passengers, crew and cargo.
- (h) An outline knowledge of the legislation implementing International Agreements and Conventions.
- (i) The Master's responsibility with regard to:
 - i. rendering assistance to vessels in distress.
 - ii. the reporting of tropical storms, ice, derelicts and other dangers to navigation.
 - iii. the reporting of marine casualties and pollution incidents.
- (j) Registration of ships; the certificate of registry and its legal significance.
- (k) The classification of ships; Classification Societies and the requirements for surveys.
- (l) An outline knowledge of the Tonnage Rules. Tonnage measurement, tonnage certificate.
- (m) Suez and Panama Canal Tonnage Certificates and their requirements.
- (n) Certification of officers and ratings. Manning and watch-keeping requirements.
- (o) The Law of Pilotage.
- (p) Port entry and clearance; documents required by Customs, Immigration, Port Health and other authorities. The functions of ship's agents.
- (q) Carriage of goods; delineation of responsibilities for the carriage of cargo. Cargo documentation. Relationship between owners, Master, shipper and charterer.
- (r) Charter parties; terms, conditions and responsibilities. Deviation, laydays, demurrage, and despatch.
- (s) Cargo insurance. Particular average, general average.
- (t) Functions of P&I Clubs. Statements of Facts. Noting protest, Notice of Readiness, Cargo surveys.

- (u) Hull insurance. Damage reports and surveys. Certificate of Seaworthiness. Port of Refuge.
- (v) Towing and salvage agreements.
- (w) Ship's accounts; disbursements and accounts of wages.
- (x) Crew; engagement and discharge. Victualling and accommodation rules and requirements. Injured and deceased seamen, action to be taken. Engagement of substitutes and repatriation.
- (y) Fumigation of ships and cargoes with reference to the IMO "Recommendations on the Safe use of Pesticides in Ships."
- (z) Official Log Book; entries to be made therein.

Competence (ii) : Use of leadership and managerial skill

Criteria : The crew are allocated duties and informed of expected standards of work and behaviour. Training objectives are activities are based on an assessment of current competence and capabilities and operational requirements. Effective leadership behaviours are demonstrated

- (aa) A knowledge of personnel management, organisation and training aboard ships. Knowledge of related international maritime conventions, recommendation and local legislation. Disciplinary procedures. Procedures for settling grievances.
- (ab) Ability to apply task and workload management. Knowledge and ability to apply effective resource management and decision-making techniques. Development, implementation, and oversight of standard operating procedures

Competence (iii) : Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems

Criteria : Procedures for monitoring fire detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures.

- (ac) Actions to be taken to protect and safeguard all persons on board in emergencies.
- (ad) Actions to limit damage and save the ship following a fire, explosion, collision or grounding.
- (ae) The organisation of musters, training and drills for emergencies.
- (af) Safety Committees, Safety Officers and Representatives. Reporting of accidents and dangerous occurrences.

Part C

Oral and Practical Examination - Seamanship and Safety

Function : Navigation at the management level

Competence (i) : Manoeuvre and handle a ship in all conditions

Content of Examination	Criteria for Satisfactory Examination
Manoeuvring and handling a ship in all conditions, including :	All decisions concerning berthing, unberthing, anchoring and ship's manoeuvres are based on proper assessments of ship's manoeuvring, engine characterises and the forces and external factors to be expected.
1 manoeuvres when approaching pilot stations and embarking or disembarking pilots with due regard to weather, tide, headreach and stopping distances	
2 handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response	
3 application of constant rate of turn techniques	
4 manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching	
5 interaction between passing ships and between own ship and nearby banks (canal effect)	
6 berthing and unberthing under various conditions of wind, tide and current with and without tugs	
7 ship and tug interaction	
8 use of propulsion and manoeuvring systems	
9 choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used	
10 dragging anchor, clearing fouled anchors	
11 dry-docking, both with and without damage	

12	management and handling of ships in heavy weather, including assisting a ship or aircraft in distress, towing operations; means of keeping an unmanageable ship out of trough of the sea, lessening drift. Preparation for heavy weather.	
13	precautions in manoeuvring to launch rescue boats or survival craft in bad weather	
14	methods of taking on board survivors from rescue boats and survival craft	
15	ability to determine the manoeuvring and propulsion characteristics of common types of ships with special reference to stopping distances and turning circles at various draughts and speeds	
16	importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave	
17	practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board	
18	use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas	

Competence (ii) : Establish watchkeeping arrangements and procedures

Content of Examination	Criteria for Satisfactory Examination
Collision avoidance; a thorough knowledge of the International Regulations and appropriate Annexes and their application. Knowledge of the IALA buoyage systems. Thorough knowledge of the content, application and intent of the Basic Principles to be observed in Keeping a Navigational watch.	Watchkeeping arrangement and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure safety of navigation, protection of marine environment and safety of ship and persons on board.

Competence (iii) : Respond to navigational emergencies

Content of Examination	Criteria for Satisfactory Examination
Action in an emergency, including:	The type and scale of any problem is promptly identified and decisions and

<p>1 When grounding is imminent and after grounding</p> <p>2 Beaching and floating a grounded ship with or without assistance</p> <p>3 Collision is imminent and after collision or impairment of the watertight integrity of the hull by any cause</p> <p>4 Limiting damage and salving the ship following a fire, explosion, collision or grounding</p> <p>5 Protection and safeguard of all persons on board in emergencies</p> <p>6 Dealing with major leaks by emergency pumping, temporary plugging or intentional beaching</p> <p>7 Man overboard</p> <p>8 Recovering persons from the water</p> <p>9 Rescue from rescue boats, survival craft, wreck etc.</p> <p>10 Emergency use of anchors</p> <p>Assessment of damage control</p> <p>Emergency steering</p> <p>Emergency towing arrangement and towing procedures</p> <p>Abandon ship</p> <p>Rescue from an enclosed space</p> <p>Oil spillage</p> <p>Emergencies in port. The use of shore services and co-operation with shore personnel</p> <p>Helicopter operations, embarking and disembarking personnel</p> <p>Emergency communications</p>	<p>actions maximise the safety of persons on board and minimise the effects of any malfunction of the ships systems.</p>
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9.5 Seagoing Class 1 Certificate

Oral / Practical Examination

The syllabus for this examination is the same as that for the oral/practical examination at **Part C** of the Class 2 examination. For Class 1, however, the candidate will be expected to answer in depth and from the perspective that would be expected of a candidate for command.

9.6 River Trade Class 3 Certificate

Part A

Paper 1 - General Nautical Knowledge (2-hour)

Function : Controlling the operation of the ship and care for persons on board at the operational level

Competence : Maintain seaworthiness of the ship

Criteria : The stability conditions comply with the IMO intact stability criteria under all conditions of loading. Actions to ensure and maintain the watertight integrity of the ship are in accordance with accepted practice.

Ship Construction

- (a) General knowledge of the principal structural members of a ship and the proper names for the various parts.
- (b) General ideas of ship construction and plans available aboard ship.
- (c) General definitions of main dimensions.
- (d) General ideas on welding and oxy-acetylene cutting and the precautions to be taken when such processes are carried out on board.

Ship Stability

- (e) Working knowledge and application of stability, trim and stress tables, diagrams and stress calculating equipment.
- (f) Understanding of the fundamentals of watertight integrity.
- (g) The meaning of the terms:
 - i. Displacement
 - ii. Deadweight
 - iii. Buoyancy and reserve buoyancy and an understanding of the fundamental actions to be taken in the event of partial loss of intact buoyancy
 - iv. Trim
- (h) General understanding with definitions of:
 - i. Centre of Gravity; unstable, stable, and neutral equilibrium
 - ii. Centre of buoyancy
 - iii. Metacentric height
 - iv. Righting lever
 - v. Righting moment
- (i) The use of stability and hydrostatic data supplied to ships and the practical application of such data.
- (j) The effects of adding and removing weights; the danger of slack tanks.

- (k) Load line marks. The effect of density on draught and freeboard. Fresh Water Allowance.

Paper 2 - Chartwork (2-hour)

Function : Navigation at the operational level

Competence : Plan and conduct a passage and determine position

Criteria : The primary method of fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. The position is determined within the limits of acceptable instrument/system errors.

Terrestrial and Coastal Navigation

- (a) Ability to fix position by simultaneous cross bearings or bearing and range of landmarks, aids to navigation including lighthouses, beacons and buoys; dead reckoning taking into account winds, tides, currents and estimated speed.
- (b) A thorough knowledge of nautical charts, tide tables, light lists and sailing directions and their correction using Notices to Mariners and navigational warnings by radio and Navtex and ship's routeing information.
- (c) Given variation and deviation of the magnetic compass or gyro error, to convert true courses into compass courses and vice versa. Given a sample table of deviations to extract the deviation thence to convert true course into magnetic and compass course.

To find the compass course between two positions.

Allowance for leeway.

Given compass course steered, the speed of the ship and the direction and rate of the current or tidal stream to find the true course, speed made good and DR position.

Given course steered and distance run, to determine the set and rate of current experienced between two positions.

- (d) The use of clearing marks and transit bearings. Methods of determining compass error by transit bearings.
- (e) Distance of sighting lights.
- (f) To find the time and height of high and low water for places in river trade limits for which data is available.
- (g) Working knowledge of tidal streams in river trade limits.
- (h) Voyage planning and navigation for all conditions, by day and by night, taking into account various constraints between various ports and anchorages in river trade limits including the use of Traffic Separation Schemes and the use of routeing in accordance with the General Provisions on Ships' Routeing.

- (i) The selection of suitable anchorages, approaching anchorages and entering narrow channels in river trade limits.
- (j) Thorough knowledge of and ability to use ECDIS.

Note: Questions may be set in this paper requiring descriptive answers as well as work on the chart provided. Oral questions, which may relate to any part of the syllabus, may also be asked.

Part B (Oral and Practical)

Meteorology (oral examination)

Function : Navigation at the operational level

Competence : Plan and conduct a passage and determine position

Content of Examination	Criteria for Satisfactory Examination
<p>Ability to use and interpret information obtained from shipborne meteorological instruments.</p> <p>A basic knowledge of meteorology so as to appreciate the probable changes in local weather, including tropical storms and other strong winds, and to know the conditions that may give rise to fog and other restricted visibility. The reporting system and recording systems of the weather.</p> <p>Ability to apply the meteorological information available.</p> <p>Knowledge of the availability of local weather forecasts including the use of local storm signals.</p>	<p>Measurement and observations of weather conditions are accurate and appropriate to the passage. Meteorological information is correctly interpreted and applied.</p>

Seamanship and Safety (oral and practical examination)

Function (1) : Navigation at the operational level

Competence (i) : Manoeuvre the ship

Ship manoeuvring and handling

Content of Examination	Criteria for Satisfactory Examination
<p>Manoeuvring and berthing alongside quays, jetties and other ships including the knowledge of the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances; the effects of wind and current on ship handling; manoeuvre and procedures for the rescue of person</p>	<p>Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres. Adjustments made to the ship's course and speed maintain safety of navigation.</p>

<p>overboard; and squat, shallow water and similar effects.</p> <p>Proper procedures for anchoring and mooring. Anchors and cables and their stowage.</p> <p>Preparations for getting under way. Duties prior to proceeding to sea, making harbour, and entering a dock. Mooring alongside quays, jetties and other ships and securing to buoys.</p> <p>Helm orders, conning a ship.</p> <p>Knowledge of small ship power plants.</p>	
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Competence (ii) : Maintain a safe navigational watch

Watchkeeping

Content of Examination	Criteria for Satisfactory Examination
<p>Thorough knowledge of the content and application of the International Regulations for Preventing Collisions at Sea with particular emphasis on their interpretation and application in high traffic density areas including multi-ship collision risk situations.</p> <p>Buoyage and wreck marking systems in use in the river trade limits.</p> <p>Knowledge of the practical application of the "Principles to be observed in keeping a navigational watch " contained in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers.</p> <p>Thorough knowledge of effective bridge team work procedures.</p> <p>Knowledge of the principles of magnetic and gyro compasses. Determination of magnetic and gyro-compass errors by terrestrial means and to allow for such errors by terrestrial means.</p> <p>Ability to operate the echo-sounder and apply the information correctly.</p> <p>Knowledge of the use of all deck appliances including emergency steering gear.</p> <p>Knowledge of steering control system, operational procedures and change-over</p>	<p>The conduct, hand over and relief of the watch conforms with accepted principles and procedures.</p>

<p>from manual to automatic control and vice-versa. Adjustment of controls for optimum performance.</p> <p>Knowledge of the following Ordinances, and regulations made thereunder, with special reference to the duties and obligations of masters of vessels operating in river trade limits, including offences and penalties:</p> <p>(i) Merchant Shipping Ordinance. (ii) Shipping and Port Control Ordinance.</p> <p>Knowledge of the contents of Marine Department Merchant Shipping Notices and current Marine Department Notices.</p>	
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Competence (iii) : Respond to a distress signal at sea

Search and rescue

Content of Examination	Criteria for Satisfactory Examination
<p>The use and care of life-saving appliances, knowledge of the contents of the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual for the SAR procedures in the river trade limits.</p> <p>The use and care of rocket and line throwing apparatus. Distress and pilot signals and the penalties for misuse.</p>	<p>The distress or emergency signal is immediately recognized. Contingency plans and instructions in standing orders are implemented and complied with.</p>

Competence (iv) : Respond to emergencies

Content of Examination	Criteria for Satisfactory Examination
<p>Precautions for the protection and safety of passengers in emergency situations.</p> <p>Action to be taken following collision or grounding to safeguard the vessel, passengers and crew and to minimise pollution of the marine environment; and the initial damage assessment and control.</p> <p>Appreciation of the procedures to be followed for rescuing persons from the sea, assisting a ship in distress, responding to emergencies which arise in port.</p> <p>Actions to be taken in the event of partial loss of intact buoyancy.</p> <p>The use and care of fire-fighting</p>	<p>The type and scale of the emergency is promptly identified, and initial actions and if appropriate, manoeuvring of the ship are in accordance with contingency plans and are appropriate to the urgency of the situation and nature of emergency.</p>

appliances including self contained breathing apparatus.	
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Function (2) : Controlling the operation of the ship and care for persons on board at the operational level

Competence (i) : Ensure compliance with pollution prevention requirements

Prevention of pollution of the marine environment and anti-pollution procedures

Content of Examination	Criteria for Satisfactory Examination
Knowledge of the precautions to be taken to prevent pollution of the marine environment. Anti-pollution procedures and all associated equipment.	Procedures for monitoring shipboard operations and ensuring compliance with MARPOL requirements are fully observed.

Competence (ii) : Monitor compliance with legislative requirements

Content of Examination	Criteria for Satisfactory Examination
Basic working knowledge of the relevant IMO Conventions concerning safety of life at sea, security and protection of the marine environment.	Legislative requirements relating to safety of life at sea, security and protection of the marine environment are correctly identified.

Competence (iii) : Others

Content of Examination	Criteria for Satisfactory Examination
Knowledge of the Code of Safe Working Practices for the Safety of Merchant Seamen. Knowledge of personal survival techniques, fire prevention and ability to fight and extinguish fires, elementary first aid, and personal safety and social responsibilities. Knowledge of deck officer watchkeeping in port contained in the STCW Code.	Appropriate safety and protective equipment is correctly used. Procedures and safe working practices designed to safeguard personnel, the ship, and the environment are observed at all times. Initial and follow-up actions on becoming aware of an emergency conform with established emergency response procedures. The conduct, hand over and relief of the watch conforms with accepted principles and procedures.

9.7 River Trade Class 2 Certificate

Part A

Paper 1 - Business and Law (2-hour)

Function : Controlling the operation of the ship and care for persons on board at the management level.

Competence (i) : Monitor and control compliance with legislative requirements and measures to ensure safety of life at sea, security and the protection of the marine environment.

<p><i>Criteria : Procedures for monitoring operations and maintenance comply with legislative requirements. Planned renewal and extension of certificates ensures continued validity of surveyed items and equipment.</i></p>

- (a) Certificates and other documents required to be carried aboard ships by international conventions, how they are obtained and their period of validity. Registration of ships. The certificate of registry and its legal significance.
- (b) Responsibilities under the relevant requirements of the International Convention on Load line. Loadline marks, entries and reports in respect of freeboard, draught and allowances.
- (c) Responsibilities under the relevant requirements of the International Convention for the Safety of Life at Sea.
- (d) Knowledge of responsibilities under the International Convention for the Prevention of Pollution from ships; methods and aids to prevent pollution of the marine environment by ships.
- (e) Responsibilities under international instruments affecting the safety of the ship passengers, crew and cargo.
- (f) Local legislation for implementing international agreements and conventions. Knowledge of the Merchant Shipping and the Shipping and Port Control Ordinances and regulations made thereunder, in respect of the duties and liabilities of the master and owners of a Hong Kong registered ship.
- (g) Contracts of employment, wages and other remuneration, advances and allotments.
- (h) Engagement, discharge and management of crew.
- (i) The Official Log Book and the law relating to entries.
- (j) Offences relating to misconduct, to endangering the ship and against persons aboard.
- (k) Discipline and the treatment of disciplinary offences. Civil liability for offences.
- (l) Entering and clearing ship.
- (m) The safety of the ship, crew and passengers. Assistance to vessels in distress and salvage. Duties in case of collision, stranding or other casualties.
- (n) The law relating to the reporting of dangers to navigation.
- (o) Knowledge of shipping practices and documents.
- (p) Knowledge of the express and implied conditions and statutory terms contained in a contract of marine insurance.

Paper 2 - Shipboard Operations (1½ -hour)

Function : Controlling the operation of the ship and care for persons on board at the management level

Competence (i) : Maintain safety and security of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems

<p><i>Criteria :</i> Procedures for monitoring fire detection and safety systems ensure that all alarms are detected promptly and acted upon in accordance with established emergency procedures.</p>

- (a) Inspection and maintenance of ships and the life-saving, fire-fighting and other safety systems. General repairs, preparation of repair lists. Dry docking routine.
- (b) Organisation and training of crew both for routine and emergency duties including fire and abandon ship drills. Damage control and fire-fighting plans. Emergency station lists.
- (c) Preparation for Safety Equipment, Safety Construction, Load Line, and Passenger and Safety surveys. Knowledge of the significance of the certificates issued.

Competence (ii) : Organize and manage the crew

<p><i>Criteria :</i> The crew are allocated duties and informed of expected standards of work and behaviour.</p>
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- (d) A knowledge of related international maritime conventions and recommendations and local legislation.
- (e) Crew accommodation. Hygiene of the ship and welfare of the crew. Inspection and reports.

Competence (iii) : Develop emergency and damage control plans and handle emergency situations.

<p><i>Criteria :</i> Emergency procedures are in accordance with the established plans for emergency situations.</p>
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- (f) Preparation of contingency plans for response to emergencies.
- (g) Ship construction including damage control.
- (h) Methods and aids for fire prevention, detection and extinction.
- (i) Functions and use of life-saving appliance.
- (j) The methods and aids for prevention of pollution by ships and the keeping of records.
- (k) Dangers of entering enclosed spaces.

Paper 3 - Ship Construction, Stability & Engineering Knowledge (3-hour)

Function (1) : Controlling the operation of the ship and care for persons on board at the management level

Competence (i) : Control trim, stability and stress

Criteria : Stability and stress conditions are maintained within safe limits at all times.

Ship Construction

- (a) Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability.
- (b) Testing of tanks and other watertight work.
- (c) Bilge and ballast line systems.
- (d) Stress in ships in a seaway or due to loading and ballasting. A knowledge of the parts of a ship especially strengthened to withstand such stresses.
- (e) Methods of compensating for discontinuity of strength.
- (f) Knowledge of:
 - Classification of ships,
 - Periodic surveys for retention of Class,
 - Tonnage certificates and their purpose,
 - Requirements of the Load Line rules, period and conditions of validity of the certificate and an understanding of those aspects of the conditions of assignment which affect the stability and seaworthiness of a ship.
- (g) Permeability of a compartment, the effect of bilging and flooding an end or a midship compartment, on or off the centreline.
- (h) Hull subdivision; methods adopted to maintain integrity of divisions and openings in the hull.
- (i) Principles of damage control.
- (j) Arrangements for restricting the spread of fire.

Ship Stability

- (k) Bilging; the effect on trim and stability of a ship in the event of damage to and consequent flooding of a compartment and the counter measures to be taken.
- (l) Knowledge of IMO recommendation concerning ship stability.
- (m) An understanding of the factors affecting the shape of a curve of statistical stability and the significance of the area under the curve.
- (n) Determination of the centre of gravity of a ship for different conditions of loading and ballasting.

- (o) The effect on the centre of gravity of adding, removing, shifting and suspending weights.
- (p) Transverse Metacentre, Metacentric Height. Free surface of liquids (without proof or calculation) and its effect on stability.
- (q) Change of draught and trim due to loading, discharging and shifting weights (MCTC and LCF given). Load lines and an understanding of those aspects of the conditions of assignment which affect the stability and seaworthiness of a ship.
- (r) Use of stability and trim diagrams and stress calculating equipment, including automatic data-based (ADB) equipment to keep hull stress within acceptable limits.
- (s) Dangers to a ship inherent in a heavy list, precautions when righting.
- (t) Stability and trim when dry docking or grounding.

Function (2) : Navigation at the management level

Competence (i) : Operate remote controls of propulsion plant and engineering systems and services

Criteria : Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times.

Engineering Knowledge

- (a) Operating principles of marine power plants and the transmission of main engine power. Manoeuvring procedures.
- (b) A general knowledge of diesel machinery, auxiliary machinery such as air-compressors, generators and pumps.
- (c) General knowledge of marine engineering terms.
- (d) Steering systems, including emergency steering.
- (e) Bridge control of main engines.
- (f) Fire detection and extinction systems and procedures; general principles and practical application.
- (g) Pollution; the prevention of pollution and the master's duties, obligations and liabilities, including the keeping of records.
- (h) Maintenance of operational conditions of life-saving, fire-fighting and other safety systems.

Paper 4 - Navigational Aids & Instruments (2-hour)

Function (1) : Navigation at the management level

Competence (i) : Determine and allow for compass errors

Criteria : The method and frequency of checks for errors of magnetic and gyro-compasses ensures accuracy of information.

- (a) Knowledge of the principles of magnetic compass. The construction, siting, care, maintenance and errors of the magnetic compass and associated equipment. Causes of deviation. An appreciation, without calculation, of the effects of permanent magnetism and induced magnetism. The siting of magnetic material and electrical appliances with reference to the magnetic compass.
- (b) Knowledge of the principles of the gyro-compass. Errors associated with the gyro-compass for which adjustments can be made by the user. The principal parts of a gyro-compass and how to operate the better known gyro-compasses. Master gyro and main types of gyro-compasses.

Competence (ii) : Determine position and the accuracy of resultant position fix by any means

Criteria : The primary method chosen for fixing the ship's position is the most appropriate to the prevailing circumstances and conditions. The accuracy of the resulting fix is properly assessed.

- (c) Use of Global Positioning System to obtain ship's position with knowledge of its operating principles, limitations, sources of error, detection of misrepresentation of information and method of correction to obtain accurate position fixing.
- (d) Radar; operating principles, sources of error, characteristics, application, capabilities and, limitations. Assessment of performance. Knowledge of the Marine Radar Performance Specifications and of Merchant Shipping Notices relating to radar and its use.
- (e) Principle and practical application of echo sounding devices, logs and speed indicators. The use of operational controls on an echo sounder and a knowledge of the sources and effects of noise which might interfere with the display of soundings.

Part B

Seamanship and Safety (Oral and Practical)

Function (1) : Navigation at the management level

Competence (i) : Respond to navigational emergencies

Content of Examination	Criteria for Satisfactory Examination
Precautions when beaching a ship in the river trade limits.	The type and scale of any problem is promptly identified and decisions and actions maximize the safety of persons on board and minimize the effects of any malfunction of the ship's systems.
Action to be taken if grounding when grounding is imminent and after grounding, leaks, fire, explosion and methods of refloating with or without assistance.	
Action to be taken if collision is imminent	

<p>and following collision or after sustaining damage of any kind or impairment of the watertight integrity of the hull by any cause.</p> <p>Assessment of damage control. Emergency steering.</p> <p>Emergency towing arrangement and towing procedures.</p> <p>Exceptional circumstances such as the loss of a rudder or propeller.</p> <p>Steps to be taken when disabled and in distress with particular reference to river trade limits.</p> <p>Protection and safeguard of all persons and crew in the event of wreck and other emergencies.</p> <p>Abandoning ship and passenger control in various emergency situations.</p> <p>Assisting a ship or an aircraft in distress.</p> <p>Rescuing the crew of a disabled ship or from rescue boats and survival craft.</p> <p>Launching of rescue boat or survival craft in all conditions.</p>	
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Competence (ii) : Manoeuvre and handle a ship in all conditions

Content of Examination	Criteria for Satisfactory Examination
<p>Manoeuvring and handling a ship in all conditions, including :</p> <p>1 manoeuvres when approaching pilot stations and embarking or disembarking pilots with due regard to weather, tide, headreach and stopping distances</p> <p>2 handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response</p> <p>3 application of constant rate of turn techniques</p> <p>4 manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling</p>	<p>All decisions concerning berthing, unberthing, anchoring and ships manoeuvres are based on proper assessments of ship's manoeuvring, engine characteristic and the forces and external factors to be expected.</p>

	and pitching	
5	interaction between passing ships and between own ship and nearby banks (canal effect)	
6	berthing and unberthing with a single or twin screw under various conditions of wind, tide and current with and without tugs	
7	ship and tug interaction	
8	use of propulsion and manoeuvring systems	
9	dry-docking, both with and without damage	
10	management and handling of ships in heavy weather, including assisting a ship or aircraft in distress, towing operations, means of keeping an unmanageable ship out of trough of the sea, lessening drift and use of oil	
11	precautions in manoeuvring to launch rescue boats or survival craft in bad weather	
12	methods of taking on board survivors from rescue boats and survival craft	
13	ability to determine the manoeuvring and propulsion characteristics of common types of ships with special reference to stopping distances and turning circles at various draughts and speeds	
14	importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave	
15	use of and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas.	
	Anchoring with one or two anchors and working anchors and cables in all circumstances including dragging anchor, clearing foul hawse, hang-off of anchor, breaking/slipping cables and carrying out of anchor with boats. Choice of anchorage.	

Competence (iii) : Establish watchkeeping arrangements and procedures

Content of Examination	Criteria for Satisfactory Examination
<p>Regulations for the Prevention of Collisions at Sea with particular emphasis on their interpretation and application in high traffic density areas including multi-ship collision risk situations.</p> <p>Buoyage and wreck marking systems in use in the river trade limits.</p> <p>Thorough knowledge of the content, application and intent of the Basic Principles to be observed in keeping a Navigational watch. Effective bridge teamwork procedures.</p> <p>Use of reporting in accordance with the General Principles for Ship Reporting Systems and with VTS procedures.</p> <p>Knowledge of the contents of the Shipmaster's Guide issued by the Marine Department.</p>	<p>Watchkeeping arrangement and procedures are established and maintained in compliance with international regulations and guidelines so as to ensure safety of navigation, protection of marine environment and safety of ship and persons on board.</p>

Competence (iv) : Co-ordinate search and rescue operations

Content of Examination	Criteria for Satisfactory Examination
<p>Knowledge of and ability to apply the procedures contained in the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual.</p>	<p>The plan for co-ordinating search and rescue operations is in accordance with international guidelines and standards.</p> <p>Radio communications are established and correct communication procedures are followed at all stages of the search and rescue operations.</p>

Function (2) : Controlling the operation of the ship and care for persons on board at the management level

Competence (i) : Maintain safety and security of ship's crew and passengers and the operational conditions of life-saving, fire-fighting and other safety systems.

Content of Examination	Criteria for Satisfactory Examination
<p>Measures to be taken to prevent the spillage of oil when bunkering or transferring oil.</p> <p>Prevention of fire at sea and in port. Methods used to prevent the spread of fire. Organization and direction of fire-fighting, lifeboat and liferaft preparation parties.</p>	<p>Procedures for monitoring fire detection and safety systems ensure that all alarm are detected promptly and acted upon in accordance with established emergency procedures.</p>

Knowledge of the regulations concerning life-saving and fire-fighting appliances.	
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Competence (ii) : Organize and manage the crew

Content of Examination	Criteria for Satisfactory Examination
A knowledge of personnel management, organization and training on board ships. Routine inspections of living quarters and store rooms.	The crew are allocated duties and informed of expected standards of work and behaviour. Training objectives and activities are based on an assessment of current competence and capabilities and operational requirements.

9.8 River Trade Class 1 Certificate

Oral/Practical Examination

The syllabus for this examination is the same as that for the oral/practical examination at **Part B** of the Class 2 examination. For Class 1, however the candidate will be expected to answer in depth and from the perspective that would be expected of a candidate for command.

CHAPTER 10

ISSUE OF LICENCES TO PERSONS HOLDING NON-HONG KONG CERTIFICATES

10.1 General

10.1.1 The following classes of seagoing licences will be issued:

- Class 1
- Class 2
- Class 3

10.1.2 To qualify for the issue of a licence an applicant must:

- (a) have attained the minimum age specified in the Determinations for the certificate of competency to which the licence applied for is equivalent.
- (b) produce proof of age and nationality in a form acceptable to the Director.
- (c) produce a valid certificate of medical fitness issued by a recognized medical practitioner preceding the application for a licence.
- (d) produce a valid seagoing certificate of competency recognized by the Director for the issue of a licence.
- (e) satisfy any other conditions which may from time to time be specified by the Director.

10.1.3 In recognizing an individual certificate of competency issued by another Administration the Director may specify any additional periods of sea service, qualifications, or requirements which he considers necessary for the issue of a licence.

10.2 Classes of Licences

10.2.1 Whenever a licence is issued it shall be of a Class determined by the Director.

10.3 Dangerous Cargo Endorsements to Licences

10.3.1 The holder of a licence whose certificate of competency has been endorsed with dangerous cargo endorsement(s) can apply to endorse his licence accordingly.

10.4 Issue of Replacement Licence

10.4.1 In the event that a licence is lost, the holder may apply to the Seafarers' Certification Section for a replacement licence. A fee will be charged for the provision of such a licence unless the holder can show that the loss was as a result of shipwreck or fire. An applicant for a replacement licence will be required to make a declaration to the Director as to the circumstances in which the licence was lost.

CHAPTER 11

ENDORSEMENTS AND CERTIFICATES OF PROFICIENCY FOR DANGEROUS CARGO OPERATION

11.1 General

- 11.1.1 The types of dangerous cargo endorsements and certificate of proficiency are as follows:
- a) Oil Tanker;
 - b) Chemical Tanker;
 - c) Liquefied Gas Tanker.
- 11.1.2 Deck officers on the various types of tanker are required to hold certificates of competency or licences that carry basic dangerous cargo endorsement(s) or certificates of proficiency for dangerous cargo operation.
- 11.1.3 Master, chief mate, and any other person having an immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations on the various types of tankers are required to hold certificates of competency or licences that carry advanced dangerous cargo endorsement(s) or certificates of proficiency for dangerous cargo operation.
- 11.1.4 All applicants of the dangerous cargo endorsement of certificate of proficiency shall hold a certificate in basic training in accordance with provisions of section A-VI/1 of the STCW code.
- 11.1.5 To qualify for the issue of a basic dangerous cargo endorsement or certificate of proficiency, applicants should have to complete, within the five years before the date of application, an approved basic training course for the carriage of the relevant dangerous cargo or have an approved seagoing service on board an appropriate type tanker for at least three months and meet the applicable standard of competence specified in section A-V/1-1 or A-V/1-2 of the STCW Code;
- 11.1.6 To qualify for the issue of an advanced dangerous cargo endorsement or certificate of proficiency, applicants must have met the requirements for the certification in basic dangerous cargo of the relevant type and must have to complete, within the five years before the date of application, an approved advanced training course on the carriage of the relevant dangerous cargo and a period of shipboard service or training on an appropriate type tanker with the followings:
- a) at least three months of approved seagoing service on the tanker; or
 - b) at least one month of approved onboard training on the tanker in a supernumerary capacity, which include at least three loading and three unloading operations and is documented in an approved training record book taking into account guidance in section B-V/1 of STCW Code.
- 11.1.7 All applicants for dangerous cargo endorsements and certificates of proficiency are required to produce reports from the master(s) of the ship(s) in which they have performed their shipboard training or shipboard service as appropriate, and/or a certificate from a training establishment attesting to satisfactory completion of the

training course. A specimen form of certificate for the Master(s) report is included in Appendix I of the Determinations.

11.2 **Revalidation of Endorsements and Certificates of Proficiency for Dangerous Cargo Operation**

11.2.1 Endorsement or certificate of proficiency for dangerous cargo operation is valid for a period of not more than 5 years from the date issued.

11.2.2 Any person who wishes to have his/her dangerous cargo endorsement or certificates of proficiency revalidated must:

- (a) produce evidence of at least 3 months service in a tanker appropriate to the tanker endorsement or certificate during the preceding 5 years, or successfully completed an approved relevant training course;
- (b) produce a valid certificate of medical fitness which includes the results of a blood test (including a plate count); and
- (c) pay the appropriate fee.

11.2.3 Failure to meet the requirements of paragraph 11.2.2 will result in the withdrawal of the dangerous cargo endorsement or certificate. A dangerous cargo endorsement or certificate which has been withdrawn will only be re-issued after the holder has either:

- (a) satisfactorily completed an approved shore based tanker safety course; or
- (b) satisfactorily completed 3 months supervised shipboard training in the type of tanker in which he intends to serve.

11.2.4 The holder of a dangerous cargo endorsement may opt to have that endorsement revalidated concurrently with the revalidation of his certificate of competency. Such applicants must meet the requirements of paragraph 11.2.2 in addition to the requirements of Chapter 12. Provided the necessary criteria are met the endorsement will be revalidated for a period of not more than 5 years concurrent with the validity of the certificate of competency.

CHAPTER 12

SEAGOING AND RIVER TRADE CERTIFICATES

REVALIDATION OF CERTIFICATES

12.1 Introduction

12.1.1 All seagoing and river trade certificates of competency will fall due for revalidation on the expiry date stated on the certificate. Once a certificate has been revalidated it will thereafter fall due for further revalidation upon expiry of the extended validity.

12.2 Conditions to be satisfied for revalidation

12.2.1 A certificate holder who wishes to revalidate his certificate must pay the appropriate fee and must :

- (a) meet the medical fitness requirements by producing a certificate of medical fitness signed by an approved medical practitioner not more than 24 months prior to the date of application for revalidation;
- (b)
 - (i) have served as a master or deck officer in any seagoing ship, other than a pleasure vessel or a fishing vessel, for at least:
 - (i-1) 12 months in total during the preceding 5 years, or
 - (i-2) 3 months in total during the preceding 6 months immediately prior to revalidating; or
 - (ii) have satisfactorily completed an approved shore based updating course; or
 - (iii) have completed approved seagoing service, for a period of not less than three months in a supernumerary capacity, or in a lower officer rank than that for which the certificate held is valid immediately prior to taking up the rank for which it is valid; or
 - (iv) have performed functions relating to the duties appropriate to the class of certificate held which are considered to be at least equivalent to the 12 months sea service specified above. A list of appropriate functions is contained in paragraph 12.2.2.
- (c) hold a valid GMDSS General Operator Certificate. (For revalidation of river trade COC, a valid GMDSS Restricted Operator Certificate is also acceptable.)
- (d) have completed an approved refreshment course or passed an assessment on basic training, survival craft and rescue boats, and advanced fire fighting.

12.2.2 Applications for revalidation of certificates may be made by holders who have been engaged in the following duties for at least half of the preceding 5 years period :

- (a) licensed pilots
- (b) pilot superintendents
- (c) marine department surveyors and examiners
- (d) lecturers in nautical studies at nautical colleges
- (e) marine superintendents
- (f) harbour masters

- (g) dock masters and berthing officers
- (h) marine officers
- (i) dredging superintendents
- (j) hydrographic surveyors
- (k) ship and cargo surveyors

12.2.3 The list of alternative occupations in paragraph 12.2.2 is not exhaustive and application for revalidation from certificate holders who have been engaged in other activities will be considered by the Director on their merits.

12.2.4 Certificate holders who also have a dangerous cargo endorsement to their certificates and who wish their dangerous cargo endorsement to be revalidated at the same time as their certificate must, in addition to the basic requirements outlined in paragraph 12.2.1, satisfy the requirements for revalidation of a dangerous cargo endorsement, outlined in Chapter 11.

12.2.5 Additional information concerning the procedure for revalidation may be obtained from the Seafarers' Certification Section.

12.2.6 Applications for revalidation from certificate holders abroad may be made by post to the Seafarers' Certificate Section and should include the following :

- (a) Certificate of competency
- (b) Medical fitness certificate
- (c) Fee
- (d) Records of sea service or shore employment as appropriate
- (e) Records of appropriate tanker service if revalidation of a dangerous cargo endorsement is also sought.
- (f) GMDSS certificate
- (g) Evidence of qualifications obtained as per item (d) of paragraph 12.2.1.

CHAPTER 13

TYPE RATING CERTIFICATE (TRC) FOR DYNAMICALLY SUPPORTED CRAFT (DSC) OR HIGH SPEED CRAFT (HSC)

13.1 General

- 13.1.1 Any deck officer manning a station on any passenger DSC/HSC or any cargo DSC/HSC of 500 gross tonnage and upwards shall, in addition to the appropriate certificate of competency, be required to hold a valid TRC of appropriate rank for the type and model of craft in which he intends to serve. Operations between 30 minutes after sunset and 30 minutes before sunrise shall, in addition to the appropriate TRC, be required to obtain Night Service Approval (NSA) endorsement for such night operations.
- 13.1.2 The TRC should be revalidated every two years.
- 13.1.3 In order to maintain NSA an officer must perform sea service of at least 10 nights in any three-month period. If the officer does not fulfil this requirement, the NSA will be invalid. The officer shall undertake further night service re-familiarization on board of not less than 6 night trips before passing NSA practical examination conducted by the examiner of HK Marine Department.

13.2 Type Rating Certificate

- 13.2.1 In order to qualify for the issue of a TRC, an applicant must :
- (a) hold an appropriate certificate of competency or a licence issued under the Merchant Shipping (Seafarers)(Certification of Officers) Regulation;
 - (b) have satisfactorily completed an approved training course on the type and model of DSC or HSC for which the TRC is required;
 - (c) pass the TRC examination specified in paragraph 13.2.2;
 - (d) produce a valid certificate of medical fitness (including an eyesight test) issued by a recognized medical practitioner;
 - (e) (for master and chief mate only) - have attended an approved Radar Simulator (High Speed Craft) course (Relaxation of this requirement will be considered if courses are unavailable); and
 - (f) pay the appropriate fee.
- 13.2.2 Examination for Type Rating Certificate
- (a) The examination will comprise an oral and practical handling test carried out on board the type and model of craft and the intended route to which the TRC refers.
 - (b) The syllabus for TRC examination specified in paragraph 13.2.3 is written in general terms. A detailed syllabus for each particular type and model of craft will be agreed with each operating company.
 - (c) For Night Vision Officers the examination will be limited to item (h) of paragraph 13.2.3 and the operation of night vision equipments.

13.2.3 Syllabus for TRC Examination

- (a) A thorough knowledge of the service routes, the operational limitations of the craft and of any operating conditions and restrictions imposed by the Hong Kong Marine Department (HKMD).
- (b) A thorough knowledge of the structure and layout of the vessel, including stability conditions and bilge pumping arrangements.
- (c) A working knowledge of the operation of the following systems :
 - (i) Propulsion and associated systems
 - (ii) Electrical system
 - (iii) Fire protection system
 - (iv) Navigation and communication systems
 - (v) Ship control systems both in displacement and non displacement modes.
- (d) A thorough knowledge of the failure modes of the control, steering and propulsion systems and the proper response to such failures.
- (e) A thorough knowledge of the significance of and correct response to alarms and caution indicators on all wheelhouse instrumentation.
- (f) A practical handling test on the vessel to include all normal, abnormal, and emergency procedures in both displacement and non displacement modes.
- (g) A thorough knowledge of bridge procedures.
- (h) A thorough knowledge of the use of life-saving and fire-fighting appliances on board and the arrangements for mustering, evacuating passengers and crew members in the event of an emergency.
- (i) A thorough knowledge of cargo and vehicle stowage securement systems (for cargo high speed craft only).

13.3. Revalidation of Type Rating Certificate

13.3.1 The period between revalidation of the TRC shall not be more than 2 years. TRC holders who wish to revalidate their certificates must :

- (a) produce evidence of at least 5 months service in the appropriate rank in the type and model of DSC or HSC to which the TRC applies, during the preceding two years;
- (b) produce a valid certificate of medical fitness (including an eyesight test) issued by a recognized medical practitioner;
- (c) satisfy the Director via completion of an approved revalidation course or a simulator assessment provided by Marine Department as to their continued proficiency in operating the type and model of DSC or HSC to which the TRC

refers. At the request of the DSC or HSC operator, and with adequate sea service to the satisfaction of the Director, the period between the revalidation courses may be extended from 2 years to 4 years; and

- (d) pay the appropriate fee.

13.3.2 Examination for TRC Revalidation

- (a) MD will conduct on-board non-intrusive visits to monitor seafarers' competency. Seafarers will be selected on a random basis for such visits. A seafarer may be required to undergo a TRC revalidation examination if he/she -
 - (i) is involved in a serious marine accident or incident;
 - (ii) performed poorly in the TRC course assessment; or
 - (iii) demonstrates risky behaviour during MD's monitoring visits.
- (b) The examination will comprise an oral and practical handling test carried out on board the type and model of craft and the specified route to which the TRC refers or be in the form of simulator assessment provided by the Marine Department upon request by the DSC or HSC operator subject to the availability of the simulator.
- (c) The syllabus for TRC revalidation examination is specified in paragraph 13.3.3.
- (d) For Night Vision Officers the examination will be limited to item (h) of paragraph 13.2.3 and item (a)(iv) of paragraph 13.3.3.

13.3.3 Syllabus for TRC Revalidation Examination

- (a) In addition to the syllabus specified for the TRC Examination at paragraph 13.2.3, the assessment will be emphasized on the following aspects :
 - (i) Knowledge of changes in operational limitations of the craft.
 - (ii) Knowledge of updated information on operating conditions and restrictions imposed by HKMD, including Marine Department Notices and other publications.
 - (iii) Knowledge of modifications concerning the structure, equipment, machinery, control and safety systems of the craft.
 - (iv) Knowledge of changes in emergency procedures and arrangements.
 - (v) Knowledge of the lessons or experience learned from recent casualties, accidents and breakdowns.
- (b) Also, the candidate is expected to have a more in-depth knowledge of the operational systems, to be more sophisticated in practical ship handling and more conversant in dealing with emergency situations and breakdowns.

13.4 **Night Service Approval (NSA)**

13.4.1 Master or Deck Officer who wish to obtain NSA must :

- (a) Produce evidence of at least 3 months day service in the appropriate rank in the type and model of DSC or HSC to which the TRC applies (Night Vision Officer is not required to produce this evidence);
- (b) have satisfactorily completed an approved night service training course for the type and model of DSC or HSC for which the TRC is required;
- (c) pass the examination specified in paragraph 13.4.2; and
- (d) pay the appropriate fee.

13.4.2 Examination for NSA

- (a) The examination is to assess the Master or Deck Officer on the procedures to be used for night operations and how to use the night service equipment. The operating officers, except Night Vision Officer, must have been type rated for the type and model of craft before training for night service.
- (b) The examination will comprise an oral and practical handling test carried out at night time on board the type and model of craft and the intended route to which the TRC refers.
- (c) The syllabus for NSA examination is specified in paragraph 13.4.3.

13.4.3 Syllabus for NSA Examination

- (a) A thorough knowledge of the operation of night service equipment.
- (b) A thorough knowledge of the night service operational procedures.
- (c) A thorough knowledge of the night service routes.
- (d) A thorough knowledge of operating conditions and restrictions on night service operation imposed by the Marine Department.

13.5 **Application for Type Rating Examination**

13.5.1 Any application for Type Rating Certificate, Revalidation of Type Rating Certificate and Night Service Approval should be made in writing to :

Seafarers' Certification Section
 Marine Department
 3/F, Harbour Building
 38 Pier Road
 Central
 Hong Kong

13.5.2 Examination appointment is to be mutually agreed subject to the availability of an examiner. Applications should be made well in advance of the date of examination and a vessel of appropriate type and model should be available.

Appendix I

STANDARD FORM OF DOCUMENTS AND CERTIFICATES

FORM 1

CERTIFICATE OF WATCHKEEPING SERVICE

PART 1

This is to certify that M Has served on MV/SS from to In the capacity of deck cadet under my command. During this period the above-named cadet performed bridge watch keeping for not less than hours out of every 24 hours while the vessel was at sea.

* In addition he has regularly carried out other duties in connection with the routine and maintenance of the ship.

* Bridge watches were doubled during the following periods and at on other time: During these periods the above named officer served as the *Senior/Junior of two watchkeeping officers.

During the period of engagement stated above-named officer:

*(a) was granted no leave of absence,

*(b) was granted leave of absence as follows:

.....

which period(s) was/were deducted from his total leave entitlement.

Signature of Master

Date

PART 2

During the period.....
the vessel was in the final stages of construction and the above-named officer served on board.

Signature of *Company
Superintendent/Master

Date

* delete as appropriate

(Reverse of Certificate of Watchkeeping Service)

M.has served as

In MV/SS under

my command for the periods stated :

His conduct during the period stated has been

His ability has been

His sobriety has been

(Chop)

Master

Date

FORM 2

REPORT OF SHIPBOARD SERVICE OR TRAINING FOR ENDORSEMENT OR CERTIFICATE OF PROFICIENCY OF DANGEROUS CARGO OPERATION

The report of the Master or Chief Engineer Officer should be headed by the full name, certificate number and discharge book number of the subject officer, and should include a statement along the lines of the specimens below, as appropriate. The description of type of cargo carried during the period need not be exhaustive, but must be more than simply "oil", "chemicals" or "liquefied gas". For example: "crude oil", "gas oil, motor spirit and other products", "Benzene", "Phenol and other chemicals", "LNG", "LPG and Ammonia", etc.

Report of service

M has served as (Rank) in MV/SS for at least 3 months between the following dates and During this time the ship carried the following types of cargo:

I consider M To be competent to carry out safely cargo handling duties in an *oil tanker / *chemical tanker / *liquefied gas tanker. (to be signed by the Master)

Report of ship-board training as a supernumerary

M Has served in a supernumerary capacity in MV/SS between the following dates and, and during this time has undergone a course of at least one month ship-board training in cargo operations. There areloading andunloading cargo operations during the training period (At least 3 loading and 3 unloading operations). The ship was carrying the following types of cargo, or was on ballast voyages between carrying such cargoes:

I consider that M now has an overall appreciation of *oil / *chemical / *liquefied gas cargo operations.
(to be signed by the Chief Officer or Cargo Officer and countersigned by the Master).

* Delete as appropriate.

FORM 3

Watchkeeping Duty Record Certificate for HSC Officer

Date	Time Dep/Arr	Voyage From/To	Ship Name Official No.	Trip No.	Hour of Watch	Master's Name	Master's Signature	Remarks

Total hours of watchkeeping duties: _____