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CHAPTER 15 - MASTER, LIMITED

PART I - GENERAL REQUIREMENTS OF APPLICANTS

- 15.1 (1) Every applicant for a certificate as Master, Limited, for a ship not exceeding 60 tons gross tonnage, not carrying passengers shall:
- (a) acquire two months of service performing deck department duties on a ship that is of a tonnage and that engages on voyages similar to the tonnage and voyages of the ship for which the certificate is sought;
 - (b) obtain a medical certificate prescribed by the Crewing Regulations;
 - (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
 - (d) obtain:
 - (i) a certificate of completion for Basic Safety (A1) of the Marine Emergency Duties Courses, set out in TP 4957, from a school listed in TP 10655;
 - (ii) at a minimum, a certificate of completion for small vessel safety (A3) course where the ship is not more than 15 GT and it is engaged in minor waters or Home Trade, class IV voyages; or
 - (iii) a pass in a practical examination using the ship's equipment for marine emergencies and questions relating to Basic Safety (A1) of the Marine Emergency Duties Course, set out in TP 4957; and
 - (e) pass an examination as specified in section 15.7.
- 15.2 (1) Every applicant for a certificate as Master, Limited, for a ship not exceeding 60 tons gross tonnage, carrying passengers shall:
- (a) acquire two months of service performing deck department duties on a ship that is of a tonnage and that engages on voyages similar to the tonnage and voyages of the ship for which the certificate is sought;
 - (b) obtain a medical certificate prescribed by the Crewing Regulations;
 - (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
 - (d) obtain:
 - (i) a certificate of completion for Small Vessel Safety (A2) of the Marine Emergency Duties Courses, set out in TP 4957, from a school listed in TP 10655; or
 - (ii) at a minimum, a certificate of completion for small vessel safety (A3) course where the ship is not more than 15 GT and it is engaged in minor waters or Home Trade, class IV voyages;
 - (e) obtain a Marine First Aid Basic Certificate, set out in TP 13008; and
 - (f) pass an examination as specified in section 15.7.

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- 15.3 (1) Every applicant for a certificate as Master, Limited, for a pleasure yacht exceeding 20 metres in length shall:
- (a) complete the service for a period determined by the examiner and performed on vessels with tonnage and voyages equivalent to the certificate sought, all of which may have been performed on pleasure yachts while holding a First Mate, Limited, Certificate valid on a pleasure yacht exceeding 20 meters;
 - (b) obtain a medical certificate prescribed by the Crewing Regulations;
 - (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
 - (d) obtain certificates in approved courses as determined by the examiner; and
 - (e) pass an examination as specified in section 15.7.
- 15.4 (1) Subject to Section 15.6.1, every applicant for a certificate as Master, Limited, for a ship exceeding 60 tons gross tonnage, other than a certificate referred to in subsections 15.3, 15.5 and 15.6, shall:
- (a) complete six months service after obtaining a certificate as a Restricted Watchkeeping Mate, Ship, or First Mate, Limited, as officer in charge of the watch on a ship of not less than 25 tons gross tonnage making voyages within the waters for which the certificate relates or on equivalent voyages;
 - (b) obtain a medical certificate prescribed by the Crewing Regulations;
 - (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
 - (d) meet the requirements of paragraph 15.1 (d) or 15.2 (d), according to whether or not passengers are carried;
 - (e) where the ship has multiple enclosed decks or boat or liferaft launching equipment, obtain a certificate of completion for each of the following courses of the Marine Emergency Duties Courses, set out in TP 4957, from a school listed in TP 10655:
 - (i) Survival Craft (B1);
 - (ii) Marine Fire Fighting (B2);
 - (iii) for Officers (C); and
 - (iv) for Senior Officers (D);
 - (f) where the ship carries electronic navigation equipment obtain a certificate of completion for a Simulated Electronic Navigation Course Level I, set out in TP 4958, from a school listed in TP 10655;
 - (g) after fulfilling the requirement in (f) pass a practical examination in Simulated Electronic Navigation Level I;
 - (h) obtain a Marine First Aid Basic Certificate, set out in TP 13008 if the ship carries passengers; and
 - (i) pass an examination as specified in section 15.7.


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15.5 (1) Every applicant for a certificate as Master Limited, Short-Run Ferry Ship, shall:

- (a) complete three months service after obtaining a certificate as Restricted Watchkeeping Mate, Ship, or First Mate, Limited, as officer in charge of the watch engaged on voyages in the waters to which the certificate relates or on equivalent voyages;
- (b) obtain a medical certificate prescribed by the Crewing Regulations;
- (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
- (d) obtain:
 - (i) a certificate of completion for Small Vessel Safety (A2) Course of the Marine Emergency Duties Courses, set out in TP 4957, from a school listed in TP 10655;
 - (ii) at a minimum, a certificate of completion for small vessel safety (A3) course where the ship is not more than 15 GT and it is engaged in minor waters or Home Trade, class IV voyages; or
 - (iii) a pass in a practical examination using the ship's emergency equipment in the following Marine Emergency Duties subjects:
 - (A) Small Vessel Safety (A2);
 - (B) Survival Craft (B1);
 - (C) Marine Fire Fighting (B2);
 - (D) for Officers (C); and
 - (E) for Senior Officers (D);
- (e) obtain a Marine First Aid Basic Certificate, set out in TP 13008 if the ship carries passengers; and
- (f) pass an examination as specified in 15.7.

15.6 (1) Every applicant for a certificate as Master, Limited, Intermediate-Run Ferry Ship, shall:

- (a) complete 12 months service after obtaining a certificate as Restricted Watchkeeping Mate, Ship, or First Mate, Limited, as officer in charge of the watch on board a ferry ship on intermediate runs within minor waters or within harbours, ports, bays inlets or sheltered coastal waters to which the certificate relates or on equivalent voyages;
- (b) obtain a medical certificate prescribed by the Crewing Regulations;
- (c) obtain a Restricted Operator Certificate (ROC) with Marine Qualifications issued by Industry Canada if the ship is fitted with a radiotelephone station;
- (d) obtain a certificate of completion for the following courses of the Marine Emergency Duties set out in TP 4957 from a school listed in TP 10655:
 - (i) Small Vessel Safety (A2)
 - (ii) Survival Craft (B1);
 - (iii) Marine Fire Fighting (B2);
 - (iv) for Officers (C); and
 - (v) for Senior Officers (D);
- (e) obtain a certificate of completion for a Simulated Electronic Navigation Course Level I, set out in TP 4958, from a school listed in TP 10655;
- (f) pass a practical examination in Simulated Electronic Navigation Level I;
- (g) obtain a Marine First Aid Basic Certificate, set out in TP 13008 if the ship carries passengers; and

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(h) pass an examination as specified in section 15.7.

- 15.6.1 In lieu of the requirements of Section 15.4(e), every applicant for a Master, Limited certificate for a passenger ship of more than 60 tons that is not a short-run or intermediate-run ferry and is used for a seasonal operation between March 31 and December 1 in any year in minor waters within five nautical miles of shore shall provide the examiner with a certificate of the applicant's successful completion, at a recognized institution, of a course in marine emergency duties with respect to small vessel safety (A2), survival craft (B1) and marine fire fighting (B2), or a TC approved equivalent.

PART II - EXAMINATIONS

- 15.7 The examination is based on as much of the syllabus, as determined by the examiner and deemed appropriate to the area of operation, type of craft and equipment carried on board ship, for which the certificate is to be valid.

Note: The examination is oral and practical, and it includes written papers.

PART III - VALIDITY OF CERTIFICATE

- 15.8 The certificate is valid for a period of five years beginning on the date on which it is issued and only
- (a) within the voyage area specified on the certificate;
 - (b) on the ship or ships specified on the certificate; and
 - (c) where the ship is not a pleasure craft and is engaged on
 - (i) a voyage that does not go beyond the minor waters of Canada,
 - (ii) a voyage within a harbour, port, bay, inlet or similar sheltered waters off the coast of Canada, or
 - (iii) in the case of a ship of not more than 60 tons, a limited voyage off the coast of Canada.

PART IV - SYLLABUSES OF EXAMINATIONS

- 15.9 (1) The questions used in the examination may be taken from the following tables.
- (2) Sections 15.10, 15.11, 15.12, 15.13 and 15.17 are considered an appropriate guide to examination for a certificate as Master, Limited, set out in sections 15.1, 15.2, 15.3 and 15.4.
 - (3) Sections 15.14, 15.15, 15.16, 15.17 and 15.18 are considered an appropriate guide to examination for a certificate as Master, Limited, Short-Run Ferry, set out in section 15.5.
 - (4) Sections 15.11, 15.13, 15.19, and 15.20 are considered an appropriate guide to examination for a certificate as Master, Limited, Intermediate-Run Ferry, set out in section 15.6.
 - (5) Section 15.21 sets out the Simulated Electronic Navigation Course for the certificates of Master, Limited, for a ship exceeding 60 tons when fitted with electronic navigation equipment and Master, Limited, Intermediate-Run Ferry.

15.10 Navigation Safety

Examination number 062

Companion to Section 11.7

ITEM	COLUMN
1.	Navigation Safety Practical application of rules from an interpretation in multi-ship navigational situations; Regulations for the Prevention of Collisions with Canadian Modifications 1983; multi-ship or multi-factor navigational situations involving more than one rule, more than one factor of Radar Annex; Ship Routing Regulations; inconsistencies between regulations, ordinary practices of seafarer; application of STCW Code section A-VIII/2; Notice to Mariners – Annual Edition.

Note: The examination consists of a screening test and oral examination.
Duration approximately one and a half hours, as necessary.

15.11 Ship Management

Examination number 092


ITEM	COLUMN
1.	Business and Law The provisions of the <i>Canada Shipping Act</i> relating to ship safety, ship registration, ship manning, seafarers' rights, pollution and protection; certification of seafarers; accident investigation; use of councillor offices; engagement and discharge of seafarers, in and out of Canada; maintenance of discipline; port wardens and steamship inspectors; limitation of liability; provisions, health and accommodation; <i>Pilotage Act</i> ; pilotage; coasting trade, coasting licences and regulations; customs and immigration procedures; <i>Carriage of Goods by Water Act</i> ; control of ships and Canada's international obligations.
2.	Contracts Marine insurance; charter parties, deviation and its effect on various contracts; function of ship's agents; master's responsibilities in the event of salvage and salvage agreements; business aspects of putting into port with damaged ship or cargo; noting and extending protest.
3.	Management General organization of ship's management; shipboard accounting; procurement of ship's stores; entering and clearing ships in foreign ports; sick seafarers in foreign ports; crew training; crew union representation; putting into port with damaged ship or cargo.
4.	Conventions Function and jurisdiction of International Maritime Organization, International Labour Organization, Safety Of Life at Sea, Standards of Training, Certification and Watchkeeping for Seafarers 1978; Antwerp Rules; United Nations Convention on Trade and Development; Tonnage Measurement 1976; tonnage rules for coasting; Suez and Panama rules; articles, regulations and resolutions; MARPOL.
5.	Regulations Regulations governing: Shipping Casualties Reporting; Vessel Traffic Reporting Systems; Foreign-Going, Home-Trade, Inland Waters and Minor Waters Voyage; Potable Water; Medical Examination of Seafarers; Quarantine; Ship's Crew Food and Catering; Inspection Certificate for Non-Convention Ships; Safety Certificate; Oil Prevention; <i>Canada Labour Code Part II</i> , pertaining to marine; ship's obligation and responsibilities in the event of emergencies, collision, distress, search and rescue; legal consequences of infractions of regulation.

Note: The examination consists of a written test.

15.12 Engineering Knowledge
Examination number 132

ITEM	COLUMN
1.	Piping Construction, operation and maintenance of bilge, ballast and cargo pumping systems, valves, drains, manifolds, strum boxes, change-over bells and blank flanges; precautions to be observed in the operation of piping systems, cross connections, venting and overflow; routine pumping operations.
2.	Steering Systems Mechanical and hydraulic steering gears, follow-up and non-follow-up systems, emergency steering arrangements, starting power of steering gears, routine checks of steering gear, operation of steering gears, principles and operating characteristics of automatic steering systems, safety and precautions of operation.
3.	Deck Machinery Mechanical and hydraulic deck machinery; operating safety precautions; general arrangements of windlasses, capstans, winches, cranes and derricks, standing and running rigging; lubrication; inspection, testing and records.
4.	Pumps Purpose, general characteristics and operational safety of reciprocating, centrifugal and screw displacement pumps.
5.	Fixed Fire Detection and Extinguishing General principles, testing, maintenance and operational characteristics of fire-detection and -extinguishing systems: heat-detecting systems and alarms; smoke-detecting systems and alarms; automatic and manual sprinkler systems; CO ₂ and inert-gas smothering systems; emergency shut-offs.
6.	Remote Control General principles and operational characteristics of remote-control main engine and thruster units, safety and precautions in operating, changing over from engine room to bridge control, interlocks, overloading and re-setting, time delays, operation minimum speed, block diagram of major components.
7.	Tank-Sounding and Draft-Measuring Gauges General principles and operation of tank-sounding gauges and draft-measuring gauges, safety in operation, reliability, maintenance, purging, calibration, block diagrams of system.

Note: The examination consists of a multiple-choice test.

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15.13 General Seamanship

Examination number 163

Companion to Section 11.10

ITEM	COLUMN
1.	Manoeuvring Information. Tables of stopping distances; turning circle diagrams and derivation of appropriate information of ship characteristics.
2.	Ship-Handling, Routine Fixed- or controlled-pitch propeller or propellers, transverse thrust, turning ahead or astern; vessel's pivoting point when manoeuvring with headway and with sternway; head reach and stern reach; effect of cavitation and wake current; rudder force and manoeuvring of twin screws; sail effect of vessel superstructure; berthing, unberthing and use of the water wedge in ship handling; locking and unlocking a vessel; anchoring to a single-bower anchor; anchoring to a stern anchor, mooring to two anchors; mooring to a buoy; turning a vessel short round; bank suction and cushion effect in narrow channels; the effect of shallow water resistance on ship's behaviour; use of mooring lines and ground tackle in all circumstances; the use of tugs in manoeuvring.
3.	Ship-Handling, Exceptional Practical handling and managing a ship in exceptional circumstances, loss of or damage to rudder and the use of auxiliary means of steering; steering by screws; rigging jury rudder or jury steering gear; damage control in case of collision, grounding, fire, explosion or other accident; procedure when grounded and methods of refloating; procedure when beaching a vessel; procedure in case of wreck with emphasis on preservation of life, methods of abandoning a wrecked vessel; steps to be taken when disabled and in distress; taking and being taken in tow; rescuing crew of a disabled vessel or person in the water; manoeuvring in bad weather, heaving to and running before a sea; dangers of being pooped; keeping head to sea; the use of oil in bad weather and rescue operations; keeping a disabled vessel out of trough and lessening lee drift.
4.	Ship-Handling, Unusual Practical handling and manoeuvring a ship in unusual circumstances, retrieval of man overboard; procedures in ice, alone or in convoy, and movements to be expected by an ice breaker with reference to Transport Canada publication <i>Ice Navigation in Canadian Waters</i> ; search and rescue procedures, including the responsibilities of the on-scene commander, with reference to MERSAR, CANMERSAR and Transport Canada publications; precautions to be taken in bad weather.
5.	Dry-Docking Procedures and precautions observed when dry-docking, effect of distribution of weight, dry-docking with a full cargo, use of bilge blocks; dry-dock inspections and precautions to be observed in dry-dock; procedure to be followed prior to and during refloating.
6.	Duties and Responsibilities of the Master: On first joining a vessel; official documents on board a vessel; issuance and understanding of standing, general, night and special orders; berthing and unberthing under all conditions; manoeuvring a vessel and assessing risks involved; underway, in port or at anchor under all circumstances and conditions; shipboard, local and general emergencies of any nature; verifying information on the ship's manoeuvring characteristics, determining approximate manoeuvring data, and recording the ship's manoeuvring peculiarities; setting and manning the watches according to regulation and during exceptional circumstances; organizing the crew and other persons for routine operation and emergencies of all kinds; maintaining equipment in good condition.
7.	Regulations Collision Regulations with Canadian Modifications 1983; Canadian Buoyage System; Code of Nautical Procedures and Practices; <i>Canada Labour Code Part II</i> ; WHIMIS.

Note: This examination is oral.
Duration as necessary.


15.14 Ship Management

Examination number 090

Companion to Section 14.7

ITEM	COLUMN
1.	<p>Organization</p> <p>Organization of crew for emergencies, drills and routine maintenance; responsibilities under the Boat and Fire Drill Regulations and Crewing Regulations; official and ship's logbooks, their entries under all conditions.</p>
2.	<p>Acts</p> <p><i>Canada Shipping Act</i>: identify grades and classes of certificates of competency; rights of holders of certificates; offences relating to certificates; loss of certificates; engagement and discharge of seafarers in and out of Canada; rights of seafarers; maintenance of discipline; registration of ships; port wardens and steamship inspectors; wrecks, salvage and casualties; provisions, health and accommodation; distressed seafarers; limitation of liability; ship's safety inspection certificates; coasting trade of Canada; <i>Pilotage Act</i>; <i>Canada Labour Code Part II</i>.</p>
3.	<p>Ship's Business</p> <p>Custom house and immigration procedures; coasting licence and regulations; de-rat certificates; tonnage certificates; charter parties and bills of lading; protest, note and extend; marine insurance contract and its relationship to the master's responsibility to owners and underwriters.</p>
4.	<p>Regulations</p> <p>Ship's responsibilities under Shipping Casualties Reporting Regulations; Quarantine Regulations; Potable Water Regulations for Common Carriers; Ship's Crew Food and Catering Regulations; Crewing Regulations, Inspection Certificates for Non-Safety Convention Ships; Safety Certificate Regulations; Foreign-Going, Home-Trade, Inland Waters and Minor Waters Voyages Regulations; Oil Pollution Prevention Regulations; Occupation Safety and Health Regulations.</p>
5.	<p>Ship's Master</p> <p>Responsibilities in event of salvage and salvage agreements; obligations and responsibilities in event of emergencies, collision, distress, search and rescue; vessel reporting systems; legal consequences of infractions of regulations; functions of agents; business aspects of putting into port with damaged ship/cargo.</p>
6.	<p>Stability</p> <p>Relating particularly to tugboat stability: curves of statical stability; hydrostatic curves; dynamical stability; principle of rudders and rudder design; factors influencing steering; rudder terminology; different types of propulsion.</p>

Note: The examination is written.
Duration is 3 hours.

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15.15 General Seamanship

Examination number 160

Companion to Section 14.8

ITEM	COLUMN
1.	Ship-Handling, Routine Fixed- or controlled-pitch propeller or propellers, transverse thrust, turning ahead or astern; vessel's pivoting point when manoeuvring with headway and with sternway; head reach and stern reach; effect of cavitation and wake current; rudder force and manoeuvring of twin screws; sail effect of vessel superstructure; berthing, unberthing and use of the water wedge in ship handling; locking and unlocking a vessel, including precautions to avoid girding; anchoring to a single-bower anchor; anchoring to a stern anchor, mooring to two anchors; mooring to a buoy; turning a vessel short round; bank suction and cushion effect in narrow channels; the effect of shallow water resistance on ship's behaviour; use of mooring lines and ground tackle in all circumstances; the use of tugs in manoeuvring.
2.	Ship-Handling, Exceptional Practical handling and managing of a ship in exceptional circumstances, loss of or damage to rudder and the use of auxiliary means of steering; steering by screws; rigging jury rudder or jury steering gear; damage control in case of collision, grounding, fire, explosion or other accident; procedure when grounded and methods of refloating; procedure when beaching a vessel; procedure in case of wreck with emphasis on preservation of life, methods of abandoning a wrecked vessel; steps to be taken when disabled and in distress; taking and being taken in tow; rescuing crew of a disabled vessel or person in the water; manoeuvring in bad weather, heaving to and running before a sea; dangers of being pooped; keeping head to sea; the use of oil in bad weather and rescue operations; keeping a disabled vessel out of trough and lessening lee drift.
3.	Ship-Handling, Unusual Practical handling and manoeuvring a ship in unusual circumstances; retrieval of man overboard; procedures in ice, alone or in convoy, and movements to be expected by an ice breaker with reference to Transport Canada publication <i>Ice Navigation in Canadian Waters</i> ; search and rescue procedures, including the responsibilities of the on-scene commander, with reference to MERSAR, CANMERSAR and Transport Canada publications; precautions to be taken in bad weather.
4.	Dry-Docking Procedures and precautions observed when dry-docking, effect of distribution of weight, dry-docking with a full cargo, use of bilge blocks; dry-dock inspections and precautions to be observed in dry-dock; procedure to be followed prior to and during refloating.
5.	Duties and Responsibilities of the Master On first joining a vessel; official documents on board a vessel; issuance and understanding of standing, general, night and special orders; berthing and unberthing under all conditions; manoeuvring a vessel and assessing risks involved; underway, in port or at anchor under all circumstances and conditions; shipboard, local and general emergencies of any nature; verifying information on the ship's manoeuvring characteristics, determining approximate manoeuvring data, and recording the ship's manoeuvring peculiarities; setting and manning the watches according to regulation and during exceptional circumstances; organizing the crew and other persons for routine operation and emergencies of all kinds; maintaining equipment in good condition.
6.	Basics of Naval Architecture Volumes of ship shapes; centres of gravity (G) and buoyancy; couples; righting moment and righting arm; inertia; equilibrium; freeboard; movement of G, real and virtual; free surface effects; metacentre and metacentric height; list, loll and increase in draft due to each; factors affecting static stability; damage stability; effect of beam and freeboard on stability; dry-docking and grounding; dynamical stability.
7.	Regulations Collision Regulations with Canadian Modifications 1983; Code of Nautical Procedures and Practices; Canadian Buoyage System.

Note: The examination is oral and practical.
Duration as necessary.

15.16 Navigation Instruments

Examination number 020

Companion to Sections 16.14, 20.6 and 21.5

ITEM	COLUMN
1.	Radar Use of all radar operator controls; correct setting up and shutting down of equipment; performance check and recognition of malfunctions; recognition and correction of maladjustments of controls; periodic operator checks and determination of heading marker, bearing marker, range ring and range marker error; obtaining ranges and bearings from equipment using proper reporting procedures and recognition of targets of all types; recognition of meteorological phenomena and false, multiple, and second-trace echoes and side lobes and interference; knowledge of the limitations of radar, sufficient to ensure safe navigation; correcting range and bearing data for known errors; use of radar data (i.e. position fixing, following a track, matching radar image to chart, radar plotting restricted to ability to determine CPA and time); use of reflection plotter, radar horizon and extreme-range charts and tables, operator's manual and radar logbook.
2.	Decca Use of all Decca operator controls; correct setting up and shutting down of equipment; performance check and recognition of malfunctions; periodic operator checks and determination of errors in the fraction, lane, and zone indicators, and in the L.I lamp sequence meter; obtaining readings from equipment; limitations of Decca sufficient to ensure safe navigation; correcting readings for fixed and variable errors; use of Decca data for position fixing, use of Decca over-printed charts, and minimizing effect of variable errors; use of Decca data sheets and operator's manual.
3.	Loran Use of all Loran operator controls; correct setting up and shutting down of equipment; performance check and recognition of malfunctions; recognition and correction of maladjustment of controls; periodic operator checks and knowledge of compensation for measurement and instrument errors; obtaining readings from equipment; recognition of unwanted data, blinking and sky-waves; limitations of Loran, sufficient to ensure safe navigation; use of Loran data for position fixing, use of Loran over-printed charts, and minimizing effect of variable errors; use of operator's manual.
4.	Echo-Sounding Machine Use of echo-sounder controls and interpretation of display.

Note: The examination is a practical test.
 Duration as necessary.

15.17 Chartwork and Pilotage

Examination number 040

Companion to Sections 16.15 and 21.6

ITEM	COLUMN
1.	Charts The chart, its nature and function as an aid to navigation; practical effects of projection distortion, numbering and the presentation of information, factors affecting reliability of charts; ability to use Mercator and polyconic charts; chart symbols and abbreviations as published in <i>Canadian Hydrographic Service Chart No. 1</i> .
2.	Publications Light characteristics and colours and sound signals used as aids to navigation, List of Lights, Buoys and Fog Signals; Canadian Buoyage System and its use; use and purpose of Canadian Notices to Shipping and Mariners, and chart corrections.
3.	Chartwork Locating a vessel's position on the chart by simultaneous true bearings and/or true bearing and distance; locating a vessel's position by two or more simultaneous distances. Determining the latitude and longitude of a given position; locating a position by its latitude and longitude, and its true bearing and distance from a given point. Laying off a course between given positions; measuring the true direction of a course laid-off on the chart; measuring distance on the chart. Finding the DR position, given course, speed and time elapsed from the last observed position by plotting on a chart or by other acceptable method of the applicant's choice. Demonstrating an appreciation that current and/or wind may affect the vessel's course and speed over the ground; determination of speed over the ground between observed positions; determining the true course made good between observed positions.
4.	Records and Errors Appreciation of the need to keep an accurate record of the vessel's progress, and the keeping of this record; care of dividers and parallel rulers. Periodic operator checks and determination of compass error by comparison with true terrestrial bearings or headings; determining and recording compass deviation; use of the magnetic compass to determine accuracy of the gyro compass by comparison; correcting courses and bearings for compass error, magnetic variation and deviation; use of table of deviations.

Note: The examination is oral and includes a practical chart paper.
Duration as necessary.


15.18 Navigation Safety

Examination number 060

Companion to Section 16.16

ITEM	COLUMN
1.	General Knowledge Knowledge of the content of the following regulations and International Maritime Organisation (IMO) documents: Collision Regulations with Canadian Modifications 1983; Operational Guidance for Officers in Charge of a Navigational Watch, STCW Code section A-VIII/2.

Note: The examination is a multiple-choice test. The applicant has the option of taking it in either oral or written format.
Duration as necessary.

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15.19 Ship Management

Examination number 091

Companion to Section 16.10

ITEM	COLUMN
1.	Industrial Safety Tackle Regulations, inspection and testing of gear and machinery and the maintenance of the machinery register; Safe Working Practices Regulations, emphasizing the recognition and correction of unsafe practices; precautions for vessels under fumigation; <i>Canada Labour Code</i> for Industrial Safety; Oil Pollution Prevention Regulations, MARPOL extended to include interpretations, and ship's responsibilities under them.
2.	Stress on Tackle Calculation of stresses in the various parts of single boom and union rig; methods of testing.
3.	Ship Management Organization of crew for emergencies, drills and routine operations and maintenance; ship's responsibilities under Boat and Fire Drill Regulations, Crewing Regulations; <i>Canada Shipping Act</i> and regulations, grades and classes of certificates of competency, rights of holders of certificates, offences relating to certificates, loss and replacement of certificates, seafarers' rights concerning wages.
4.	Records Official and ship's logbooks, and entries under all conditions.

Note: An open book examination.
The examination consists of a multiple-choice test, calculations and descriptive questions.


15.20 Stability

Examination number 112

Companion to Sections 12.6 and 16.12

ITEM	COLUMN
1.	Ship's Draft Draft, including effect of water density and fresh water allowance; use of displacement and ton per inch/tonne per centimetre (TPI/TPC) scales to determine displacement from draft and vice versa; statutory freeboard and loadlines; general loadline rules and loadline rules for lakes and rivers.
2.	Terms Meaning of block coefficient, displacement and deadweight; buoyancy, centre of buoyancy (B) and its movement, reserve buoyancy; centre of gravity (G), including the effect of adding, removing and transferring weights; righting lever (GZ) when the vessel is heeled, metacentre (M), metacentric height (GM) as an indication of initial stability, danger of slack tanks; centre of flotation (F) and trim and existence of trimming moment created by G longitudinal (GL) and B longitudinal (BL).
3.	Stability Data Use of stability data supplied to typical bulk-oil and oil-and-ore carriers, general cargo vessels and package freighters to perform these operations: allowing for effect of water density on draft and displacement, interpreting curves of statical stability, achieving satisfactory transverse stability, achieving desired trim, loading and discharging problems, list created during loading or discharging, counteracting trim and list together, allowing for free surface effect of tanks, change of stability during voyage.
4.	Mensuration Areas and volumes of common figures, squares, rectangles, triangles, cubes, cones, wedges, cylinders, spheres; centre of gravity of common areas and volume.

Note: The examination consists of a multiple-choice questions and a practical calculations based on ships' stability data booklets.
Duration is three hours.

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TP 2293 E		<i>THE EXAMINATION AND CERTIFICATION OF SEAFARERS</i>		

15.21 Navigation Instruments

Examination number SIM 1

Companion to Sections 13.9, 16.21 and 19.6

ITEM	COLUMN
1.	The syllabus for the examination is presented in TP 4958, Simulated Electronic Navigation Courses.

Note: The examination consists of a check list approved by the instructor after a practical and oral test at an approved school; a multiple-choice examination conducted by an approved school and subject to scrutiny and monitoring by Transport Canada; and an examination conducted by Marine Safety with simulated exercises.
Duration is three and a half hours.