MASTER <80m NEAR COASTAL – YOUR STUDY CHECKLIST

View the full Skills & Knowledge required for National Standard for Commercial Vessels Part D from which oral examinations sample a candidate's proficiency.

International Rules for the Prevention of Collisions at Sea

Part A-General

Competent		More study			
	Nothing will exonerate- vessel - master - crew			Neglect of ordinary practice	
	Definitions – vessel – pdv – sail - fishing			NUC - CBD – RAM - underway	

Part B Steering & Sailing - Section 1

Competent		More study			
Application -Rule 4- Conduct of vessels in any condition of visibility					
	Lookout – Rule 5-	At all times Sight & hearing All available means Full appraisal		Safe speed -Rule 6-	Visibility Traffic Manoeuvrability Background lighting Hazards Wind, Sea & Current Draught & Depth
	Risk of Collision -Rule 7-	All available means No change in Bearing Scanty information		Avoiding action -Rule 8-	Positive & Timely Due regard Safe distance, slow, stop
	Narrow channels -Rule 9-	Starboard side 20 metres Sail & Fishing		Traffic Separate -Rule 10-	Joining Crossing Anchoring

Part B Steering & Sailing - Section 11

Competent		More study			
Application -Rule 11- Conduct of vessels in sight of one another					
	Sailing vessels -Rule 12-	Port tack gives way Windward gives way Can't determine pt give way		Overtaking -Rule 13-	22.5° abaft beam Any doubt Subsequent alteration Alter to Pt/Stb
	Head on -Rule 14-	Reciprocal Any doubt Alter to Stb		Crossing -Rule 15-	Slow or stop Avoid crossing ahead Avoid altering to port
	Give way -Rule 16-	Early & substantial Avoid crossing ahead Avoid altering to port		Give way -Rule 17-	Keep course & speed Action to avoid collision by her manoeuvre alone
	Responsibility/vessels -Rule 18- a., b., c.	NUC- RAM-Fishing -Sailing		Responsibility/vessels -Rule 18- d., e.	CBD-Seaplane

Part B Steering & Sailing - Section 111

Competent		More study			
Conduct of Vessels in Rest Visibility					
	Section 111- Applies to Conduct of Vessels in/near Safe speed-engines ready- lookout			Res vis -Rule 19-	Avoid to port fwd beam Avoid aft beam Radar alone

IRPCS- Part C- Lights & Shapes

Competent		More study			
	Application – Rule 20- All weather Sunset to sunrise Shapes by day			Exemptions/specifications – Annex	
	Definitions – Rule 21- Masthead 225° Side lights 112.5° Stern lights 135° Towing lights 135°			Visibility – Rule 22- Masthead Side lights Stern lights Towing lights <12 mtrs or >12 to 50 mtrs	
	Lights – Rules 23-27 Pdv Towing & pushing Sailing & oars Fishing NUC & RAM			Lights – Rules 28-31 CBD Pilot Anchored Seaplanes	

IRPCS- Part D- Sound Signals

Competent		More study			
	Definitions – Rules 32 Short Prolonged			Equipment – Rules 33 <12mtr >100mtr	
	Manoeuvre– Rules 34 • •• ••• ••••• - - • - - •• - • - • -			Restricted Visibility– Rules 35 - - - - • • - • • • • • • • • - • Anchored <100Mtrs Anchored >100Mtrs Aground <100Mtrs Aground >100Mtrs	

	Attracting attention– Rules 36			Distress Signals– Rules 37	
Examiners comments:					

IALA- Buoyage System A & B

Competent		More study			
	Lateral buoyage			Cardinals	
	Safe water, isolated danger			Special marks	

COMMAND NAVIGATION

Outcome	Content		Standards for evaluating (extracts)
Competent		**More study**	
Outcome 10.2 Manage business and admin on vessels limited by tonnage or near coastal ops	**Business and Administration**		• Vessel operations plans are drawn up according to company goals, procedures operational orders, regulatory requirements, established maritime practice and are reviewed, validated and evaluated • National and international conventions, codes, laws, regulations and standards are implemented • General contracts, legal requirements, company procedures and established marine management practices are interpreted and implemented • Vessel budgets and accounting procedures are prepared and reported according to established financial procedures • Vessel inventory of plant, equipment and other physical resources are maintained and reported on using established praties • Operational voyage data collection and reporting is implemented using established marine management practice • Demonstrate leadership capabilities • Work requirements for crew are clear and within capability of crew member • Recognise and control conflict • Identify and organise workplace training and assessment requirements as identified
		Develop plans for general and specific vessel operations	
		Ensure legal requirements are fulfilled	
		Ensure commercial and business requirements are fulfilled	
		Monitor and control vessel expenditure	
		Develop and implement vessel safety management system (SMS)	
		Monitor and control vessel physical resources	
		Analyse and compile operational and voyage data	
		Provide leadership to officers and crew	
		Allocate duties and maintain set standards of work on board vessel	
		Resolve conflict	
		Plan, organise, promote and evaluate shipboard training and assessment	

Competent		More study	
Outcome 10.3 Mange operations and maintenance on vessels limited by tonnage or near coastal operations	**Organisation and Management**		• Vessel safety parameters are correctly maintained within normal operational limits • Vessel routine preventative maintenance is planned and carried out according to procedures • Appropriate plans, procedures and preparations are implemented for docking/slipping a vessel • Inspections, identification of deterioration, maintenance procedures and tasks and reporting and recording practices are undertaken according to WH&S, pollution prevention, regulatory, company procedures and manufactures requirements • Correct tools are used for maintenance tasks, defects are identified, equipment is cleaned and stowed appropriately
		Manage maintenance of vessel stability and safety parameters	
		Administer planning or cargo operations	
		Dock or slip vessel	
		Carry out inspection and routine maintenance	
		Administer correct selection and use of maintenance equipment and materials	
Competent		**More study**	
Outcome 10.1 Apply command navigation procedures on vessels limited by tonnage or near coastal operations	**Watchkeeping Practices**		• Develop Standing Orders to supplement SMS • Apply accepted principles for watchkeeping, assigning and responsibilities of bridge teams, briefings, handover of watch, bridge resource management, fatigue management strategies • Nav. including checks, position fixing, passage plan analysis, traffic monitoring and safe progress using accepted principles • Demonstrate leadership of bridge team in response to navigational emergency • Potential collision situations are analysed and appropriate actions taken including SAR • Record keeping practices comply with regulations and vessel operating procedures
		Establish safe watchkeeping procedures on vessels, potentially with limited qualified personnel	
		Respond to potential collision and emergency situations	
		Maintain watchkeeping records	

PRE REQUISITE KNOWLEDGE

Competent		More study	
Outcome 9.6 b Execute appropriate watchkeeping arrangements and procedures	**Watchkeeping**		• Watchkeeping arrangements & practices comply with STCW, MOs & Regs • Allocation/assignment/prioritisation resources • Assertive and leadership is demonstrated • Situational awareness is maintained • Consideration is given to watch experience • Watchkeeping is planned/organised and implemented, including: Standing orders, calling Master, taking over the watch; Clear weather, restricted visibility, darkness; Coastal, congested waters, anchor and in port; Navigation with a pilot onboard; Ship carrying dangerous cargo. • Comms & bridge reporting procs are clear • Adopted procedures enhance nav. safety, marine environment and safety
		Content/application/intent of Collision Regs	
		Watchkeeping principles	
		Bridge teamwork procedures	
		Ship reporting systems & VTS procs	
		Assessing watchkeepers' skills	
		Fitness, fatigue, drug and alcohol policy	
		General provisions on ship routeing	

LEGISLATION

Competent		More study	
Outcome 9.4 b Monitor and control compliance with legislative requirements	**Marine Legislation**		• Information obtained relating to the safe nav. and ops of a vessel current and applied • Procs for monitoring ship's ops & maint. comply with legislative requirements • Responsibilities under international maritime law in international agreements & conventions are clearly identified, interpreted and applied • Procs & comms used for co-ordinating SAR operations to IMO requirements • Understand and apply SMS standards & emergency operating procedures • Understand/comply with crew inductions requirements • Determine/understand risk management • Source info on State waterways management regs - areas of ops, bar crossings and ports • Sensitive sea areas and restrictions, oil spill equipment and its limitations • Plan for coping with increased volume of garbage, bilge water, sludge and sewage • Consequence of pollution in cold climate
		Local, State, Commonwealth Marine Law	
		NSCV	
		IAMSAR	
		MARPOL 73/78	
		STCW	
		SOLAS	
		IMO	
		Environmental legislation	
		Safety management systems or plans	
Competent		**More study**	
Table 3 **Outcome Environment** Follow environmental work practices	**Environmental Responsibilities**		• Identify safe and environmentally acceptable practices for: •Refuelling • Cleaning up fuel or oil spills •Understanding garbage, sewage, noise, anchoring or marine life and other environmental type maritime responsibilities •Antipollution procedures and equipment
		Environmental workplace practices	
		Maintain environmental records	
		Precautions to prevent pollution	
		Oil spill and response	

SIGNALS

Competent		More study	
Table 9 **Outcome 9.11 b** Organise and manage communications onboard to receive information and advice	**Communications**		• Information obtained from ICS and other publications relating to inter-ship communications is current and actioned • Procedures for monitoring ship's communication systems comply with legislative requirements • Communication procedures ensure that marine safety information and intership safety messages are received and acknowledged
		Int.code flags & signal books	
		Int. Code of Signals, Morse SOS	
		GMDSS & Radio	
		IAMSAR	

Competent		More study	
Table 2 **Outcome Elements of Shipboard Safety** Safety and Emergencies including survival craft	**Safety and Emergencies**		• Practice survival techniques • Operate lifesaving and survival equip. • Practice with survival craft • Understand/follow fire minimisation procs • Respond to and fight fires with portable and other fire fighting appliances including correct use of vessel closure and shutdown systems • Undertake/understand risk management process including SMS operational practices • Follow safety procs and take action • Identify and respond to risks associated with confined spaces
		Apply basic survival skills	
		Survive at sea using survival craft	
		Fire minimization	
		Fire fighting	
		Risk management & SMS	
		Meet WHS requirements (confined space)	
Competent		**More study**	
Table 9 **Outcome 9.8 b** Respond to navigational emergencies	**Emergency Procedures**		• Contingency plans are formulated and adopted for emergency situations • Initial actions including manoeuvring in accord with contingency plans without risk to the vessel or crew safety are assessed • Follow-up actions are justified in accordance with marine safety procs • Equipment utilised is appropriate and safe • Comms and reporting adopted are clearly defined and accepted • Safety precautions and WH&S followed • Actions when an emergency arises in port • Distress alerts and procedures • Radio communications & SARTs • Actions to keep safe in emergency
		Musters and Drills	
		Damage control	
		Beaching/grounding/refloating a vessel	
		Collision	
		Emergency steering	
		Emergency towing	
		Salvage arrangements	
		Assisting a vessel in distress	
		Heavy weather	
		Cyclones	
Competent		**More study**	
Table 9 **Outcome 9.5 b** Predict meteorological and oceanographic conditions	**Meteorology and Oceanography**		• Weather forecasts for an intended voyage are obtained using all available data and the forecast • Information obtained from observations, reports and instruments is deciphered and applied to ensure safety of the vessel
		Vertical division of atmosphere	
		Heat exchange process	
		Cloud classification	
		Air masses and fronts	
		Synoptic chart analysis	
		Instruments	
		Tropical meteorology	
		Ocean currents & sea state	

NAVIGATION

Competent		More study	
Outcome	**Content**		**Standards for evaluating**
Plan and conduct a safe passage	**Voyage Planning**		The information obtained from navigational charts is relevant and applied. Facts and statistical data are obtained from relevant sources and current publications. Determined position, courses, distances and time are accurate. All navigational hazards are identified. Planned passage and information is transferred to charts. During passage position information gained is applied and the plan adjusted.
		Chart catalogue	
		Plotting ocean tracks	
		Fuel consumption	
		Met. conds/restrictions imposed by var. auths.	
		Principles of ships routing	
		Ship reporting systems	
		Admiralty publications	
	Tides		The info obtained from tide tables nav charts, publications is relevant and applied. The calculated times for tide at standard and secondary ports are accurate. The state of tide at any time for standard and secondary ports. The publications used are current.
		Tidal theory	
		Tidal prediction sources- Australian and Admiralty	
		Secondary ports	
Use various fixing techniques to determine a vessel's position in any condition	**Position Determination Techniques**		The information obtained from current navigational charts and publications is relevant and applied. Techniques used to determine the vessel's position are justified relative to the prevailing conditions. Positions obtained from terrestrial bodies are within accepted limits. The accuracy of fixes is verified. Positions determined by electronic aids are within acceptable limits. Performance checks and tests on navigational equipment and systems are carried out adhering to manufacturer's recs and maritime navigational practices.
		Terrestrial observations	
		Sailings - plain, traverse	
		Azimuth and amplitude	
		Nautical publications	
		Gyro and magnetic compasses	
		GPS	
		Electronic aids - ECDIS, ARPA, AIS	
		Radio aids and systems	

RADAR

Competent		More study	
Table 8 **Outcome 8.10 c** Use radar to maintain safety of navigation and for collision avoidance	**Radar - Fundamental Principles**		• Components are identified as per manufacturer's specification • Demonstrate knowledge of fundamental principles and characteristics on performance of the radar and compensation during use • Setting up and maintaining displays
		Principles & effects on performance	
		Major components and their siting	
		Wave length and frequency	
		Pulse transmission & pulse length	
		Range and bearing measurement	
	Characteristics and Performance		• Factors affecting performance are recognised during use
		Factors affecting performance	
		Maximum and minimum range	
		Bearing & range - detection & discrimination	
		Vertical and horizontal beam width	
		Radar horizon	
	Functions and Adjustment		• Limitation and operating parameters of the radar are identified • Information obtained from radar is interpreted and analysed to assist in navigation and collision avoidance • Interpretation and analysis to be confirmed by alternative means • Misrepresented information is detected • Limitations and accuracy of equipment and information derived in prevailing conditions are identified • Search and Rescue Radio Transponders (SART) and Racons • Identification of critical echoes
		Effect of target aspect and topography	
		Weather & atmospherics	
		Blind arcs and shadow areas	
		False echoes	
		Radar reflectors	
		Radar beacons and transponder beacons	
		Radar logs	
	Instrumentation & Navigation Aids		• Procedures adopted to operate a radar set comply with manufacturer's recommendation • Controls are identified and adjusted to provide maximum performance
		Function of controls	
		Symbols for controls	
		Setting up and maintain display	
		Shutting down display	
		Maladjustments	
		Verification of range and bearing	

Competent		More study	
Table 8 **Outcome 8.10 c** Use radar to maintain safety of navigation and for collision avoidance	**Plotting and Collision Avoidance**		• Action taken to avoid a close-quarters situation/ collision accords to Col Regs • Radar CPA & TCPA • Course and speed of other ship • Detecting course changes of other ship • Effects of changes in own ships course and/or speed • Manoeuvring and restricted visibility signals to Col Regs • Course and speed alterations prevent close quarter situations and accord to Col Regs and avoid navigational hazards
		Radar presentations	
		Relative and true motion	
		Radar plotting & reporting	
		Collision avoidance & Col Regs	
		Parallel indexing	
		Basic understanding of ARPA	

NAUTICAL KNOWLEDGE

Competent		More study	
Table 9 **Outcome 9.7 b** Manoeuvre a vessel in any prevailing conditions	**Vessel Handling and Manoeuvring**		• Demonstrate knowledge of handling • Decisions made are justified with consideration to the vessel's manoeuvring and propulsion unit's characteristics in the prevailing conditions • In analysing the safe manoeuvring of a vessel, explanation is given to: interaction, tide, current, passing vessels and own vessel's bow and stern wave • Initial responses are concise and appropriate measures taken are adequate • Safe operating limits are not exceeded • Safety precautions followed are relevant • Manoeuvre a vessel: Crossing a bar; following an quartering sea, berthing and unberthing; coming to and leaving a mooring; steering through an 's'; towing/being towed; turn short around; turn across the tide/wind; Williamson & short turn around
		Propulsion and manoeuvring systems	
		Manoeuvring in restricted waters	
		Effect on stopping distance and rate of turn – due to deadweight, draught, trim, clearance, speed	
		Squat, shallow water, interaction effects	
		Anchoring and approach to anchorage	
		Berthing manoeuvres	
		Embarkation and disembarkation of pilots	
		Heavy weather management inc. emergencies	
		Launch liferafts/boats & retrieving survivors	
		Traffic separation scheme	

Competent		More study	
Table 9 **Outcome 9.9 b** Prepare a cargo plan to ensure safe cargo operations whilst loading, unloading and during a voyage	**Cargo Operations**		• Information, procs & docs relating to the handling of dangerous and harmful cargo are reliable and correctly identified in accord with IMDG & awareness of MSDS • Cargo operations and the distribution of cargo are planned using reliable info and in accordance with guidelines • Emergency procedures for incidents involving dangerous and hazardous cargoes are appropriate • Cargo monitoring procedures are appropriate – including scheduling of inspections to ensure all parts are checked in a given time • Safety precautions and procedures comply with maritime regulations, procedures and WH&S requirements • Monitoring for damage, defects and corrosion including causes and prevention • Considerations in severe weather
		Purchases and tackle	
		Stresses/loads/SWL	
		Cargo handling and securing equip.	
		Cargo stowage and securing	
		Loading and unloading	
		IMDG & Bulk Cargo Codes	
		Ballasting	
		Documentation	
		Authorities requisites	
		Enhanced survey regime	

VESSEL CONSTRUCTION, MACHINERY & STABILITY

Competent		More study	
Table 9 **Outcome 9.1** Demonstrate knowledge of the principal structural components of a vessel of 80 m in length	**Vessel Construction**		• Identify structural components from drawings/plans & locate on a vessel • Demonstrate knowledge of the function of structural components in compliance with conventional maritime design • Identify various construction material and techniques • Demonstrate knowledge of the construction related to cargo
		Principles of vessel construction	
		Principal structural components	
		Load lines conditions of assignment	
		Design/testing for watertight integrity	
		Structural arrangements to restrain fires	
		Crucial structures for ship safety	
		Regulatory requisites	
Table 9 **Outcome 9.12 b** Work safely in enclosed spaces	**Confined space**		• Identify/minimise risks with e.s. entry • Seek authorisation or regulatory permission to enter an enclosed space • Prepare a plan for access into an e.s. • Manage work operations and safety requirements within an enclosed space • Meet regulatory requirements; including but not limited to permits, entry and exits, maintenance of equipment
		Asses confined spaces	
		Seek permission to enter a confined space	
		Plan and enter an enclosed space safely	
		Take emergency action	
Table 9 **Outcome 9.2** Manage a propulsion unit using the appropriate engineering systems and support services	**Engineering Systems**		• Operation of prop/ancillary power units and equipment in accord with tech specs • Machinery is operated within the accepted safety parameters • Monitoring of safety and fire detection systems is in accordance with formulated emergency procedures • Operation of safety and fire-detection/ suppression systems • Safety precautions/procs are appropriate
		Marine engineering terms	
		Management of marine power units	
		Ancillary equipment	
		Safety alarm systems	
Table 9 **Outcome 9.3 a** Manage stress and dynamic factors affecting a vessel's stability	**Stability**		• Information obtained from a vessel's stability data book is interpreted correctly • Calculations associated with basic stability management are accurate • Correlate and interpret calculated stability Data • Stability and stress conditions are managed within safety parameters • Information communicated is relevant and Correct • Stability diagrams and illustrations are Accurate • Actions in the event of partial loss of intact stability
		Terms and definitions	
		Forces and moments	
		Centroids and centre of gravity	
		Transverse and longitudinal dynamics	
		Stability curves	
		Loading and discharging weights	
		TPC & MCT & final KG	
		Density/specific gravity	
		Dockwater & freshwater allowance	
		Bilging and permeability Effects of free surface	
		Virtual loss of GM	
		Stress conditions including trim/stress tables	
		Stress calculating equipment	