MASTER < 24 MTRS 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

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

LEGISLATION

Competent		More study	
Outcome	**Content**		**Standards for evaluating (extracts)**
Table 8 **Outcome 8.13 d** Maintain a safe navigation watch	**Watchkeeping** Content/application/intent of Collision Regs Watchkeeping at sea/anchor/port Bridge communication IALA buoyage system "A"		• Collision regs are interpreted and applied • Watchkeeping practices comply with accepted standards and procedures • Defined wheelhouse communication and reporting procedures are adopted • The vessel log/record book is maintained in accordance with the NSCV • Situational awareness is maintained
Competent		**More study**	
Outcome 8.11 d Use Commonwealth, local, State/Territory Acts,Legislation, Codes and other publications relevant to the safe operation of a vessel	**Marine Legislation** Duties and responsibilities Certificates on board a small vessel Procedures manuals on board a small vessel Operational areas and class of vessels NSCV Part E and C Section 7 Marine Notices, Notices to Mariners Log Book or Vessel Record Book Workplace Health and Safety Legislation Marine Pollution Local, State, Commonwealth Marine Law Certificates to be carried onboard Safety management systems or plans Induction and shipboard training programs		• Apply current information obtained from Commonwealth, local, State and Territory Acts, Legislation, Codes and other publications relating to the safe navigation of a vessel • The duties and responsibilities of the Master are identified • Understand and apply SMS, safety management plans, standard and emergency operating procedures and the requirement for inductions for all crew • Determine and understand risk management techniques • Source information on the various State waterways management regulatory requirements, for example: areas of operation, bar crossings, port authority requirements
Competent		**More study**	
Table 3 **Outcome Environment** Follow environmental work practices	**Environmental Responsibilities** Environmental workplace practices Maintain environmental records Precautions to prevent pollution Oil spill and response		• 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

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 • Undertake/understand risk management process including SMS operational practices • Follow safety procs and take action • Understand and follow fire minimisation procedures • Respond to and fight fires with portable and other fire fighting appliances including correct use of vessel closure and shutdown systems • 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 8 Outcome 8.14 d Respond to emergency situations	**Emergency Procedures**		• The emergency situations are identified expeditiously and responded to appropriately • Procedures are appropriate and comply with NSCV Part E and current practices
		Protection/safety of persons on board	
		Musters and Drills	
		Collision, grounding, damage, abandonment	
		Rescue person/vessel/aircraft in distress SAR	
		Tropical Revolving Storms	

Competent		More study	
Table 8 **Outcome 8.12 d** Obtain and interpret meteorology information relevant to a voyage	**Meteorology**		• Weather information obtained is applicable to the intended voyage • Information obtained from observations, reports and instruments is analysed and included in the voyage planning • Actions taken by a small vessel to avoid severe weather are identified
		Sources- weather forecasts & information	
		Instruments for on board observations	
		Elements, terms and definitions	
		Synoptic charts & Weather systems	
		Pressure systems and circulation	
		Tropical revolving storms (TRS)	

COASTAL NAVIGATION

Competent		More study	
Outcome 8.9 b Plan and conduct a safe passage and determine position	**Tides**		• Relevant information is obtained /applied • The times/ heights from Australian or local tide tables for any port are accurate • Chart datum and relevance to the height of tide is understood & practical examples • The publications used are current • Areas of extensive tidal effects
		Basic tidal theory	
		Tidal prediction sources	
		Tide tables, Australian and local	
Table 8 **Outcome 8.9 b** Plan and conduct a safe passage and determine position	**Chart and Features**		• The information obtained from navigational charts is relevant and applied • That chart symbols and features are identified or selected • That chart corrections are made using Notice to Mariners, are correctly inserted, and deleted as necessary
		Information on a navigational chart	
		Chart scales	
		Latitude and longitude	
		Variation and deviation	
		Notice to Mariners	
Competent		**More study**	
Table 8 **Outcome 8.9 b** Plan and conduct a safe passage and determine position	**Coastal Navigation Techniques**		• Apply info obtained from current nav charts and publications • Nav hazards are identified including ice • Estimated positions calc. accurately • Vessel position is accurately fixed • Plot a GPS derived position • Positions within acceptable accuracy • Fixing interval is appropriate to danger • Calc and measure from chart accurate • Charts selected are appropriate to the area of operation • Use of electronics include but not limited to: GPS, plotters, AIS, RADAR, depth sounders, communication systems • Use radar, range and bearing to plot the position on a chart. Check with GPS • Use parallel indexing to maintain a required distance off a point of land • Maintaining situational awareness • Ship routeing & Traffic Separation S
		Direction - true/mag/compass/gyro/ relative	
		Compass error - variation deviation card	
		Coastal features	
		Position determined - dr/estimated/visual/radar	
		Laying off a safe course	
		Use of electronic aids to navigation	
		Publications for safe navigation	
		Reporting systems - Navigation Logs	
Competent		**More study**	
Outcome 8.9 b Plan and conduct a safe passage and determine position	**Instrumentation & Navigation Aids**		• Checks/tests on nav equipment to manufacturer's recommendation & accepted nav practice • Operating procs are in accordance with manufacturer's recommendations • Performance limitations of equipment are considered • Use of electronic aids include but are not limited to: GPS, chart plotters, AIS, RADAR, depth sounders, communication systems • Care and maintenance of navigation aids • Automatic Pilots including use, change overfrom manual and vice versa • Nav equip maint, logs and updates
		Compasses	
		Echo sounders	
		GPS, plotters and electronic charts	
		Interaction- nav. aids equip. alarm systems	
		Automatic steering systems	
		Basic understanding of ECDIS, ARPA, AIS	

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 closequarter 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 8 **Outcome 8.15 d** Demonstrate knowledge of the various features of a vessel, which relate to its handling characteristics Manoeuvre a vessel	**Vessel Handling and Manoeuvring**		• Demonstrate knowledge of handling characteristics of a vessel and the significance of the characteristic relative to manoeuvring related to engineering and design principles • Vessel is manoeuvred within its performance parameters • Launch and retrieve liferaft/boat according to vessel procedures • Vessel is manoeuvred to pick up simulated person overboard using internationally recognised practices • Turn a vessel across the tide across the wind • Williamson turn, turn short around • Berthing and leaving a berth in various wind and tide conditions • Berthing/ unberthing; berthing in pen • Coming to and leaving a mooring
		Effects of rudders and propellers	
		Berthing and unberthing in various conditions	
		Manoeuvres to approach an anchorage	
		Squat, canal & interaction effects	
		Heavy weather & bar crossing	
		Manoeuvres to launch boats or liferafts	
		Manoeuvres/procedure persons overboard	
		Towing and being towed	

Competent		More study	
Table 8 **Outcome 8.16 d** Demonstrate seamanship skills and techniques	**Practical Seamanship**		• Workplace health and safety procedures are observed • Identify rope types and common uses • Tie common knots such as reef knot, bowline, sheet bend, clove hitch, round turn and 2 half hitches and understand their use • Eye splice a fibre/synthetic rope end join two ends complying with the rope manufacturer's recommendations • Whip an end • Techniques and skills used to perform tasks are in accordance with manufacturers' specifications and industry standards • Maintenance procedures comply with authorised requirements
		Knots/hitches/bends/splice - fibre/syn rope	
		Precautions using rope, wire and chains	
		BS, SWL, SLL of ropes	
		Maintenance/care of rope, wire and chain	
		Rigging gear, cranes and maximum loads	
		Winches and windlasses	
		Safe handling of moorings and hawsers	
		Stowing and securing anchors for sea	
		Secure for weather and watertight integrity	
		Lashing and securing equipment	

SHIP CONSTRUCTION

Competent		More study	

Outcome 8.1 Understand principle structural components of a small vessel and their functions	**Design & Construction**			• Identify structural components from ship's drawings and plans, locate on a vessel and ascertain the relevant regulation governing the structure • Understand the function of structural components and compliance with conventional maritime design • Identify samples of construction material
			Principle parts of a vessel	
			Basic methods of design	
			Construction material (Steel, Aluminium, FRP & Wood)	
			Regulations governing structure	
Outcome 8.2 Maintain the watertight integrity of a vessel	**Watertight Integrity**			• Identify watertight components from ship's plans to locate on a vessel • Understand the function in conventional maritime design • Identify deterioration and reason • Examine a vessel to test and to ensure watertight integrity in compliance • Apply watertight integrity regs • Identify the dangers and precautions of working in confined spaces to WH&S
			Watertight and weathertight integrity	
			Design characteristics preserving water tight integrity	
			Maintenance to sustain watertight integrity	
			Regulations affecting watertight integrity	
Outcome 8.3 Operate the fuel, fresh and ballast water, bilge and fire pumping systems installed in a vessel	**Pumping Arrangements**			• Identify pumping systems on vessel drawings and identify and trace them on board the vessel • Operate pumping equipment to comply with manufacturer's specification • Identify procedures to avoid contamination of fuel or drinking water • Ensure bilges are clean and dry • Provide fire fighting whilst maintaining stability of the vessel and without environmental contamination • Maintain and test pumping equipment according to specifications • Safety precautions and pollution prevention measures during refuelling applied to legislative, supplier's requirements, operating procedures
			Fuel, fresh and ballast water, bilge and fire pumping	
			Sounding and venting facilities	
			Safety features incorporated in systems	
			Maintenance to ensure operational readiness	
			Regulated requirements	
			Refuelling	
Outcome 8.4 Use and maintain deck machinery installed on a vessel	**Deck Machinery**			• Operating procedures are in accordance with manufacturers' specification and/or vessel operating procedures • Regulatory requirements are applied • Maintenance procedures comply with manufacturer's requirements • Safety procedures and precautions followed are in accordance with WH&S and maritime safety regulations
			Mechanical deck equipment	
			Safety features incorporated in systems	
			Maintenance requirements to ensure op readiness	
			Precautions to be observed when using deck mach	
			Regulated requirements	
Outcome 8.5 Operate steering gear arrangement	**Steering Systems**			• Operating procedures accord with manufacturers' specs and/or vessel ops • Regulatory requirements are applied • Maintenance procedures comply with manufacturer's requirements • Faults are identified promptly and emergency procedures are implemented according to operating procedures • Safety procedures and precautions in accord with WH&S and maritime regs
			Steering gear arrangements	
			Safety features incorporated in systems	
			Maintenance requirements to ensure op readiness	
			Regulated requirements	

Competent		More study		
Outcome 8.6 Manage hull deterioration	**Vessel Maintenance**			• Deteriorated hull and fittings are identified in accord with maritime engineering examination procedures • Regulatory requirements are applied • Maint. procedures/safety precautions comply with manufacturer's recs/warning • Maintenance schedule is (as minimum) as per manufacturer's requirements
			Characteristics and causes of deterioration	
			Methods to minimise and remedy deterioration	
			Maintenance management	
Outome 8.7 Demonstrate knowledge of various methods of slipping a vessel	**Slipping**			• Demonstrate knowledge of procedures per vessel/engineering practices • Deteriorated underwater fittings are identified • WH&S procs observed • Regs interpreted correctly • Maintenance procedures comply with manufacturer's requirements • Safety precautions and procedures comply with vessel operating procedures • The precautions for putting a vessel back in the water conform to regulations and engineering principles
			Procedures for slipping a vessel. That an industry visit incorporates the witnessing of a vessel being slipped	
			Safety precautions (ship/personnel) on board a vessel whilst out of the water (industry visit to slipping)	
			Maintenance to ensure operational readiness.	
			Working in confined spaces	
			Regulated requirements	

STABILITY

Competent		More study		
Outcome 8.8 a Use simplified stability information to maintain the stability of a vessel	**Stability**			• Information obtained from a vessel's simplified stability data book is applied to maintain the stability of a vessel • Demonstrate knowledge of stability, including interpretation of diagrams, principles and content of a vessels simplified stability book • Demonstrate how to improve stability for heavy weather considerations
			Principles of stability	
			Terms and definitions	
			Basic physics of stability	
			Equilibrium	
			Impact of design and hull shape on stability Note: Stability to be considered without calculation	
	Operating Conditions			
			Adding and removing weights	
			Water on deck	
			Slack tanks	
			Roll period	
			Stiff and tender vessel	
			Additions and alterations to vessels	