

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

NAME:		STUDENT No.:		Date:	
Shipboard Training Particulars	Vessel 1	Vessel 2	Vessel 3		
Vessel Name					
Vessel Type					
Propulsion Power (kW)					
Date of Embarkation					
Date of Disembarkation					

Function 1: Marine Engineering at the Operational Level								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
1. What is the correct way in handing over an engine room watch?	Maintain a safe engineering watch	1.1.1 1.1.2 1.1.3 1.1.4	MARE110 MARE111L	The relieving officer is informed of:				
				1. Special orders related to any ship operation				
				2. Standing orders from the chief engineer				
				3. Level of important tanks				
				4. Condition and state of fire extinguishing equipment (fire alarm isolation)				
				5. Location of other crew if working in the engine room				
				6. Details of equipment failure (if applicable)				
				7. Condition of the main engine, auxiliary generators and other auxiliary machineries				
2. After a purifier overhaul, a report should be done. How is proper reporting done on your vessel?	Use English in written and oral form	2.1.2	MARE109 MARE109L MT162-3 ENG030	8. Notice if the relieving officer is capable of taking over the watch				
				Must:				
				1. State the Planned Maintenance System used onboard				
				2. Report the reason for overhauling (regular maintenance or maintenance due to break down of machinery)				
			3. Report the corrective actions done					

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:		
Shipboard Training Officer	Dean	Engine Assessor

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

				4. Report spare parts used and order if necessary				
				5. Report must be in English language				
3. You are in the steering gear room having an emergency steering gear drill but there is no communication to - and - from the bridge using the VHF portable radios. How can we establish a communication to - and - from the bridge?	Use internal communication systems	3.1.4	MARE107 MARE107L ENG029 ENG040	Must: 1. State the operation of a sound powered telephone (put dial to bridge; rotate lever to start communication)				
				2. Receive information/command from the bridge				
				3. Relay information after command is executed				
4. How would you differentiate the high level sea suction from the low level sea suction?	Operate main and auxiliary machinery and associated control systems	4.1.7	MARE107 MARE107L	Must state that: 1. High level sea suction is used in shallow waters to reduce intake of sediments				
				2. Low level sea suction are used during sea voyages to reduce the risk of drawing air and losing suction when the ship is rolling				
5. How water washing of the exhaust side of the main engine turbo charger is done?	Operate main and auxiliary machinery and associated control systems	4.2.8	MARE109 MARE109L MARE164 MARE164L	Must states that: 1. Engine speed must be reduced to lower the exhaust temperature				
				2. Fresh water to be used must be slightly hot to avoid thermal stress				
				3. Water is injected through a regulating valve connected to the exhaust side				
6. How is raw sewage treated by the sewage treatment plant before it is discharged overboard?	Operate main and auxiliary machinery and associated control systems	4.2.44	MARE107 MARE107L MT166	Must identify and explain: 1. Aeration chamber - fed with raw sewage which will be grinded to small particles; Decomposition takes place in this stage with the help of bacteria; Low air pressure is kept flowing to help for proper mixing and decomposition				
				2. Settling tank/chamber - separates liquid from sludge then overflows the liquid to the next stage				
				3. Chlorination & Collection chamber - clean liquid from the settling is disinfected with chlorine (to reduce e-coli to an acceptable level)				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

<p>7. How is oily water treated so it can be discharged legally overboard?</p>	<p>Operate fuel, lubrication, ballast and other pumping systems and associated control systems</p>	<p>5.1.5 5.2.9</p>	<p>MARE106 MARE106L MT166</p>	<p>Must identify and explain:</p> <p>1. Separator unit - where oil and water break apart, and oil can be skimmed off</p>				
				<p>2. Filter unit - removes any residual oil and sludge not removed from the previous stage</p>				
				<p>3. Oil Content Monitor - monitors the ppm value of the treated water; if 15 ppm and below, it can be pumped overboard; if more than 15 ppm, it will be recirculated again to the OWS</p>				
<p>8. You are trying to pump out your ship's bilge well but the level is not going down, how would you troubleshoot the problem?</p>	<p>Operate fuel, lubrication, ballast and other pumping systems and associated control systems</p>	<p>5.1.9 5.1.10</p>	<p>MARE106 MARE106L</p>	<p>Must check for:</p> <p>1. Proper priming</p>				
				<p>2. Running at proper speed</p>				
				<p>3. Air leakages (pump joint; gland joint; hole on the pipe; loose pipe connection; unnecessary bilge valve opened)</p>				
				<p>4. Pump shaft moving at the right direction</p>				
				<p>5. The liquid is not above the "PUMP-ABLE" limit of the pump</p>				
				<p>6. Damaged or worn: Impeller/Screw & Wear ring</p>				
				<p>7. Clogged suction filters</p>				
<p>9. How would you troubleshoot a purifier if fuel overflows through the water discharge drain?</p>	<p>Operate fuel, lubrication, ballast and other pumping systems and associated control systems</p>	<p>5.2.3</p>	<p>MARE107 MARE107L MARE110 MARE111L</p>	<p>Must state:</p> <p>1. Discharge pressure too high; Reduce discharge pressure by opening back pressure valve</p>				
				<p>2. Fuel induced too fast during start-up; Re-prime bowl and restart fuel oil flow slowly</p>				
				<p>3. Excessive throughput; Reduce flow using bypass valve</p>				
				<p>4. Discharge ring size incorrect; Select proper discharge ring size and replace discharge ring</p>				
				<p>5. Faulty or missing discharge o-ring; Replace discharge ring o-ring</p>				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

Function 2: Electrical, electronic and control engineering at the operational level								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
10. How would you differentiate essential electrical load and non - essential electrical load? Site examples of both loads	Operate electrical, electronic and control systems	6.1.5	MARE152 MARE152L MARE153 MARE153L	Must state that: 1. Essential electrical loads are very critical auxiliaries which are directly affecting the safety of personnel, navigational aids (radars, communication equipment, navigational lights and steering gear motor)				
				2. Non-essential electrical loads are does not affect safety of ship and personnel (A/C compressors and fans)				
11. How would you explain the use of an over current protection device for generators?	Operate electrical, electronic and control systems	6.2.5	MARE153 MARE153L ECE132-1 ECE132L-1	Must state that: 1. By opening the circuit when it detects a short circuit or ground fault				
12. If a generator's synchroscope is broken, how can the generator be paralleled with the bus?	Operate electrical, electronic and control systems	6.3.1	MARE153 MARE153L ECE132-1 ECE132L-1	Must state: 1. The use of the FREQUENCY METER				
				2. Frequency of the incoming generator must be slightly higher than the connected generator				
13. How do you use a Clamp Meter in measuring current?	Maintenance and repair of electrical and electronic equipment	7.2	MARE153 MARE153L	Must state: 1. Switch "ON" meter				
				2. Select AC or DC current				
				3. Open jaw like structure and insert the conductor through which current is to be measured				
				4. Close the jaw like structure and align the conductor with the markings on the jaw				
				5. Read the measurement from the screen				
14. You are about to change a bearing on a sea water pump motor, how would you ensure that it is safe	Maintenance and repair of electrical and electronic equipment	7.3.1	MARE153 MARE153L	Must: 1. Know the equipment and energy source				
				2. Shutdown properly the machine (switch "off; pushing emergency stop)				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

disconnecting the energy connection and no one will turn it "on"?				3. Isolate the machine from all possible source of energy				
				4. Lock out and tag out switchboard boxes				
				5. Relieved possible stored energy				

Function 3: Maintenance and repair at the operational level								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
15. Where do you base your choice of welding rod?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.2.1 8.2.2	ME101-1 MARE104-3 MARE104L-3	Must state: 1. Same material as the work piece				
16. Give one example of machinery or system that uses BRASS as construction material and relate to your shipboard experience why such material is used on your given example	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.1.4	MARE106 MARE106L ME101-1	Must state: 1. Sea water piping				
				2. Centrifugal pumps (Impellers; Mouth rings)				
				3. Corrosion resistant				
17. How would you temporarily repair a leaking pipe?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.3.1	MARE109 MARE109L	Use: 1. Plumbers epoxy				
				2. Pipe repair clamp				
				3. Duct tape				
			MARE109	Must state:				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
----------------------------	------	-----------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

<p>18. Explain the importance of the shipboard Planned Maintenance System</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.1.1</p>	<p>MARE109L MT162-3</p>	<p>1. To ensure that all maintenance is carried out with adequate intervals</p>				
				<p>2. To maintain and keep all engines, machinery and technical components in good working order at all times</p>				
				<p>3. To avoid interruption and oversight of work by covering all of the work</p>				
				<p>4. To make clear demarcation between onboard and shore maintenance work</p>				
<p>19. In making a crankshaft deflection reading, how many positions are measured and state the direction of the rotation of the crankshaft during the deflection reading. Illustrate your answer</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3 9.4</p>	<p>MARE109 MARE104-1 MARE104L-1 MARE164 MARE164L MARE107 MARE107L</p>	<p>Must state: 1. 5 positions</p>				
				<p>2. Clockwise rotation</p>				
				<p>3. Sketch the position where crankshaft deflection is measured</p>				
<p>20. In testing a fuel injection valve, how many tests are done? Identify those tests? Differentiate these tests.</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3.3 9.4.2</p>	<p>MARE107 MARE107L MARE109 MARE109L MARE104-1 MARE104L-1 MARE164 MARE164L</p>	<p>Must state: 1. 2 test are done</p>				
				<p>2. Leak Test - done with lower pressure fuel injected to the valve</p>				
				<p>3. Pressure Test - done with higher pressure fuel injected to the valve; fuel oil should be atomized</p>				
<p>21. In regards with the previous question, what if you detected a small leak after doing a pressure test? Formulate a conclusion with recommendation from your observation</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3.3 9.4.2</p>	<p>MARE107 MARE107L MARE109 MARE109L MARE104-1 MARE104L-1 MARE164</p>	<p>Must state: 1. Adjust the adjustment stud/screw</p>				
				<p>2. Replace nozzle</p>				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

			MARE164L					
22. In an inspection of the exhaust valve and seat, what maintenance procedures are done?	Maintenance and repair of shipboard machinery and equipment	9.3.6 9.4.6	MARE107 MARE107L MARE109 MARE109L MARE164 MARE164L MARE104-1 MARE104L-1	Must state:				
				1. Grinding or lapping of the valve and seat				
23. State the safety precautions done before using the engine's turning gear.	Maintenance and repair of shipboard machinery and equipment	9.3.13	MARE104-1 MARE104L-1 MARE109 MARE109L MARE164 MARE164L	2. Replace if damage is unreparable				
				Must state:				
24. How to check the gap clearance of a newly installed piston ring?	Maintenance and repair of shipboard machinery and equipment	9.3.14 9.4.14	MARE104-1 MARE104L-1 MARE109 MARE109L	1. Main engine should be isolated (Air supply, Fuel supply, Pre lube pump are all closed or stop)				
				2. Check interlock				
25. How a cylinder liner measurement is done? Illustrate your answer	Maintenance and repair of shipboard machinery and equipment	9.3 9.4	MARE104-1 MARE104L-1 MARE107 MARE107L MARE109 MARE109L MARE164 MARE164L	Must state:				
				1. Using feeler gauge				
				2. Insert feeler gauge to the gap of the compression grooves and oil scraper groove				
				3. Check manufactures manual regarding the correct gap clearance of the newly installed piston rings				
				Must state:				
				1. Use of inside micrometer				
				2. Measurements are taken from 4 positions				
				3. Use of special tool template to determine distance of cylinder liner position measurement				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

<p>26. How does a turbocharger operate? How do you monitor its efficiency? Illustrate your answer</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3.16 9.4.15</p>	MARE104-1	<p>Must state: 1. Air compressor driven by exhaust gases 2. Efficiency - using a U tube -manometer, system pressure is greater than atmospheric pressure 3. Illustration of gas flow in the turbocharger 4. Illustration of u tube - manometer portraying the system pressure is greater than the atmospheric pressure</p>				
			MARE104L-1					
			MARE107					
			MARE107L					
			MARE109					
			MARE109L					
			MARE164					
			MARE164L					

Function 4: Controlling the operation of the ship and care for persons on board at the operational level								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
<p>Situation: 27. Your vessel is underway and you are ordered by the Bosun to dispose the plastic wrappings of the deck stores that you have received. How would you get rid of the garbage and why?</p>	<p>Ensure compliance with pollution-prevention requirements</p>	<p>11.1</p>	<p>MT166</p>	<p>1. Justifies his action to gather the plastic wrappings and secure them in a plastic collection storage for disposal at a garbage reception facility when they reach port. Defends the provisions of MARPOL 73/78 regarding Garbage Disposal at sea and argues the legality of the order given to him by the Bosun by citing that plastics are not allowed to be disposed at sea at any given time because it is against the LAW</p>				
<p>28. Situation: While the vessel was upright (no list that is), you were given a task by the Chief Officer to read the draft at marks, that is Forward, Midship and Aft. Judging from the readings taken, how would you work out the deflection of your vessel at that particular moment? How would you</p>	<p>Maintain seaworthiness of the ship</p>	<p>10.13.1 10.13.2 10.13.3 10.13.4 10.13.5 10.13.6</p>	<p>MT 106-3 MT107 MT107L</p>	<p>1. Explains that the loading computer is only meant to facilitate and quickly assists the ship's officer in calculating the stability condition of the vessel, including the trim, and stresses that it undergoes during all the stages of cargo operation. Argues the fact that the computer does not relieve the officer from checking its outputs manually as an exercise of prudence and promotion of mastery of the system of manual calculation in the process. .1 Explains how the trimming table is used and demonstrate how to apply them to the observed draft when weights are loaded or discharged from the vessel.</p>				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:		
Shipboard Training Officer	Dean	Engine Assessor

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

relate the result of your calculation to the current condition of the ship? .1 Explain the concept of using a loading computer for cargo calculation. Compare and contrast it to the manual method of doing such calculation. What are the pros and cons of both system and how does one system outweigh the other?								
29. How will you prevent and combat fire on board?	Prevent, control and fight fires on board	16.1.1	MT101 MT101L MT130P	Explains the use of different types of fire extinguishers				
		16.1.2 16.1.3 16.1.4 16.4.10		Identifies and explains the 5 classes of fire and how a fire is likely to develop. Heat, oxygen and fuel.				
30. How do you respond to the Abandon ship signal and how is it organized on board? What are your initial duties during such an emergency?	Operate life-saving appliances	14.1 14.5.9	MT130P-1	Organize abandon ship drill (as applicable), demonstrate proficiency in donning the life jacket, immersion suit, Thermal Protective Aid.				
31. What is the relevance of the SOLAS Convention to your job as a seafarer? How do you ensure compliance with its provisions?	Apply medical first aid on board ship	19.1.1	MT130P-1	Safety of Life at Sea- came into being as a consequence to the Titanic sinking				
32. How do you comply with the MARPOL 72/78 regulations? What practices have you learned from your experience on board that	Monitor compliance with legislative requirements	19.1.2 19.1.3 19.2.1 19.2.2	MT166	MARPOL 73/78 – came into as a consequence of the sensational grounding case of the MT Torrey Canyon.				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET A)

indicates your ship's adherence to this regulation?								
33. How are the work routines on board ship, managed by your superiors? (I.e. Master, Chief Officer, Chief Engineer or Second Engineer)	Application of leadership and team working skills.	10.1 10.2	MT162-2	Plans and coordinate work with the department heads by filling out the required work permits as per the ship's safety management system				
34. How are personnel assigned their respective duties and responsibilities when they are joining ship for the first time?	Application of leadership and team working skills.	10.2	MT162-2	Explains that personnel are given assignments based on their contracted job descriptions and scope of competence upon which they are certified.				
35. Scenario: During your fire patrol watch, you discovered that the galley is burning due to an unattended hot pan with oil in it. How would you deal the situation based on what you have learned from your Basic Training? What would the sequence of your actions be?	Contribute to the safety of personnel and ship	16.1.1 16.1.2 16.1.3 16.1.4 16.1.5 16.2.1 16.2.2 16.3.1 16.3.2 16.3.3 16.4.1 16.4.8	MT130-P	Demonstrates familiarity with the onboard firefighting procedures by: -Reporting the fire immediately to the Bridge -Shutting off the ventilations and doors to isolate further ingress of air and -Wait for the firefighting team to arrive. In the event of a small fire that can be put off with a portable fire extinguisher: -Reports the fire to the Bridge and -Extinguishes the fire using the appropriate extinguishing agent for oil fire (which in this case is a Dry Powder). -Uses a fire blanket to smother the fire if it is readily accessible.				

POST-SHIPBOARD TRAINING ASSESSMENT CONDUCTED BY:

Shipboard Training Officer	Dean	Engine Assessor
-----------------------------------	-------------	------------------------