

SHIPBOARD TRAINING OFFICE

ENGINE CADET ORAL ASSESSMENT (SET B)

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	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				
				4. Report spare parts used and order if necessary				

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				5. Report must be in English language				
3. Having to communicate to a duty engineer using a hand held VHF radio, how would you use the radio to establish a communication with the duty engineer?	Use internal communication systems	3.1.5	MARE110 MARE111L ENG029 ENG040	Must:				
				1. Set the radio to the proper channel				
				2. Adjust volume				
				3. Push the button to talk				
4. How to start a Fresh Water Generator?	Operate main and auxiliary machinery and associated control systems	4.2.12	MARE107 MARE107L	4. Talk clearly				
				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				
				Must states that:				
				1. Close air vent valve				
				2. Seawater ejector pump suction, discharge and overboard valves are open; start ejector pump (pressure build up to minimum 3 bars)				
				3. Wait for vacuum build up (Approximately 90% and above)				
				4. Open feed water valve to feed sea water to evaporator (applicable depends on FWG maker)				
				5. Open M.E. JCW inlet and outlet valve to the evaporator gradually				
6. Open discharge valve to FW tank								
7. Start FW pump								
8. Start salinometer								
9. Open valve for dosing chemicals								
10. Adjust shell temperature by closing or opening the by-pass valve (temp. must be around at 50°C)								
11. Check overall running condition of the FWG before leaving								
5. After cleaning the plates of a central cooler, how would you troubleshoot if	Operate main and auxiliary machinery and	4.2.17	MARE107 MARE107L MARE109 MARE109L	Must state that:				
				1. By doing a Chloride test will determine the salinity value of the engine's cooling water system				

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the engine's cooling water is penetrated by sea water?	associated control systems		MARE164 MARE164L CHM018					
6. How would explain the cause of water hammering on a steam line and how to prevent this?	Operate main and auxiliary machinery and associated control systems	4.2.23	MARE107 MARE107L MARE166 MARE166L ME113-1 ME113L-1	Must state that:				
				1. Steam condensed to form water				
				2. When steam enters the pipe, it will pick up the water and hurls at high velocity creating a loud hammering noise				
				3. To prevent this, regularly drain the steam traps				
				4. Slow opening of steam valves may help prevent water hammering				
7. After a bunkering heavy fuel oil and lubricating oil, an entry to the Oil Record Book must be done, how would you write the entry of the bunkering in the oil record book?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.1.6 5.1.12	ENG030 MT166 MARE106 MARE106L	Must state the:				
				1. DATE				
				2. CODE (Code H - Bunkering of fuel or bulk lubricating oil)				
				3. ITEM NO. and RECORD OF OPERATION (26.1 - Place of Bunkering; 26.2 - Time of Bunkering; 26.3 - Type and quantity of F.O. and identity of tanks; 26.4 - Type and quantity of L.O. And identity of tanks				
				4. SIGNATURE OF OFFICER 5. SIGNATURE OF MASTER if page is completed				
8. How do your vessel comply when it enters a Sulphur Emission Controlled Areas (SECA)?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.2.4	MT166	Must state: 1. Vessel's engine consumption of fuel oil from high sulphur content to low sulphur content 2. 0.10% m/m is the sulphur emission limit inside ECA				
9. How would you justify that your Oily Water Separator is compliant with MARPOL regulations?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.2.10	MARE106 MARE106L MT166	Must state:				
				1. Discharge overboard treated oily water with 15ppm or less				
				2. If 15ppm or more is detected, automatic shut off of overboard discharge or 3-way valve is shifted to recirculation				

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Function 2: Electrical, electronic and control engineering at the operational level (Ref. STCW code p.148-149)								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
10. When two generators are being paralleled, how should the speed of the synchroscope pointer be rotating and its direction before the breaker is closed?	Operate electrical, electronic and control systems	6.3.1	MARE153 MARE153L ECE132-1 ECE132L-1	Must state:				
				1. Speed: FAST				
				2. Direction: JUST BEFORE 12 o'CLOCK				
11. How load sharing is done between two AC generators operating in parallel?	Operate electrical, electronic and control systems	6.3.2	MARE153 MARE153L ECE132-1 ECE132L-1	Must state: 1. Adjusting the governor controls				
12. In a routine check, you suspect a fuse to be broken, how would you confirm if the fuse is broken or not?	Operate electrical, electronic and control systems	7.8.4	MARE153 MARE153L ECE130 ECE130L ECE132-1 ECE132L-1	Must state:				
				1. Use MULTIMETER				
				2. Select RESISTANCE				
				3. If meter reading is "0"; fuse is in "good condition				
				4. If meter reading is infinite; fuse is broken				
13. Explain your vessel's emergency power system	Maintenance and repair of electrical and electronic equipment	7.4.5	MARE153 MARE153L ECE130 ECE130L ECE132-1 ECE132L-1	Must state:				
				1. Emergency diesel generator				
				2. Emergency switchboard				
				3. Emergency lights, navigational equipments (radar, AIS, etc.), steering gear				
				4. EDG will take over as main propulsion and other auxiliary generators are not functioning				

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				5. Emergency switchboard distributes power from EDG to the emergency equipment to slowly restore normal operation of the vessel				
14. Identify and explain the 3 given diagrams	Maintenance and repair of electrical and electronic equipment	7.1.1	MARE151 MARE151L MARE153 MARE153 ECE132-1 ECE132L-1	Must state: 1. System diagram - visualization of the system				
				2. Circuit diagram - graphical representation of an electric circuit; shows how electronic components are connected				
				3. Wiring diagram - shows how electrical wire are interconnected; show where fixtures and components may be connected to the system				

Function 3: Maintenance and repair at the operational level (Ref. STCW code p.150-157)								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
15. How do you weld a crack on a cast iron?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.9	MARE104-3 MARE104L-3	Must state: 1. Welding rod to be used is same as material to be welded				
				2. Drill 2 holes on each end of the crack				
				3. Make a chamfer on the crack				
				4. Fill the chamfered crack with pauses in between				
16. In using a lathe machine, state the safe working practices you practice before operating the machine	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.9	MARE104-2 MARE104L-2	Must state: 1. Wear PPE				
				2. Be familiar with the machine operations and controls				
				3. Ensure all guards are fitted, secure and functional				
				4. Check the material to be working on is clamped tightly to the chuck				
				5. Ensure correct speed for machining process				

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<p>17. In using welding equipment, state the safe working practices you practice before operating the welding machine</p>	<p>Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard</p>	<p>8.9</p>	<p>MARE104-3 MARE104L-3</p>	<p>Must state:</p> <p>1. Secure HOT WORK PERMIT</p>				
				<p>2. Ensure work area is clean and clear of flammable materials</p>				
				<p>3. Wear PPE</p>				
				<p>4. Ensure proper ventilation is placed</p>				
<p>18. State the function of the stuffing box. How would a worn out stuffing box affect the main engine?</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3</p>	<p>MARE164 MARE164L MARE109 MARE109L MARE104-1 MARE104L-1</p>	<p>Must state:</p> <p>1. To prevent exhaust gases to enter the crankcase</p>				
				<p>2. Prevents blow-by</p>				
<p>19. What do you check during a scavenge space inspection? How is cleaning the scavenge space important?</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.3.25 9.3.26 9.3.27</p>	<p>MARE104-1 MARE104L-1 MARE109 MARE109L MARE164 MARE164L</p>	<p>Must state:</p> <p>1. Check for soot deposits</p>				
				<p>2. Check that scavenge drain are not clogged</p>				
				<p>3. Check the piston ring clearance using a feeler gauge (compare the readings from the previous inspection)</p>				
				<p>4. Check the top land of the piston for any cracks or leaks from the injector</p>				
				<p>5. Check for the liner condition</p>				
				<p>6. Check for excessive oil accumulation near the stuffing box area</p>				
				<p>7. Cleaning scavenge space to prevent scavenge space fire</p>				
<p>20. How does blowing down of boiler helps in maintaining its efficiency?</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.5.3</p>	<p>MARE107 MARE109 MARE109L MARE166 MARE166L</p>	<p>Must state:</p> <p>1. Removes settled sludge or particles from the bottom of the boiler</p>				
<p>21. How would you describe the behavior of the boiler burner flame?</p>	<p>Maintenance and repair of shipboard machinery and equipment</p>	<p>9.5.5</p>	<p>MARE107 MARE107L MARE109 MARE109L</p>	<p>Must state:</p> <p>1. No flame - no supply of fuel or pilot burner not working</p>				
				<p>2. Flickering flame - pilot burner due for maintenance</p>				

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			MARE166 MARE166L	3. Steady glow flame - bright yellow or orange flame				
22. How would secure an oil fired boiler in preparation for cleaning or inspection?	Maintenance and repair of shipboard machinery and equipment	9.5.7 9.5.8 9.5.9	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must state:				
				1. Relieve fuel oil service pressure				
				2. Purging for at least 5 minutes				
				3. Naturally cool down the boiler				
				4. Stop feed water pumps				
				5. Close feed water valves				
				6. Close main steam valve				
23. How surface blowing of an auxiliary boiler help in maintaining its efficiency?	Maintenance and repair of shipboard machinery and equipment	9.5.3	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must state: 1. Remove floating impurities from the boiler water				
24. Describe the use of the boiler drum air cock/vent	Maintenance and repair of shipboard machinery and equipment	9.5.10	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must state:				
				1. To admit air when the boiler is being emptied				
				2. Permit escaping of air when filled and steam is forming				
25. How would you rectify if the boiler funnel is emitting black smoke?	Maintenance and repair of shipboard machinery and equipment	9.5	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L	Must state:				
				1. Increase the boiler front air box pressure				
				2. Replace atomizer				
26. How would you measure the purifier spindle height? Illustrate your answer	Maintenance and repair of shipboard machinery and equipment	9.6.1 9.6.2	MARE104-1 MARE104L-1 MARE107 MARE107L	Must show:				
				1. Spindle				
				2. Using triangular template (provided by the maker)				

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			MARE109 MARE109L	3. Using a depth caliper				
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Function 4: Controlling the operation of the ship and care for persons on board at the operational level (Ref. STCW code p.151-153)								
Questions	Competence	TRB Ref No.	MCL Course Code	Performance Standard	Standards Met?		JUDGMENT	
					YES	NO	C	NYC
27. In your own capacity as a cadet, how would you ensure that a positive environmental reputation is maintained, given the fact that you are understudying to become a Engine Officer in the future?	Ensure compliance with pollution-prevention requirements	14.1	MT166	Cites that knowledge of and compliance with the relevant provisions of MARPOL 73/78, is vital in ensuring the company's maintenance of a positive environmental reputation. Cites as an example: the adherence with the provisions of the Garbage Management Plan (i.e. garbage segregation and disposal) and to the norms of waste oil disposal in port and deployment of anti-pollution measures during bunkering.				
28. <i>Situation:</i> A ship's ballast tank was punctured below the waterline but was discovered only during unberthing operation from an inadequately protected berth. How would this affect the buoyancy of the ship? What is your understanding of the fundamental actions that must be taken, in the event of partial loss of intact buoyancy? Why is it important to carry them out promptly?	Maintain seaworthiness of the ship	10.13.2 10.14.1 11.1.1 14.5.2 15.3.1 15.3.2 15.3.3	MT 106 MT106-3 MT 166	Argues that if nothing is done about these holes, the ship will lose buoyancy, assume a list, lose stability. Partial flooding refers to a condition in which an intact compartment is not completely flooded. An "intact compartment" means that the deck on which the water rests and the bulkheads that surround it remain watertight. The loss of stability from flooding is due in part to the free surface effect. Stability is also lost in flooding when, for example, an empty tank is filled with seawater. The lost buoyancy of the tank results in that section of the ship lowering into the water slightly. Discusses the importance of keeping the vessel's stresses within allowable limits and the relevance of meeting the IMO intact stability criteria in all conditions of loading.				

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<p>29. How will you combat fire using fire- fighting system?</p>	Prevent, control and fight fires on board	16.4.6 16.4.10 16.4.11	MT130P	Understands the purpose of fixed fire- fighting system like CO2 and portable fire- fighting system. In case of isolation, muster list of crew and evacuate to a safe place free from suffocation and heat of fire.				
<p>30. How do you prepare the lifeboat for launching? How many minutes is average launching time from the vessel you last boarded?</p>	Operate life-saving appliances	14.2	MT130P-1	<p>Explain how to prepare and launch a lifeboat by stating the procedures as follows:</p> <ul style="list-style-type: none"> -Conduct muster -Remove lashing -Remove harbor pin -Lower lifeboat to embarkation deck -Rig bowsing-in tackle -Embark boat crew -Secure the painter forward -Remove bowsing-in tackle -Lower Lifeboat to 1m above waterline -Start life boat engine -Set the helm to steer away from the vessel -Activate quick release lever to release falls and drop the lifeboat -Steer away from the vessel 				
<p>31. How would you classify an illness or injury and what would you do if such incidents would happen on board or ashore? How fast should you react in order to save a victim who's suffering from cardiac arrest?</p>	Apply medical first aid on board ship	18.1 18.2 18.3	MT130P-1	<p>Given an illness or injury scenario:</p> <p>1.Classify the type and identify the nature of illness or injury and apply the appropriate first aid as per medical guide within 3minutes</p>				
<p>32. What is the relevance of the SOLAS Convention to your job as a seafarer? How do you ensure compliance with its provisions?</p>	Monitor compliance with legislative requirements	19.1.1	MT130P-1	<p>Explains the importance of the following IMO conventions:</p> <p>Safety of Life at Sea- came into being as a consequence to the Titanic sinking.</p>				

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<p>33. How are the maintenance works planned by the responsible officers on board?</p>	<p>Application of leadership and team working skills.</p>	<p>10.2</p>	<p>MT162-2</p>	<p>Maps out work plan in accordance to the available time and classify their order of priority.</p>				
<p>34. How are job orders prioritized by the responsible officers on board?</p>	<p>Application of leadership and team working skills.</p>	<p>10.2</p>	<p>MT162-2</p>	<p>Prioritizes job orders that are classified as top priority, urgent and normal; allocate each job task based on the available resources and time.</p>				
<p>35. Scenario: You have supernumeraries (non-crew members) joining the voyage and were tasked by the Master to facilitate a safety familiarization for them.</p> <p>How would you do this and what is the importance of this practice to the vessel?</p>	<p>Contribute to the safety of personnel and ship</p>	<p>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 16.4.2 16.4.7 16.4.8 16.5.2</p>	<p>MT130-P</p>	<p>Facilitates a short briefing pertaining to Personal Safety and Social Responsibility of all the people on board. The scope of discussion rages from safety procedures to follow while they are onboard, familiarization with the emergency alarms, the drills that they are to participate in during the voyage, their responsibilities in doing their share in environmental protection by taking care not to pollute the sea and ultimately their involvement in lending an extra eye in ensuring that all the people that they are going to be briefly sailing with are doing their jobs safely.</p> <p>Justifies the rationale of why he is compelled to carry out the safety familiarization in the name of promoting awareness of protecting Life; Property and Environment.</p>				

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