ENGINE CADET ORAL ASSESSMENT (SET C)

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. How do you conduct a proper routine engine room watch? What parameters and machineries are to be checked?	Maintain a safe engineering watch	1.2.4	MARE109 MARE109L MARE110 MARE111L MARE153 MARE153L ECE132-1 ECE132L-1	Proper engine room watch keeping should check the following: 1. ME & AE (Exh. Temp., Piston cooling lube oil temp., JCW outlet temp., Lube oil inlet press. And temp., Air cooler temp., and fuel oil pressure and temp.)				
				2. Boiler pressure and water level				
				3. Different tank levels (Sludge, Bilge, Fuel, etc.)				
				4. all other auxiliary machineries' normal pressure and temperature				
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				
				5. Report must be in English language				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

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. A boiler water level has 3 alarms: High level, Low level and Low-Low level alarms. How will the boiler respond if the low-low level alarm is triggered?	Operate main and auxiliary machinery and associated control systems	4.2.29	MARE107 MARE107L MARE109 MARE109L MARE166 MARE166L ECE132-1 ECE132L-1	Must state that: 1. Low-low level alarm will trigger the shutdown control of the boiler system				
5. How would you troubleshoot a boiler emitting black smoke?	Operate main and auxiliary machinery and associated control systems	4.2.27	MARE107 MARE107L MARE110 MARE111L MARE166 MARE166L MT166	Must state that: 1. Check the air fuel ratio setting				
				2. Check for any dripping of burner nozzle				
				3. Check the fuel oil temperature				
				4. Check atomizer unit of the burner				
				5. Check the air distribution arrangement				
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				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

7. How do you sound a heavy fuel oil tank that is estimated 3/4 full? Explain this sounding technique and site an experience in relation to this scenario	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	12.3.1	MARE106 MARE106L	Must: 1. use ULLAGE sounding;				
				2. ULLAGE - measuring the void space from the top of the tank to the upper surface of the fluid				
8. What are the procedures in bunkering fuel oil on your vessel?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.1.12	MARE106 MARE106L MT166	Must state: 1. Pre-bunkering conference				
				2. Sound and compute for the quantity of all bunker tanks, settling tanks and service tanks				
				3. Plug scuppers				
				4. Check other bunker connections are blanked				
				5. Well tighten all bolt connection on the flange				
				6. Put spill tray under the flange connection				
				7. Establish effective communication with the ship's crew and barge crew				
				8. Check of SOPEP equipment				
				9. Open bunker tanks to be filled				
				10. Record start and end of bunkering				
				11. Place sample collecting bottle on the manifold				
				12. After bunkering, sound and calculate for the fuel oil received				
				13. Disconnect hose				
				14. Transfer sample to small sample bottles				
				15. C/E signs paper works and receive BDN				
9. How would you justify the importance of draining water or sludge from the settling tank?	Operate fuel, lubrication, ballast and other pumping systems and associated control systems	5.2.2	MARE106 MARE106L MARE110 MARE111L	Must state that: 1. Prevent water entering the fuel supply line of the main engine or auxiliary generator that may cause major problems to the engine				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

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 describe an Electrical High Voltage Work permit?	Operate electrical, electronic and control systems	7.3.2 7.3.5	MARE153 MARE153L	Must state: 1. Any electrical work handling more than 1000 volts				
11. In an automatic controlled sea water cooling pump, how would the standby pump will start? Site a situation	Operate electrical, electronic and control systems	6.4.1	MARE151 MARE151L MARE153 MARE153L ECE132-1	Must state: 1: Standby pump will start if the electronic controller sense low pressure from the main sea water cooling pump				
12. How would you differentiate the "Autopilot", "Follow up" and "Non Follow up" control system of the steering gear system	Operate electrical, electronic and control systems	6.7.4	ECE130 ECE130L ECE132-1 ECE132L-1	Must state that: 1. Auto pilot - automatically finds its way to a pre-set position point along a pre-set route. If the ship is forced out of course, the autopilot will use the rudder to get the ship back to course				
				2. Follow Up Steering - allows the rudder to be locked up in any rudder angle and a system will hold it there until moved again				
				3. Non Follow Up System - totally manual control of the rudder movement from wheel house or in emergency situation from the steering gear compartment				
13. You got a reading of 0Ω from terminal u to terminal x, what could be the possible problem?	Maintenance and repair of electrical and electronic equipment	7.5.2	MARE153 MARE153L ECE130 ECE130L	Must state: 1. Open on the main contactor				
				2. Terminal x to the stator is broken				
				3. Burned stator				
14. State at least 4 monitoring system that automatically stops the main engine in case of a fault.	Maintenance and repair of electrical and electronic equipment	7.8.9	MARE153 MARE153L ECE130 ECE130L ECE132-1	Must state: 1. Engine Cooling Water High Temperature Alarm - shuts down the engine when cooling water outlet temperature reaches 95 - 98˚C				
				2. Low Lube Oil Pressure Alarm - shuts down engine when it detects low lube oil inlet pressure				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

Define each monitoring system			ECE132L-1	3. Low Fuel Oil Pressure Alarm - shuts down engine when it detects low fuel oil inlet pressure				
				4. High Exhaust Temperature - shuts down engine when it detects high exhaust temperature 400˚C and above (or it depends on the engine type, maker or set point)				
				5. Low Lube Oil Pressure in Turbocharger and Camshaft - shuts down engine when it detects low lube oil pressure in the T/C or the camshaft				
				6. Over speed Trip - shuts down engine when speed exceed set point				

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. From your experience, give an example of an item you had assisted or observed fabricating using hand tools and machine tools and explain how it was used in the fabrication	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.5	ME101-1 MARE104-1 MARE104L-1 MARE104-2 MARE104L-2 MARE109 MARE109L	Rubrics: 1. Use of right hand tools and machine tools				
				2. Use of right measuring tools				
				3. Attention to details				
				4. Improvement in the procedure of fabrication				
16. Compare the gasket used on a seawater piping connection and the gasket used on a steam piping connection	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.7.3	MARE106 MARE106L MARE109 MARE109L	Must state: 1. Sea water piping - Compressed Non Asbestos Fiber gasket (CNAF)				
				2. Steam piping - Metal reinforced graphite gasket				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

17. How would you prevent leaking from the valve spindle of a globe valve?	Appropriate use of hand tools, machine tools and measuring instruments for fabrication and repair onboard	8.7.1	MARE106 MARE106L MARE109 MARE109L	Must state: 1. Use of appropriate packing gland seals				
				2. Proper tightness of the gland flange and gland bush				
18. How do you carry out a refrigeration plant testing?	Maintenance and repair of shipboard machinery and equipment	9.6.6	MARE104-1 MARE104L-1 MARE107 MARE107L MARE109 MARE109L	Must state: 1. Test high pressure cut in				
				2. Test Low pressure cut off				
				3. Lube oil low pressure cut off				
19. How would you select an appropriate gravity disc for your purifier?	Maintenance and repair of shipboard machinery and equipment	9.6.1 9.6.2	MARE104-1 MARE104L-1 MARE107 MARE107L MARE109 MARE109L	Must state: 1. Use of Nomogram				
				2. Define - use of appropriate size gravity discs according to the density of the medium to be treated and throughput is necessary				
				3. Show by illustrating the given scenario				
20. How would you relate the unloading valve of an air compressor to its motor?	Maintenance and repair of shipboard machinery and equipment	9.6.3	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Unloading valve reduces the compressor motor's load below the designed operating values when starting				
21. How does a low pressure cut out switch in a refrigeration system works?	Maintenance and repair of shipboard machinery and equipment	9.6.6	ECE132-1 ECE132L-1 MARE107 MARE107L MARE109 MARE109L	Must state: 1. Controls the start and stop of compressor upon system demands				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

22. Compare and contrast the charging methods of refrigerant. Demonstrate your answer	Maintenance and repair of shipboard machinery and equipment	9.6.6	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Charging by liquid - Freon tank must be upside down; charging must be connected at the discharge side of the compressor before the condenser				
				2. Charging by gas - Freon tank must be in an upright position; charging must be connected on the suction side of the compressor				
23. How would you determine that the refrigeration plant is in need of charging?	Maintenance and repair of shipboard machinery and equipment	9.6.6	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Icing on the evaporator				
				2. Frequent start and stop of the compressor				
				3. Insufficient cooling				
24. How would you assess the efficiency of your fresh water generator?	Maintenance and repair of shipboard machinery and equipment	9.6.7	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Running hours				
				2. Daily production compared to production according to manufacturer's manual				
25. How do you maintain the fresh water generator? Elaborate your answer	Maintenance and repair of shipboard machinery and equipment	9.6.7	MARE107 MARE107L MARE109 MARE109L	Must state: 1. Remove scaling from evaporator plates by soaking in chemical or de-scaler (30% chemicals: 70% water) with compressed air				
				2. Check ejector filter for debris				
26. How do you overhaul a non-return globe valve?	Maintenance and repair of shipboard machinery and equipment	9.6.10	MARE104-1 MARE104L-1 MARE106 MARE06L MARE109 MARE109L	Must state: 1. Lapping or grinding the valve and seat				
				2. Change packing gland				
				3. Clean the inside of the valve				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

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**
27. You are tasked to assist in monitoring the bunkering operation by standing watch on deck to tender the mooring of the bunker barge to your ship on the starboard side. During your rounds you noticed a fuel oil vent spilling bunkers on the portside and is about to fill up the drip tray. What would you do and how would you deal with the incident to mitigate the situation?	Ensure compliance with pollution-prevention requirements	11.2	MT166	Reports the oil spill to the duty officer immediately and proceeds to the SOPEP locker to get as many sacks of saw dust and absorbent pads and applies them on the floor to prevent oil from spilling into the water. Next is to bring in drums, and the manual oil transfer pump to siphon the oil from the drip tray into the drums. The rest of the actions are carried out as per the instructions on the Shipboard Oil Pollution Emergency Plan.				
28. What actions should you take to ensure the watertight integrity of the vessel during the voyage? Why is it important to maintain the ship's water tightness?	Maintain seaworthiness of the ship	15.3.1 15.3.2 15.3.3	MT 101 MT101L	Explains the importance of closing all watertight doors, all hatch covers batten down properly, manholes closed and secured, natural ventilation windows and doors shut and sounding ports positively covered, before sailing and during the voyage, especially in heavy weather.				
29. How will you prevent and combat fire on board?	Prevent, control and fight fires on board	16.1.1 16.1.2 16.1.3 16.1.4 16.4.10	MT101 MT101L	Explains the use of different types of fire extinguishers				
				Identifies and explains the 5 classes of fire and how a fire is likely to develop. Heat, oxygen and fuel.				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

30. What are the procedures for retrieving a lifeboat after the boat drill is concluded? How many minutes is your average retrieval time form the vessel you last boarded?	Operate life-saving appliances	14.2.7	MT130P-1	Explain retrieval procedure as follows: -Maneuver towards the life boat falls on the ship side -Secure the painter forward and align the securing hooks to the boat falls -Secure the falls fore and aft and engage the quick release lever to lock position. -Raise the lifeboat until the embarkation deck -Disembark the crew -Secure the lashings -Secure the harbor pin -Remove the painter and secure				
31. How does the STCW Code 78 as amended work for you as a seafarer?	Apply medical first aid on board ship	19.1.4	MT167	STCW Code as amended – came into being to standardize the training and certification of global seafarers				
32. How does the STCW Code 78 as amended work for you as a seafarer?	Monitor compliance with legislative requirements	19.1.4	MT167	STCW Code as amended – came into being to standardize the training and certification of global seafarers.				
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	Prioritizes resources in accordance with the urgency of the tasks at hand (whether it is top priority, urgent and normal); and allocates human resources for each job task based on their availability.				
34. You are given a task of working aloft for the purpose painting the Radar Mast. -What would be the initial actions that you should take prior to the execution of the task?	Application of leadership and team-working skills.	10.2	MT162-2	Invokes his right to carry-out situation and risk assessment prior to engaging self in hazardous activities. -Assesses the venue and takes note of the PPE, safety lines, tools and painting materials needed for the job.				

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

ENGINE CADET ORAL ASSESSMENT (SET C)

-How would you ensure that the work can be accomplished safely?								
35. *Scenario:* You have supernumeraries (non-crew members) joining the voyage and were tasked by the Master to facilitate a safety familiarization for them. How would you do this and what is the importance of this practice to the vessel?	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 16.4.2 16.4.7 16.4.8 16.5.2	MT130-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. 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.				

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