BT MRE-IV(R/S)-06-24-3242 Reg. No. | | | | | | | | |

A

B.Tech. Degree IV Semester Regular/Supplementary Examination in Marine Engineering June 2024

19-208-0404 MARINE AUXILIARY MACHINERY - I

(2019 Scheme)

Time: 3 Hours Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

CO1: Understand engine room lay out, piping arrangements and fittings of ships.
CO2: Gain knowledge of bunkering procedures, blowers and compressors.
CO3: Understand the difference of valves and cocks, filters, pumps, packing and seals used on board ship.
CO4: Understand the working of heat exchangers, evaporators and deck machinery.
CO5: Gain knowledge about the oil purification and treatments.

Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 –Analyze, L5 – Evaluate, L6 – Create

PI – Programme Indicators

(Answer *ALL* questions) (5 × 15 = 75)

			Marks	BL	CO	PI
I.	(a)	With the aid of diagrams briefly explain bottom platform plan and elevational drawing of auxiliary machineries in the engine room.	10	L1	1	2
	(b)	Write notes on colour coding and explain with examples the reason for introduction of secondary colours.	5	L3	1	3
		OR				
II.	(a)	Draw a line diagram and explain main engine fuel oil system (from bunker tank to engine).	10	L2	1	4
	(b)	Draw and explain fresh water hydrophore system used on board.	5	L1	1	3
III.	(a)	What is the purpose of inter cooler in an air compressor? Draw an intercooler diagram and mark the safety items fitted on it and its reasons.	7	L4	2	3
	(b)	What are the checks to be carried to ensure that an air compressor is running efficiently? What are the uses of compressed air on board?	8	L5	2	4
		OR				
IV.	(a)	What are the preparations and checks to be conducted before taking fuel oil and diesel oil bunkering?	7	L3	2	4
	(b)	In a ship's bunker tank of size 20 meter × 15 meter × 2 meter (L × B × H), how much bunker fuel oil can be loaded safely in Metric Tonnes, where density of the supplied fuel oil is 0.94 kg/litre at 15° Centigrade and oil supply temperature is 55°C?	8	L5	2	2

(P.T.O.)

			Marks	BL	CO	PI
V.	(a)	List the various parts of a centrifugal pump and write the probable defects expected while overhauling a pump. What are the causes of these defects and how can it be avoided?	9	L4	3	2
	(b)	Write briefly about an external gear pump mentioning its application, safeties, advantages and disadvantages.	6	L2	3	3
		OR				
VI.	(a)	Write notes on: (i) Quick closing valve (ii) Duplex filter (iii) Swing check valve.	9	L2	3	4
	(b)	Sketch and explain a globe valve.	6	L2	3	3
VII.	(a)	With a line diagram explain the working of a fresh water generator and its starting procedure.	9	L3	4	2
	(b)	Explain the cleaning of tubes of a fresh water generator evaporator. Mention the tube side and shell side medium.	6	L4	4	3
		OR				
VIII.	(a)	Write Notes on: (i) Deck crane (ii) Life boat davits (iii) Deck machinery lubricating oil.	9	L2	4	3
	(b)	How is corrosion protection achieved in heat exchangers?	6	L3	4	4
IX.	(a)	Explain with a diagram the power transmission from motor to the vertical shaft of a purifier and mark the different parts involved in transmission. State the difference between fuel oil purifier and clarifier.	9	L3	5	3
	(b)	What is a gravity disc? How is it selected for a fuel oil purifier? Explain the parameters required for selection.	6	L3	5	4
		OR				
X.	(a)	Explain fuel oil tank entry procedure for cleaning. What are the risks involved in such tanks?	9	L4	5	2
	(b)	Write the merits and demerits of emulsified fuel in marine engines.	6	L1	5	3

Blooms's Taxonomy Level
L1 – 14%, L2 – 27%, L3 – 28%, L4 – 21%, L5 – 10%.

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