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***B.Tech. Degree V Semester Regular/Supplementary Examination in
Marine Engineering November 2024***

**19-208-0504 MARINE AUXILIARY MACHINERY- II
(2019 Scheme)**

Time: 3 Hours

Maximum Marks: 60

Course Outcome

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

- CO1: Understand working of steering gears and shafting of ships.
 CO2: Gain knowledge dry docking and different works associated with that.
 CO3: Understand the working of different on-board machinery, the source of noise and noise suppression.
 CO4: Understand IMO regulations on the prevention of pollution by oil, oily water and sewage.
 CO5: Explain the basic of lubrication and the testing of lubricating oil and fuel oil.

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) Explain with a neat sketch, the working of a two ram electro hydraulic steering gear system with attached safeties.	9	L2	1	1.4.1
	(b) Describe briefly the SOLAS regulations pertaining to speed of response and angle of movement of main and aux steering gear system.	6	L3	1	1.4.1
OR					
II.	(a) Explain various stresses, the propeller shaft, intermediate shaft and thrust shafts are subjected to.	10	L2	1	1.4.1
	(b) Explain the function of thrust block in shafting system.	5	L3	1	1.4.1
III.	(a) Compare the advantages and disadvantages of graving and floating dry docks. Explain the type of docks suitable for various types of ships.	10	L2	2	1.4.1
	(b) What are the routine maintenance checks and inspections carried out when the ship is in dry dock?	5	L2	2	1.4.1
OR					
IV.	(a) With the help of suitable sketches, explain dry fitting and removal of propeller using pilgrim nut.	10	L3	2	1.4.1
	(b) What is propeller drop and explain its importance. How is it measured and recorded?	5	L2	2	1.4.1
V.	Write short notes on:				
	(a) Bad weather precautions to be taken	5	L1	3	1.4.1
	(b) Hull protection arrangements in ship	5	L1	3	1.4.1
	(c) Sources of noise on ships.	5	L1	3	1.4.1
OR					
VI.	(a) Explain various types of vibration in ships.	9	L2	3	1.4.1
	(b) Explain permissible noise levels at various locations in ships as per Noise Code.	6	L2	3	1.4.1

(P.T.O.)

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		Marks	BL	CO	PI
VII.	(a) Discuss IMO's initiatives in preventing pollution from ships. What are the major IMO conventions aimed at preventing pollution from ships.	9	L2	4	1.4.1
	(b) Briefly describe sewage discharge criteria as per MARPOL annex IV.	6	L3	4	1.4.1
OR					
VIII.	(a) Describe briefly a two stage oily water separator, with the help of a suitable sketch.	10	L2	4	1.4.1
	(b) List out the various "Special Areas" as per Annex I of MARPOL 73/78.	5	L1	4	3.1.4
IX.	(a) What is the importance of shore testing fuel oil bunkered in ships? Explain the important tests done on fuel oil.	9	L3	5	3.1.4
	(b) Briefly describe various functions of additives in Lubricants.	6	L2	5	2.4.4
OR					
X.	Write short notes on				
	(a) Hydrodynamic lubrication.	5	L1	5	1.4.1
	(b) Importance of Lub oil testing.	5	L1	5	1.4.1
	(c) Desirable properties of a marine diesel engine crank case lub oil.	5	L1	5	1.4.1

Blooms's Taxonomy Level

L1 – 23%, L2 – 53%, L3 – 24%.
