Q. Code: 665719

Reg. No. | | | | | | | | | | | | | |

B.E./ B.TECH. DEGREE EXAMINATIONS, MAY 2024

First Semester

MR22404 – MARINE AUXILAIRY MACHINERY II

(Marine Engineering)

(Regulation 2022)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Know the construction and working of oily water separator, Sewage treatment plant and Incinerator.	**2**
CO 2	Understand the construction and operation of Purifier, Air compressor and other deck machinery onboard the ship.	**2**
CO 3	Know various shaft alignments and its methods, construction and operation of thrust block, stern tube etc.	**2**
CO 4	Understand the purpose of Dry-docking and its techniques, maintenance of rudder, propeller, bow thruster, etc.	**2**
CO 5	Understand the importance on machinery maintenance, planned maintenance, troubleshooting of machines etc.	**2**

PART- A (20 x 2 = 40 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	why the waste bilge water heated before it enters to the oily water separator?	**1**	**2**
2.	How does the 3-point sensor in the oily water separator senses the oil level in OWS?	**1**	**2**
3.	What is BOD in the STP and why it has to be maintained in the black water on board the ship?	**1**	**2**
4.	What is the need for refractory inside the incinerator installed on board the ship?	**1**	**2**
5.	How will you choose the gravity disc for your purifier?	**2**	**2**
6.	How the purifier differs from clarifier in the fuel oil system?	**2**	**2**
7.	Why the intercooler is present in the air compressor line system?	**2**	**2**
8.	Why and what are the safeties that are available in the windlass?	**2**	**2**
9.	Why dial gauge is more disadvantages than the laser calibration method for the shaft alignment?	**3**	**4**
10.	Why is the importance of ship shaft alignment so significant during drydock?	**3**	**2**
11.	What will be your inference when you see the no water and sludge outlet form the	**3**	**2**

purifier?

12.	What is the need for the fusible plug and where it is located in the air compressor system?	**3**		**2**
13.	How the underwater growth in the hull is remove in the drydock?	**4**		**2**
14.	List out the important inspection to be done during drydock.	**4**		**2**
15.	Why SWL of the ship lift for crane is to considered?	**4**		**2**
16.	How the propeller is secured to the tail end shaft of the ship?	**4**		**2**
17.	What do you understand by the term Tribology?	**5**		**2**
18.	How the frictional resistance can be minimized by the two mating surfaces?	**5**		**2**
19.	What are the various types of maintenance system practiced on board the ship?	**5**		**2**
20.	How will you check the earth testing for the main switch board?	**5**		**2**

PART- B (5 x 10 = 50 Marks)

		Marks	CO	RBT LEVEL
21. (a)	With the help of a neat sketch explain the construction of the incinerator and discuss the waste which are prohibited burning inside the incinerator.	**(10)**	**1**	**2**
	(OR)			
(b)	Illustrate how the biological sewage treatment plant works on decomposition of waste generated from the ship with the help of a neat diagram	**(10)**	**1**	**2**
22. (a)	Discuss how the purifier's gravity disc enables the oil to remain clean and, using the basic line diagram, how operating water helps in the automatic desludging process.	**(10)**	**2**	**2**
	(OR)			
(b)	With help of neat diagram explain the construction of windlass installed onboard the ship deck.	**(10)**	**2**	**2**
23. (a)	Briefly explain how the thrust force from the propeller is transmitted the ship's hull using a neat diagram.	**(10)**	**3**	**2**
	(OR)			
(b)	Sketch and describe the arrangement of the tail shaft inside the stern tube and explain how sealing is achieved for the same.	**(10)**	**3**	**2**
24. (a)	Briefly discuss the procedure to be followed before entering in to the drydock, after entering to the drydock and explain the critical period during the seating ship hull on the block.	**(10)**	**4**	**2**
	(OR)			

(b)	Write a short note on the following a. Parallel slip ways b. Perpendicular slipways c. Ship lift	**(4)** **(4)** **(2)**	**4**	**2**
25. (a)	Briefly explain how the Friction are classified and explain various methods involved to minimize the friction on the mating surface.	**(10)**	**5**	**2**
	(OR)			
(b)	Discuss how will you identify the faulty machinery on board the ship and what are all the precautions shall be to avoid the such conditions same.	**(10)**	**5**	**2**

PART- C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Describe the waste bilge water evaluation and discharge process under MARPOL Annex I and how the set up the procedure is made for handling alarms that arise from the ODMS during discharge of the same.	**(10)**	1	**5**

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