Q. Code:714954

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

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

Fourth Semester

MR22403 – MARINE DIESEL ENGINE II

(Marine Engineering)

(Regulation 2022)

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

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	On completion of the course, the students will have knowledge of Marine fuel injection pumps and its applications	**2**
CO 2	On completion of the course, the students will have knowledge of Maneuvering systems of various marine diesel engines	**2**
CO 3	On completion of the course, the students will have knowledge of Forces and stresses in slow-speed and medium-speed engines.	**2**
CO 4	On completion of the course, the students will have knowledge of Construction and operation of various Marine slow-speed engines	**2**
CO 5	On completion of the course, the students will have knowledge of new developments in marine diesel engines.	**2**

PART- A (20 x 2 = 40 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	How will you minimize the wear resistance in the bearing?	**1**	**2**
2.	How the lubricating oil is supplied to the cross-head shoes and guides?	**1**	**2**
3.	How the main engine lubricating oil differs from the cylinder lubricating oil?	**1**	**2**
4.	Give reasons for the main bearing failure of a diesel engine.	**1**	**2**
5.	Why starting of main engine will fail if turning gear is engaged?	**2**	**2**
6.	What is the need for the flame arrester in the starting airline system?	**2**	**2**
7.	What do you infer form the power card and draw card?	**2**	**2**

8.	List out the significance of having indicator cock on the cylinder head?	**2**	**2**
9.	Why governor is need on large two stoke marine diesel engine?	**3**	**2**
10.	What do you understand by measuring butt clearance?	**3**	**2**
11.	Why the tappet clearance is measured?	**3**	**2**
12.	How the V type engines differ from inline engine?	**3**	**2**
13.	What are the stresses acting of the connecting road while engine running?	**4**	**2**
14.	How the vibration of the main engine is minimized?	**4**	**2**
15.	When does the main engine over load cut off happens and why?	**4**	**2**
16.	How is the tie rod used for assembling the main engine's components to a solid block?	**4**	**2**
17.	List out the significance of using common rail system in the marine diesel engine?	**5**	**2**
18.	Draw a simple block diagram for the Electronic controlled fuel injection system.	**5**	**2**
19.	How the Roto cap- exhaust valve in the main engine helps in longer service period?	**5**	**2**
20.	What is the purpose of electronic solenoid valve in the fuel injector?	**5**	**2**

PART- B (5 x 10 = 50 Marks)

		Marks	CO	RBT LEVEL
21. (a)	Explain in detail various properties of lubrication oil used in the main engine and discuss various types of lubrication helps to minimize the friction on the mating surfaces.	**(10)**	**1**	**2**
	(OR)			
(b)	With the help of neat sketch explain how the lubrication of the main engine journal bearings and the big end bearings in the connecting road is achieved.	**(10)**	**1**	**2**
22. (a)	Draw the line diagram with all parts and describe how the starting air valve helps in starting of the main engine once the pilot air released.	**(10)**	**2**	**2**
	(OR)			
(b)	How will you take power readings from the indicator card form any unit of the main engine and explain the power card and draw card.	**(10)**	**2**	**2**

23. (a)	Briefly explain the throttling the fuel supplied to the main engine using hydraulic governor and discuss the advantages of hydraulic governor over mechanical governor.	**(10)**	**3**	**4**
	(OR)			
(b)	With the help of a simple sketch explain how the piston rings are arranged in the four-stroke diesel engine and discuss various clearances taken on the same.	**(10)**	**3**	**4**
24. (a)	Using the neat sketch, describe any one methodology for cooling the area beneath the piston crown in the large marine two-stroke diesel engine.	**(10)**	**4**	**2**
	(OR)			
(b)	Briefly explain different kinds of vibration experienced by the marine diesel engine and list few methods to counter act the same.	**(10)**	**4**	**2**
25. (a)	How the RND and RTA engines differs from each other and explain all the salient points.	**(10)**	**5**	**2**
	(OR)			
(b)	Briefly explain the operation of Cam shaft less engines installed on board the ship	**(10)**	**5**	**2**

PART- C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	How the mechanical governor and the electronically controlled governor differs from each other and suggest the best above suitable governor for the large two stroke diesel engine by their merits and demerits.	**(10)**	**3**	**5**

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