Q. Code:813557

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

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

Second Semester

MR18202 – BASICS OF MARINE ENGINEERING

(Marine Engineering)

(Regulation 2018/2018A)

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

CO 1 At the end of the course, the student will be able to identify the various energy resources available, demonstrate the working principles of various power plants and steam generators / boilers

CO 2 At the end of the course, the student will be able to explain the working of two stroke and four stroke Marine IC Engines

CO 3 At the end of the course, the student will be able to explain the working of a refrigeration unit, air conditioning used in marine field

CO 4 At the end of the course, the student will be able to explain the uses of different metal forming and metal joining processes and their applications

CO 5 At the end of the course, the student will be able to explain the different types of power transmission and Machine tool engineering

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Compare renewable and non-renewable resources.	**1**	**2**
2.	Explain the purpose of an economizer in the thermal power plant .	**1**	**2**
3.	What is the use of a carburetor in a petrol engine?	**2**	**2**
4.	What type of engine is used onboard ships most often and why?	**2**	**2**
5.	What are the conditions considered comfortable in air conditioning for humans?	**3**	**2**
6.	Why is thermoelectric cooling not used widely?	**3**	**2**
7.	Explain briefly the principle behind arc welding	**4**	**2**
8.	What is the importance of the recrystallization temperature?	**4**	**2**

9.		Explain the terms CAD and CAM.	**5**	**2**	
10.		Compare simple and compound gear trains.	**5**	**2**	

PART- B (5 x 14 = 70 Marks)

			Marks	CO	RBT LEVEL
11. (a)	**(i)**	Explain the Babcock and Wilcox boiler with neat sketches.	**(12)**	**1**	**2**
	(ii)	Mention a few features of the modern high pressure boilers.	**(2)**	**1**	**2**
		(OR)			
(b)		Explain in detail the Thermal power plant with neat sketches as appropriate.	**(14)**	**1**	**2**
12. (a)		Compare two stroke and four stroke engines in detail with appropriate drawings.	**(14)**	**2**	**2**
		(OR)			
(b)		Differentiate between petrol engines and diesel engines.	**(14)**	**2**	**2**
13. (a)	**(i)**	Explain the difference and the processes of summer and winter air-conditioning.	**(10)**	**3**	**2**
	(ii)	Explain briefly about thermo-electric cooling and its advantages.	**(4)**	**3**	**2**
		(OR)			
(b)		Explain the vapour compression refrigeration process in detail with a detailed sketch.	**(14)**	**3**	**2**
14. (a)		Explain the forging process in detail with suitable drawings – classify the processes also.	**(14)**	**4**	**2**
		(OR)			
(b)		Explain the gas welding and gas cutting process with suitable sketches.	**(14)**	**4**	**2**
15. (a)	**(i)**	Explain the term CIM and Robot.	**(4)**	**5**	**2**
	(ii)	Explain belt and rope drives and compare them as well .	**(10)**	**5**	**2**
		(OR)			
(b)	**(i)**	Explain the Column and Knee milling machine used in the workshop in detail with parts labeled in a sketch.	**(12)**	**5**	**2**

(ii)	Mention a few operations that can be performed on the column and knee milling machine.	**(2)**	**5**	**2**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	What are the two sources of renewable energies that can be used in Chennai to take the city towards a sustainable future – Explain with justification/ examples.	**(10)**	**1**	**3**

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