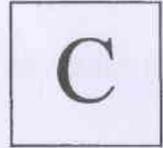


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## ***B.Tech. Degree VIII Semester Special Supplementary Examination in Marine Engineering October 2023***

**19-208-0804 MARINE MACHINERY SYSTEM DESIGN (ELECTIVE 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 design considerations of marine systems.  
 CO2: Gain knowledge regarding marine machinery component design.  
 CO3: Explain the design of power transmission systems and cooling systems.  
 CO4: Understand the design of Lub oil system, Steering gear system and Air starting system.  
 CO5: Gain knowledge on design of fuel systems, steam and gas turbine plants, davits and fire fighting systems.

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 different cold repair procedures used onboard including materials involved in the repair process.	10	L1	1	1.4.1
	(b) Enumerate the advantages and disadvantages of the above process with respect to hot work.	5	L2	1	1.3.1
<b>OR</b>					
II.	(a) Explain different types of machine tolerance with its application.	9	L1	1	1.3.1
	(b) Explain advantages and disadvantages of using cast steel over cast iron.	6	L2	1	1.3.1
III.	(a) Sketch and explain a safety valve. How is it different from relief valve?	10	L2	1	1.3.1
	(b) Explain safety features provided in engine room overhead crane.	5	L1	1	1.3.1
<b>OR</b>					
IV.	(a) Sketch and explain a pressure reducing valve.	10	L1	2	1.3.1
	(b) Explain different design features in a thin shell bearing.	5	L2	2	1.3.1
V.	(a) What are the advantages and disadvantages of plate type heat exchangers over shell and tube type heat exchangers?	9	L1	3	1.4.1
	(b) Explain NPSH with Suction head and lift.	6	L2	3	1.4.1
<b>OR</b>					
VI.	(a) Explain Central cooling Jacket water system with neat sketch.	10	L1	3	1.4.1
	(b) Explain the functions of a stern tube.	5	L2	3	1.4.1
VII.	(a) Explain Propeller drop and Rudder drop with reasons for the same.	8	L1	4	1.4.1
	(b) Explain various safety features provided on an air bottle.	7	L2	3	1.4.1
<b>OR</b>					
VIII.	(a) Explain four ram steering gear with a neat sketch.	10	L2	4	1.3.1
	(b) Explain safety features provided on a main air compressor.	5	L2	4	1.3.1

(P.T.O)

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IX.	(a)	Sketch and explain a valve type fuel pump used on large two stroke marine engines.	10	L2	5	1.3.1
	(b)	Enumerate the statutory requirements regarding Emergency fire pump.	5	L2	5	1.3.1
<b>OR</b>						
X.	(a)	Sketch and explain fire main system used on ships.	10	L1	5	1.3.1
	(b)	Explain the safety features provided on a lifeboat launching system.	5	L1	5	1.3.1

Blooms's Taxonomy Level  
L1 - 46.67%, L2 - 53.33%.

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