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***B.Tech. Degree VI Semester Regular Examination in
Marine Engineering June 2022***

**19-208-0605 MARINE INTERNAL COMBUSTION ENGINES II
(2019 Scheme)**

Time: 3 Hours

Maximum Marks: 60

Course Outcome

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

- CO1: To understand the main propulsion engine maneuvering system, power measurement and lubrication system in detail.
- CO2: Gain knowledge regarding development of different types of engines and automation in marine diesel engines.
- CO3: Explain the maintenance of components of marine diesel engines.
- CO4: Understand about compressed air motors and centrifugal compressors.
- CO5: Gain knowledge on gas turbine and plants.
- Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 – Analyze, L5 – Evaluate, L6 – Create
- PO – Programme Outcome

		(5 × 15 = 75)	Marks	BL	CO	PO
I.	(a)	Explain the procedure for calculation of Indicated horse power of an engine.	5	L2	1	1.4.1
	(b)	What is a light spring diagram? Explain the following with suitable diagram.	10	L2	1	1.4.1
	(i)	Earlier or later opening of exhaust valve opening				
	(ii)	Choked exhaust valve				
	(iii)	Choked silencer.				
OR						
II.		Sketch and describe with suitable sketch the starting and reversing operation of a large 2 stroke marine diesel engine.	15	L2	1	1.4.1
III.		Sketch and describe the operation of a Hydraulic governor with compensating mechanism.	15	L2	2	1.4.1
OR						
IV.	(a)	Sketch and describe a fluid coupling.	8	L2	2	1.4.1
	(b)	What are the improvements made in intelligent engine for increasing TBO?	7	L2	2	1.4.1
V.	(a)	What is the purpose of Tie bolt ? How to check the tightness of the Tie bolt?	8	L1	3	1.4.1
	(b)	What all are the precaution to be taken before carrying out crankshaft deflection?	7	L1	3	1.4.1
OR						
VI.	(a)	What is meant by microbial degradation of lube oil? What is the effect of this on main engine components?	8	L1	3	1.3.1
	(b)	What is Hot and cold corrosion?	7	L1	3	1.3.1

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VII.	(a)	Describe principles of centrifugal compression and pressure rise in centrifugal compressor.	8	L2	4	1.3.1
	(b)	Explain what Pre whirl and Pre whirl vanes.	7	L2	4	1.3.1
OR						
VIII.	(a)	What is Slip and Slip factor in a centrifugal compressor?	8	L2	4	1.3.1
	(b)	Compare between centrifugal compressor and axial compressor	7	L1	4	1.3.1
IX.		Sketch and explain a closed cycle gas turbine. What are the advantages and disadvantages of the same?	15	L1	5	1.3.1
OR						
X.	(a)	Sketch and describe a Free Piston engine Gasifier.	8	L2	5	1.3.1
	(b)	What are the materials of construction of a gas turbine.	7	L1	5	1.3.1

Bloom's Taxonomy Levels
L1 – 39.3%, L2 – 60.7%.
