## **INDIAN MARITIME UNIVERSITY**

(A Central University, Government of India) End Semester Examinations- June-July 2019

## Semester - IV

## B.Tech (Marine Engineering) Marine Boiler Steam Engineering

(UG11T1402 / UG11T2402)

(UG1111402 /	001112402)	
Date: 26-06-2019	19 Maximum Marks: 100	
Time: 3 Hrs	Pass Marks: 50	
<u>PART -</u>	(10x3= 30 Marks)	)
(All Questions are	e compulsory)	
1.(a) How boiler gauge glass is blown	through? (3	3)
(b) List advantages & disadvantages of smoke tube boilers.		3)
(c) Explain the purpose of refractory used in boiler.		3)
(d) Explain pressure jet burner atomiser.		3)
(e) List out mountings fitted on boiler.		3)
(f) Explain any two Non-Destructive tests carried out on boiler plates		3)
(g) Explain the importance of main & thrust bearing of steam turbine.		3)
(h) Explain pressure lubrication of steam turbine.		3)
(i) State reason of warming up a steam turbine plant.		3)
(j) Explain vibration in marine steam turbine.		3)
PART – B	(5x14 = 70  Marks)	
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(Answer any 5 of	the following)	
2. Sketch and describe a waste heat recovery system including an exhaust gas boiler, capable of supplying the auxiliary steam requirement of a motor ship.		s 4)
3. Describe the construction of the dru	ms for a water tube boiler. (14	4)
4. Sketch and describe an improvised high lift safety valve.		4)

- 5. Discuss, with the aid of sketches, the action of a stream of steam as it passes (a) through the moving blades of an impulse turbine, and (b) through the moving blades of a parsons reaction turbine. (7+7 Marks)
- 6. a) Draw a water tube gauge glass for high pressure boiler labelling its various parts and explaining how safety measure is provided in case of breakage of glass? (7 Marks)
  - b) Sketch and describe a pressure jet fuel oil burner explaining how the throughput of oil is controlled. (7 Marks)
- 7. Sketch and describe a lubricating oil system for a typical steam turbine and reduction gear propulsion plant. (14 Marks)
- 8.a)Explain the causes of excessive vibration and low lubricating oil pressure in a steam turbine. (7 Marks)
  - b) Describe four ways of fixing blades to a a impulse turbine rotor explaining the reason for fixing shroud ring and lacing wire. (7 Marks)