

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)

Date: 26-06-2019

Maximum Marks: 100

Time: 3 Hrs

Pass Marks: 50

PART – A

(10x3= 30 Marks)

(All Questions are compulsory)

- 1.(a) How boiler gauge glass is blown through ? (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)

(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 requirements of a motor ship. (14)
3. Describe the construction of the drums for a water tube boiler. (14)
4. Sketch and describe an improvised high lift safety valve. (14)

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)