

# INDIAN MARITIME UNIVERSITY

(A Central University, Government of India)

**End Semester Examination Dec 2019/Jan 2020**

**Post Graduate Diploma in Marine Engineering (PGDME)**

**Semester-II**

**PD11T3206 – Marine Steam Engineering**

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**Date: 12.12.2019**

**Max Marks: 50**

**Time: 2 Hours**

**Pass Marks: 25**

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## **PART – A**

**(5x4= 20 Marks)**

**(All Questions are compulsory)**

1.

- (a) State reason of warming up a steam turbine plant. (4)
- (b) List advantages & disadvantages of smoke tube boilers. (4)
- (c) Explain the purpose of refractory used in boiler. (4)
- (d) Explain any two Non-Destructive tests carried out on boiler plates. (4)
- (e) Explain vibration in marine steam turbine. (4)

## **PART – B**

**(3x10 = 30 Marks)**

**(Answer any 3 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. (10 Marks)
- 3. Discuss, with the aid of sketches, the action of a stream of steam as it passes: (5+5=10 Marks)
  - (a) Through the moving blades of an impulse turbine
  - (b) Through the moving blades of a parsons reaction turbine.
- 4. Describe the construction of the drums for a water tube boiler. (10 Marks)
- 5. Sketch and describe a lubricating oil system for a typical steam turbine and reduction gear propulsion plant. (10 Marks)
- 6. Sketch and describe a turbine drain system and explain why it is necessary to have such an arrangement. (10 Marks)