### **Indian Maritime University**

(A Central University, Govt. Of India)

## End Semester Examination Dec-2019/Jan-2020

## B. Tech (Marine Engineering)

Semester -IV

# Marine Boilers UG11T3401

Date: 30-12-2019 Max Marks: **70**Time: 3 Hrs Pass Marks: **35** 

## <u>Part – A (compulsory)</u> Answer the following (10x2=20 Marks)

- 1. Mention 4 boiler safety devices and its location.
- 2. Explain various types of Atomizers and boiler firing methods.
- 3. Why are boiler manholes elliptical in shape?
- 4. What is the function of a compensating ring fitted to a boiler shell?
- 5. How are Hydraulic tests carried out on Boilers?
- 6. What are super heater and water wall header?
- 7. What is turndown ratio of a burner, Explain with an example?
- 8. What are the functions of steam drum?
- **9.** Explain the Functions of Screen tubes in a water tube boiler.
- 10. What are marine fuels, what is kinematic viscosity?

#### Part - B

### Answer any 5 out of 7 questions (5 x 10 = 50 marks)

- **11** Write short notes on
  - a) Refractory
  - b) Super heater
  - c) Economiser (4+3+3)
- **12** Explain the following.
  - a) Procedure to renew gauge glass
  - b) Procedure to carry out boiler blow down (5+5)
- 13 Explain
  - a) The purpose of boiler survey
  - b) The preparation for a complete Boiler inspection & Survey.

(2+8)

- **14.** Explain the following
  - a) Boiler safety valves
  - b) Main feed check valve (5+5)

- **15**. Pertain to boiler water
  - a) Explain the term Priming and foaming.
  - b) Explain the three element feed water control system with sketch (5+5)
- 16. Explain
  - a) Internal chemical actions of Corrosion and Feed Water Treatment in boilers
  - b) Step to be taken after identification of oil contamination. (5+5)
- 17. Explain all alarms and trips that are associated with boiler operation

(10)

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