

109 /

**INDIAN MARITIME UNIVERSITY**  
(A Central University, Government of India)

May/June 2016 End Semester Examinations  
B.Tech. (Marine Engineering)

Sixth Semester – Marine Internal Combustion Engine- II (UG11T1602/UG11T2602)

Date : 11.06.2016

Max Marks : 100

Time: 3 Hrs

Pass Mark : 50

Part-A  
Compulsory Question

(3 x 10 = 30 Marks)

1. a) Name the two type of engine indicator cards and briefly explain.
- b) What are properties required for cylinder oil in liner lubrication?
- c) Write brief notes a) Response time b) hunting with respect to Governor.
- d) What is the function of additives? Also mention the types of additives used in lubricating oil.
- e) Explain briefly about microbial degradation of fuel in diesel engines.
- f) Which components of a marine diesel engine are subject to "Hot Corrosion" and why?
- g) Explain the significance of "Specific Fuel Oil Consumption".
- h) Explain principle of operation of main engine "Vibration Damper"
- i) Why "Blow Through" is required before starting engine?
- j) Explain "Crash Reversing".

Part - B  
Answer any five of the followings

(5 x 14 = 70 Marks)

- 2) a) For a large two stroke marine diesel engine, what safeties are associated in starting air system.
- b) Why fuel injection timing is required to change during reversing of two stroke diesel engine.
- c) Explain "Lost Motion" mechanism used for above requirement. (6+4+4)
- 3) a) Sketch and describe line diagram of FO system for Main Engine capable of starting on FO.
- b) Explain VIT and FQS. (8+3+3)
- 4) a) Explain Causes of Cylinder liner wear of a large two stroke diesel engine.
- b) Describe how cylinder liner wear is measured and recorded.
- c) Explain Causes of X-Head bearing damage. (4+6+4)
- 5) a) Sketch and explain how an electronic governor works for a Two Stroke Diesel Engine. (8)
- b) Distinguish between isochronous and variable speed governor. (6)
- 6) a) Give advantages and disadvantages of marine gas turbine over marine diesel engine. (6)
- b) State minimum requirement of automation for UMS operation. (8)
- 7) a) Explain "camless concept" for modern diesel engine and its advantages. (6)
- b) Describe with sketch common rail fuel oil system of Sulzer Rt-flex engine. (8)
- Or
- b) Describe with sketch control system of B&W ME engine. (8)
- 8) a) Distinguish between primary and secondary method of NOx emission control.
- b) Explain SCR method for the above.
- c) What is Slow down and Shut Down of Main Engine, Give at least two parameters of Main Engine in each case. (6+4+4)

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