B

B.Tech. Degree V Semester Examination in Marine Engineering December 2018

MRE 1502 MARINE BOILER AND STEAM ENGINEERING
(2013 Scheme)

Time: 3 Hours   Maximum Marks: 100

(5 × 20 = 100)

I.		With regard to keeping the gas side of boilers in good condition discuss each of the following:	(20)
	(i)	The mechanism of combustion, stating the factors which are important to good combustion.	
	(ii)	Oil fuel treatment.	
	(iii)	Soot removal equipment.	

OR

II.		With reference to safety valves fitted to waste heat boilers:	
	(a)	State with reasons the areas which should receive particularly close examination during an inspection.	(10)
	(b)	Describe the procedure you would adopt when setting such valves at sea.	(10)

III.	(a)	Sketch and describe a Scotch composite boiler.	(10)
	(b)	Explain how the water is re-circulated indicating the pressure at various stages.	(10)

OR

IV.		Sketch and describe a Lamont exhaust gas boiler with its connection to auxiliary boiler.	(20)

V.		Sketch and describe a water tube boiler with super heater, air pre-heater etc.	(20)

OR

VI.	(a)	Sketch and describe a boiler burner.	(10)
	(b)	Write short notes on:	(10)
	(i)	Boiler refractory	
	(ii)	Back fire	
	(iii)	Tube leakage and renewals	

VII.	(a)	With reference to turbine protection systems, state reasons when it would be considered necessary to manually trip the main turbines.	(10)
	(b)	State the materials used for turbine components of blade, rotor, castings and gears with reasons to substantiate your answer.	(10)

OR

VIII.		Sketch and describe the general lay out of a modern steam turbine plant including the auxiliaries.	(20)

IX.	(a)	Sketch the constructional details of a condenser to accommodate thermal expansion.	(10)
	(b)	Narrate the planned maintenance procedure of a condenser. How do you locate a leaking tube?	(10)

OR

X.		Describe the various types of condensers used in a steam plant. Sketch and describe a regenerative type condenser and explain its advantages over others.	(20)

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