

--	--	--	--	--	--	--	--

***B.Tech. Degree V Semester Examination in
Marine Engineering December 2019***

**MRE 1505 MARINE AUXILIARY MACHINERY II
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Sketch and describe the operation of a 4 ram electro hydraulic steering gear. (12)
- (b) What are the SOLAS requirement pertaining to the speed of response and angle for this system? (8)
- OR**
- II. (a) Sketch and describe an oil lubricated stern tube system. (10)
- (b) Discuss about various stresses acting on the tail shaft. (10)
- III. (a) Explain the procedure for removal and refitting of a keyless propeller. (15)
- (b) What are the precautions taken while encountering bad weather? (5)
- OR**
- IV. (a) Explain the various machinery related jobs attended during dry docking of a vessel. (10)
- (b) What are the different arrangements used for the hull protection? (10)
- V. (a) Briefly explain the causes for vibration of a ship. (10)
- (b) What is meant by Critical speed of a diesel engine? What are its effects? (10)
- OR**
- VI. (a) What are the causes of torsional vibration on the shafting system of a ship? (10)
- (b) What are the different measures taken to minimise the effect of noise pollution? (10)
- VII. (a) Sketch and describe the operation of an Oily water separator suitable for a dry cargo vessel of 1000 G.T. (15)
- (b) Enumerate the conditions to be satisfied for discharge of treated bilge water into sea. (5)
- OR**
- VIII. Sketch and describe an aerobic type of sewage treatment plant. Briefly explain the discharge procedure for sewage generated onboard. (20)
- IX. What is an additive for lubricating oil? What are the different additives used in a marine lubricating oil? (20)
- OR**
- X. (a) Explain hydro dynamic lubrication process. (10)
- (b) Discuss the importance of lubricating oil analysis. Explain how it will be helpful for the maintenance planning? (10)