

B. Tech Degree V Semester Examination in Marine Engineering December 2011

MRE 505 MARINE AUXILIARY MACHINERY II

Time : 3 Hours

Maximum Marks : 100

- I. (a) Sketch and describe a 2 ram electro hydraulic steering gear and explain why a relief valve is fitted between the two cylinders. (10)
 (b) Sketch and describe a variable delivery pump used in steering system. (10)
- OR**
- II. (a) Sketch and describe a telemotor transmitter receiver system used in steering systems. (10)
 (b) Explain how the hunting gear is working in the steering system. (10)
- III. Explain in detail with a neat sketch how the hydraulically tightened propellers are removed in dry dock using hydraulic pumps. How the propeller drop is measured in dry dock? (20)
- OR**
- IV. Sketch and describe the working of a thrust block and explain how the propeller thrust is transmitted to the ship's hull. (20)
- V. Sketch and describe the working of a sewage treatment plant in a ship. Explain what will happen if untreated sewage is discharged in a closed dock. (20)
- OR**
- VI. (a) Explain with sketches the different types of stabilizers used in ships. (10)
 (b) Explain why bow thrusters are fitted on ships. Sketch and describe a bow thruster fitted on a ship. (10)
- VII. What are the modes of vibration, vibration sources and the effects of vibration on a ship? What is critical speed of an engine and what are the effects if the engine is allowed to run continuously at the critical speed. (20)
- OR**
- VIII. Write short notes on: (20)
 (i) Noise on ships and suppression techniques
 (ii) Anti vibration mountings
 (iii) De-tuners
 (iv) Torsional vibration dampers
- IX. (a) Explain in detail the treatments given to bunker heavy fuel oil on board ship before supplying to the engine fuel pumps. (10)
 (b) What are emulsified fuels and explain the merits and demerits of using emulsified fuels in marine diesel engines. (10)
- OR**
- X. (a) What is hydrodynamic lubrication and how is it different from boundary lubrication? How the lub oil analysis is carried out and what are lub oil additives? (10)
 (b) Explain the reasons for using different types oil for crank case and cylinder oil lubrication and their essential qualities. (10)