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***B.Tech. Degree V Semester Examination in
Marine Engineering December 2017***

MRE 1505 MARINE AUXILIARY MACHINERY II

(2013 Scheme)

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Explain the function of a thrust block and the constructional details of it with the help of neat sketch. (12)
 (b) Describe hunting action of steering gear. (8)
- OR**
- II. (a) Sketch and describe the function and working of a 4-ram steering gear system used on board a ship. (12)
 (b) Briefly describe about the intermediate shaft bearing. (8)
- III. (a) Explain the inspections and checks to be carried out before the vessel entering dry-dock and while un-docking. (10)
 (b) Write short notes on the following: (5 + 5 = 10)
 (i) Bad weather precautions.
 (ii) Bow thrusters.
- OR**
- IV. (a) Sketch and describe a keyless propeller and explain the fitting method. (10)
 (b) Write short notes on the following: (5 + 5 = 10)
 (i) Impressed current cathodic protection of hull.
 (ii) Inspection and survey of lifting equipments.
- V. (a) Explain the various sources of noise on a ship and the suppression techniques. (10)
 (b) Briefly explain the following: (5 + 5 = 10)
 (i) Critical speed.
 (ii) De-tuners.
- OR**
- VI. (a) Explain the sources and effects of various modes of vibrations in a ship. (10)
 (b) Briefly explain the following: (5 + 5 = 10)
 (i) Anti-vibration mountings.
 (ii) Torsional vibration dampers.
- VII. Sketch and describe an oily water separator used onboard a ship. Explain the relevant MARPOL regulations pertaining to engine room and cargo pump room bilges. (20)
- OR**
- VIII. Sketch and describe a typical sewage treatment plant used on board a ship. What are the international regulations governing the treatment and discharge of sewage? (20)
- IX. (a) Discuss the loading pattern and methods of lubrication adopted on various bearings in a large crosshead type marine diesel engine. (15)
 (b) What are the advantages of using different types of lubricating oils for bearing lubrication and liner lubrication in a crosshead type engine? (5)
- OR**
- X. (a) Explain the methods of lubricating oil treatment/purification done onboard a ship. Describe the effects and use of lubricating oil additives. (14)
 (b) Explain how lubricating oil analysis helps in condition monitoring of a diesel engine. (6)