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***B. Tech. Degree VI Semester Examination in  
Marine Engineering June 2015***

**MRE 604 MARINE INTERNAL COMBUSTION ENGINES II**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) Sketch and describe the starting and reversing system of a marine diesel engine. (15)  
 (b) Briefly explain various starting interlocks provided in a main engine. (5)  
**OR**
- II. (a) Sketch and describe the main lubricating system and cylinder lubricating system for a 2-stroke marine diesel engine. (15)  
 (b) Explain the procedure for calculation of indicated horse power of an engine. (5)
- III. (a) Sketch and describe the operation of a hydraulic governor. (15)  
 (b) Explain the term intelligent engines. (5)  
**OR**
- IV. (a) What are the problems faced by usage of poor quality residual fuel in an engine? (15)  
 (b) Briefly explain the methods used for control of NO<sub>x</sub>. (5)
- V. (a) Explain the function of tie bolts. How to check the tightness of these bolts? (10)  
 (b) Briefly describe about the SOLAS requirements for UMS operation of the ships. (10)  
**OR**
- VI. (a) Describe the inspection procedure for a 2 stroke engine piston. What are the calibration measurements taken and recorded? (10)  
 (b) With regard to microbial degradation of lub. oil in the sump, explain the reasons, symptoms, preventive measures and effect. (10)
- VII. Write short notes on the following:  
 (a) Use of compressed air motors on a ship. (7)  
 (b) Multi stage centrifugal compressors. (6)  
 (c) Rotary positive displacement compressor. (7)  
**OR**
- VIII. (a) Sketch and describe a free piston gasifier. (12)  
 (b) Compare this with a conventional air stream combustion chamber. (8)
- IX. Sketch and describe construction and working of a gas turbine plant. (20)  
**OR**
- X. (a) Sketch and describe the Joule – Brayton cycle gas turbine plant. (10)  
 (b) What are the different methods for improvement of thermal efficiency of gas turbine plants? (10)