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*B.Tech. Degree VI Semester Supplementary Examination in  
Marine Engineering May 2017*

**MRE 604 MARINE INTERNAL COMBUSTION ENGINES II**  
(Prior to 2013 Scheme)

Time : 3 Hours

Maximum Marks : 100

(5 × 20 = 100)

- I. (a) Explain the process of starting and reversing of 2-stroke Marine Diesel Engine for propulsion of a ship. (10)
- (b) List out safety interlock and cut outs in the air starting system of marine engine. (10)
- OR**
- II. (a) Describe the method of measuring the liner wear during major overhauling of a Diesel Engine. Indicate with the help of a sketch the areas where maximum and minimum liner wear occurs. (10)
- (b) Discuss the possibilities for excessive liner wear and its harmful effects. (10)
- III. (a) Explain the method of taking indicator card and draw card of Marine Diesel Engine. How do you evaluate the performance of an Engine with the help of a draw card and indicator card? (10)
- (b) Write brief notes on : (10)
- (i) Early injection and late injection of fuel.
- (ii) Detonation in Diesel engine.
- OR**
- IV. (a) What is meant by intelligent engine? (6)
- (b) Discuss the advantages of this engine compared to conventional engine. (7)
- (c) Write note on NoX control in Diesel Engines. (7)
- V. (a) Explain with the help of a sketch the design and constructional details of a main propulsion engine from bedplate to cylinder head. (12)
- (b) Write a short note on critical speed and resonance. (8)
- OR**
- VI. (a) How do you take crank shaft deflection of an engine? Describe the procedure and explain the method of plotting the graph. (10)
- (b) What is the significance of crank shaft deflection in the alignment work? Give your comments. (10)

(P.T.O.)

VII. (a) Sketch and describe the function of a multistage reciprocating air compressor. (10)

(b) Compare the merits and demerits of reciprocating and rotary air compressor. (10)

OR

VIII. (a) Enumerate the requirements of UMS operation of a ship at sea. (11)

(b) With the help of sketch, explain following controls in automation. (9)

(i) Proportional Control.

(ii) Derivative Control.

(iii) Integral Control.

IX. Explain the function of Gas turbine plant showing important parameters. Compare the advantages of Gas turbine over Diesel Engine and its limitations. (20)

OR

X. (a) Sketch and explain Free Piston Engine Gasifier. (10)

(b) Compare Free Piston Engine gasifier with conventional air-steam combustion chamber. (10)

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