B. Tech Degree VI Semester Examination in Marine Engineering, November 2009

MRE 604 MARINE INTERNAL COMBUSTION ENGINES - II

Time : 3 Hours Maximum Marks : 100

I. a. List different safety provisions provided in the starting system of a reversible marine diesel engine. Explain each one of them. (15)

b. Explain the process of Reversing, with regard to a reversible two stroke marine diesel engine. (5)

OR

II. Write short notes on the following:

(i) Test bed and sea trial of diesel engines
(ii) Draw cards and out of phase diagrams
(iii) Use of lub oil analysis reports
(iv) Preventive measures to minimize liner wear. (5 x 4 = 20)

III. What are the consequences of using poor quality residual fuels in marine diesel engines? What are the counter measures taken to minimize them? (20)

OR

IV. Write short notes on the following:

(i) Intelligent engine concept
(ii) Time between overhauls
(iii) New developments in exhaust valve design
(iv) Methods to control NO_x emissions. (4 x 5 = 20)

V. a. What is meant by slip of a crank web? How to identify this? What are the probable reasons for slip? (10)

b. What are the various inspections carried out on a piston and piston rings of a marine diesel engine? What is the importance of recording these datas? (10)

OR

VI. a. What are tie bolts? How to check tightness of these bolts? (10)

b. What is meant by microbial degradation of lub oil? What is the effect of this on engine components? (10)

VII. Sketch and describe a multi stage centrifugal compressor. (20)

OR

VIII. a. Compare between rotory and positive displacement type of compressors. (10)

b. Explain the principle of centrifugal compression. (10)

IX. Describe free piston engine gasifier and conventional air stream combustion chamber. Write briefly on comparison of these two. (20)

OR

X. a. Explain Joule-Brayton cycle. (10)

b. What are the methods of improvement of thermal efficiency and work ratio of Gas turbine plants? (10)

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