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

MRE 504 MARINE INTERNAL CUMBUSTON ENGINES I

Time: 3 Hours | Maximum Marks: 100

(5 × 20 = 100)

I. Explain the timing diagram of 2-stroke and 4-stroke engines. Describe heat balancing and thermal efficiency of a diesel engine.

OR

II. Sketch and describe the functions of a cross head of 2-stroke diesel engine used on board as Main Engine.

III. What are the differences between uniflow scavenging and cross flow scavenging? Describe scavenging arrangement in a 2-stroke diesel engine.

OR

IV. Draw a neat sketch of a Turbocharger Rotor and explain its constructional details.

V. Write notes on:

(i) Fuel injectors
(ii) Atomization
(iii) Ignition delay
(iv) After burning

OR

VI. What are the reasons for variations in compression pressure and peak pressure in 2-stroke diesel engine? Describe the methods of controlling NOX emission in exhaust.

VII. Describe various methods of Piston cooling, Jacket cooling and Cylinder head cooling in an I.C. Engine. Describe the merits and demerits of a plate type and tube type heat exchangers.

OR

VIII. Write notes on:

(i) Uptake fire
(ii) Starting air line explosion
(iii) Stroke-bore ratio
(iv) Thermal stresses in I.C. engine components

IX. Sketch and describe a Jerk type fuel pump. Make comparative study on Jerk type pump and Common rail system.

OR

X. Write notes on:

(i) Viscosity of fuel
(ii) Flash point
(iii) Variable injection timing
(iv) Vibration in I.C. engines

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