BT MRE – VI – 08 – 030

B. Tech Degree VI Semester Examination in Marine Engineering, November 2008

MRE 604 MARINE INTERNAL COMBUSTION ENGINES - II

Time : 3 Hours Maximum Marks : 100

I. Sketch and describe the cylinder lubrication system of a main engine, and what are the qualities required for a good cylinder lubricating oil? Why cylinder lubrication is important in large two stroke diesel engines and how the liner wear is controlled by cylinder lubrication? (20)

OR

II. Explain how the liner wear is measured and recorded during engine overhaul. What are the causes of increased liner wear and what are the dangers if the engine is operated with wear beyond the limit set by the engine manufacturer? (20)

III. What are the different methods of starting a diesel engine? Sketch and describe a main engine starting and reversing system of a large two stroke diesel engine. What are the safety inter locks in the system and what is meant by critical speed? (20)

OR

IV. Describe the method of taking the indicator diagram of a two stroke diesel engine. With the help of an indicator diagram how the following defects can be identified in a two stroke marine diesel engine :

(i)	Early injection	(ii)	Late injection
(iii)	Leaky fuel injector	(iv)	After burning.

(20)

V. Write short notes on *any five* of the following properties of fuel oils :

(i)	Viscosity	(ii)	Specific gravity
(iii)	Calorific value	(iv)	Flash point
(v)	Ignition quality	(vi)	Pour point
(vii)	Carbon residue	(viii)	Chemical composition.

(20)

OR

VI. What are the causes of Crank shaft misalignments? Describe the different methods of measuring Crank shaft alignment and how the readings are recorded. (20)

VII. What are the requirements of UMS operations of ships and explain with the help of sketches the following controls in automation :

(i) Proportional control (ii) Integral control (iii) Derivative control (20)

OR

VIII. Sketch and describe the working principles and operation of a variable speed hydraulic governor and explain what is hunting and speed droop. Why an over speed governor is fitted on diesel engines? (20)

IX. Sketch and describe a rotary type air compressor and compare the same with reciprocating compressor for starting air duties of main engine. Why inter coolers are fitted in an air compressor? (20)

OR

X. Sketch and describe Free Piston Engine gasifier and conventional air-stream combustion chamber. Compare the advantages and disadvantages of these two systems in gas turbines. (20)

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