

Total number of printed pages – 4

B. Tech
CPMR 8304

Sixth Semester Examination – 2008

MARINE INTERNAL COMBUSTION ENGINE – I

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory
and any **five** from the rest.

The figures in the right-hand margin
indicate marks.



1. Answer the following questions : 2 × 10
 - (a) Name the different types of Engine used for Marine propulsion.
 - (b) Differentiate between M.C.R. and C.S.R. rating of I.C. engine.
 - (c) Name the mountings of cylinder head of 4-stroke diesel engine.

- (d) Show the arrangements of tie rod for a 6-cylinder slow speed engine and write the tightening sequence of tie rods.
- (e) Why maintenance of coolants required in engine cooling system ?
- (f) Differentiate between single stage and two stage turbo charger.
- (g) Name the different grades and specifications of fuel oil used for slow speed engine.
- (h) Why bore cooling method is used in liner and cylinder head ?
 - (i) Explain the meaning of C–B–T–H cycle.
 - (j) What are the latest developments in slow speed engine for getting better performance ?
2. (a) Discuss the causes, detection and prevention of scavenge fire in slow speed engine.

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Contd.

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- (b) Explain with sketch the function of Crank-case relief door. 3
3. (a) Explain with sketch a Turbo charger and its details for a medium speed engine. 7
- (b) How the bearings are lubricated for this type of turbo charger ? 3
4. (a) Explain the valve timing diagram for 2-stroke engine. 7
- (b) Differentiate between slow speed and medium speed engine. 3
5. (a) Draw a fuel injector showing each parts used for sulzer engine and what are the maintainance works carried out for the above. 7
- (b) Differentiate between uniflow and loop scavenging system. 3
6. (a) How you will measure compression pressure and peak pressure in a medium speed engine ? 2

- (b) What are the reasons for low compression pressure and peak pressure ? 4
- (c) What are the different methods for controlling NO_x and SO_x from exhaust emission of diesel engine ? 4
7. (a) How the fuels are prepared from tanker tank to fuel injector for efficient combustion ? Explain with block diagram. 7
- (b) Differentiate between ignition delay and after burning in fuel injection system. 3
8. (a) Explain the Joule-Brayton cycle in block diagram used for gas turbine plant. 5
- (b) What are the conditions for getting maximum work output and thermal efficiency for gas turbine plant ? 2
- (c) Explain about free running turbine in gas turbine plant. 3